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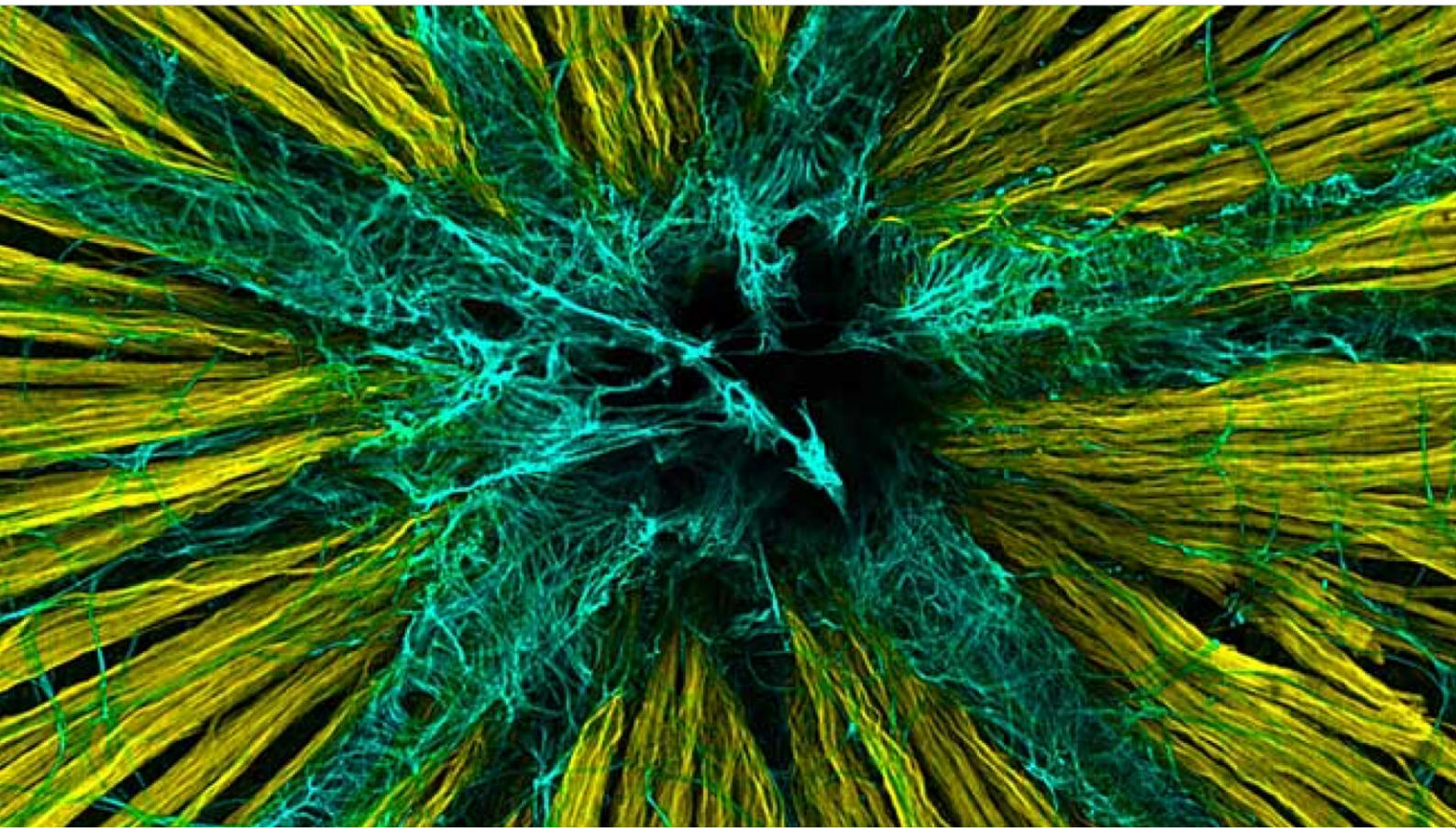

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PROLOGUE

Assalamualaikum wr.wb

Dear Colleagues, It is a great honor for us, Perdosni Semarang, to hold the National Congress of the Indonesian Neurological Association in our beloved city. This National Congress is not only scientific event but also congress of Neurologists throughout Indonesia which is planned to be held on 2 - 6 August 2023.

The National Congress of the Indonesian Neurological Association with the theme "NeuroEngineering Update to Reach Outstanding Neurological Service (NEURON)", will involve a number of experts from both Indonesia and International who are competent in their fields to convey the latest developments and discoveries in neurology. We believe this event will provide a lot of additional knowledge and improve the skills that are useful for all of us.

All committees invite colleagues and sponsors to participate in The National Congress of the Indonesian Neurological Association in Semarang.

We look forward to your presence and participation in Semarang, The venetie van Java!

Wassalamu alaikum warahmatullahi wabarakatuh.

Dr. dr. Retnaningsih, Sp. N, Subsp. NIITCC (K), KIC, M.KM
Chairman of Organizing Committee

Assalamualaikum wr.wb

Dear Professors, Doctors, Seniors and colleagues. Praise and gratitude we pray for the presence of Allah SWT and for the abundance of His grace and gifts to all of us in carrying out our professional duties and working well.As representatives of the President of the Indonesian Neurological Association (PERDOSNI), we welcome you in The National Congress of the Indonesian Neurological Association which will be held on 2 - 6 August 2023, in Semarang.

The theme "NeuroEngineering Update to Reach Outstanding Neurological service (NEURON)" is expected to accommodate neurologists to continue to update their knowledge and skillsbased on the latest research and guidelines through symposiumand workshops. It will certainly be very beneficial for daily practiceand improve the quality of service and competitiveness of Indonesian neurologists.

Through the forum of organizational meetings and sessions, it will further strengthen the bond and organization for the development of Indonesian Neurology in the future. This activity will also be an important milestone in changing the name of the new association.

To all organizing committees and colleagues who support The National Congress of the Indonesian NeurologicalAssociation, we express our deepest gratitude. Let's make The National Congress of the Indonesian Neurological Association a success in Semarang!

Wassalamu alaikum warahmatullahi wabarakatuh.

Dr. dr. Dodik Tugasworo, Sp. N, Subsp. NIIOO (K),M.H.
President of Indonesian Neurological Association

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RECENTS AND EMERGING TREND IN PAIN MANAGEMENT AND THERAPY

Dessy Emril
Department of Neurology, Faculty of Medicine, Syiah Kuala University/Regional General Hospital dr. Zainoel Abidin Banda Aceh, Indonesia

Pain is the main reason why people seek medical care, with 3 of the top 10 reasons being osteoarthritis, back pain, and headaches. As a leading cause of disability, pain interferes with an individual's ability to work and can lead to financial ramifications, including homelessness. Pain affects relationships and self-esteem, and is associated with higher divorce and suicide rates, and an increased risk of substance abuse. The goals of therapy should be tailored towards an improved quality of life, which might be more realistic than meaningful pain reduction. The Global Burden of Disease Study 2016 reaffirmed that the high prominence of pain and pain-related diseases is the lead- in cause of disability and disease burden globally. Prevalence rates of chronic pain vary between 11% and 40%, with a study by CDC estimating the point prevalence at 20·4%. The incidence was calculated in 3.9– 42.0/100,000 person-years for post-herpetic neuralgia; 12.6–28.9/100,000 person-years for trigeminal neuralgia; 15.3–72.3/100,000 person-years for PDN, and 0.2–0.4/100,000 person-years for glossopharyngeal neuralgia. There are several kinds of treatment for pain management including non-pharmacological treatment, Pharmacological Treatment and Interventional Techniques. Non-Pharmacological Treatment were Biofeedback, Relaxation Therapy, Physical and Occupational Therapy, Cognitive/ Behavioral strategies, Transcutaneous Electrical Nerve stimulation. Pharmacological treatment depends on at the site of injury, local anaesthetics, antihistamines, and anti-inflammatory agents can be used for direct pain relief. Opioids and non-opioid drugs including morphine, cannabinoids, COX-2 inhibitors, α2 agonists, gabapentin, acetaminophen, and tricyclic anti- depressants (TCAs) act both peripherally as well as centrally, hence attenuating the transmission of pain signaling. Interventional Techniques consist of Steroid Injection and Neural Blockade; Deep Brain stimulation (DBS); Spinal Cord Stimulation; Percutaneous Neuromodulation Therapy (PENS); Transcranial and Epidural Stimulation; Neuroablative Procedures and Stimulation of DRG and The Peripheral Nerve or Nerve Field.

Keywords: Pain, Pharmacological- Non Pharmachological Treatment, Interventional Treatment

REGULATION AND COMPETENCIES OF NEUROLOGIST'S PAIN MANAGEMENT

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Neurological pain management represents a complex and highly regulated medical domain that requires extensive professional expertise, rigorous institutional oversight, and a multifaceted approach to patient care. The American Board of Psychiatry and Neurology (ABPN) and the American Academy of Neurology (AAN) serve as primary regulatory bodies, establishing comprehensive standards that encompass clinical knowledge, diagnostic expertise, and treatment competencies. Neurologists specializing in pain management must navigate a sophisticated landscape of certification, which includes obtaining a Certificate of Added Qualification (CAQ) in Pain Medicine, demonstrating advanced proficiency through continuous medical education, and maintaining compliance with stringent regulatory requirements from agencies like the Drug Enforcement Administration (DEA) and state medical boards. The core competency framework demands a sophisticated understanding of neuroanatomy, pain pathway mechanisms, and advanced diagnostic techniques, including complex neuroimaging interpretation and electrophysiological assessments. Professional competence extends beyond technical skills to include a holistic, patient-centered approach that integrates comprehensive pain assessment, multimodal treatment planning, and considerations of psychological factors influencing pain perception and management.

Neurologists must demonstrate expertise in interventional procedures such as nerve blocks, neuromodulation techniques, and advanced pharmacological management, while simultaneously adhering to strict controlled substance regulations and prescription monitoring protocols. The evolving landscape of pain management emphasizes precision medicine, incorporating emerging technologies like genetic pain sensitivity screening, pharmacogenomic assessments, and digital pain tracking systems. Ethical considerations remain paramount, with a focus on minimizing opioid dependency, maximizing functional restoration, and adopting a biopsychosocial model of pain assessment that prioritizes patient autonomy and comprehensive care.

Keywords: Pain management, nerve block, precision medicine

CLINICAL PRACTICE AND RESEARCH DEVELOPMENT OF DEMENTIA

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As we can live longer than ever before, the prevalence of dementia has been increasing over decades. Dementia is one of major healthcare problems in the world. Japan is the world's first super-aging society, and approximately 4.6 million people are living with dementia in Japan. From the global point of view, biggest number of demented people live in Asian countries. It is important to promote understanding and awareness of the medical and social impacts of dementia across countries in Asia. In this seminar, I would like to share progress and perspective of clinical practice and research development of dementia with Indonesian neurologists. There are number of risk factors for dementia, which include low opportunity of education, smoking, low physical activity, and life-style-related diseases such as diabetes and hypertension. They are considered to be modifiable; hence, a reduction of risk factors is very important for dementia prevention. As matter of fact, better management of hypertension has substantially reduced the incidence of vascular dementia in Japan. Accurate clinical diagnosis of dementia is important for subsequent therapy and care.

However, previous studies reported that approximately 30% of dementia people were misdiagnosed. To improve diagnosis accuracy, the use of biomarkers is helpful. Particularly, less- invasive blood biomarkers have yielded promising results. We are trying to implement the blood biomarkers in clinical practice of dementia. Recently, a new type of therapy for dementia has been developed. Lecanemab, an antibody against amyloid-beta, has shown the clinical efficacy for early Alzheimer's disease (AD) by phase 3 clinical trial. Lecanemab which exhibits a disease-modifying effect may become a game changer of dementia treatment. Finally, social aspect of dementia should be emphasized in parallel with medical aspect. To support people with dementia, Japanese government has established dementia policy and legislation to create dementia friendly society. Hopefully, this seminar facilitates comprehensive understanding of dementia.

PARKINSON'S DISEASE TREATMENT: PAST, PRESENT, AND FUTURE

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Parkinson's disease is the second most common neurodegenerative disease which prevalence is increased along with increasing elderly population in the world. Parkinson's disease is characterized by the cardinal signs and symptoms including resting tremor, rigidity, bradykinesia, postural instability and several other motor and non-motor symptoms. Motor symptoms result from the degeneration of the dopaminergic nigrostriatal pathway, which is the main function of the basal ganglia. In the early stage of Parkinson's disease, symptoms can be treated with dopamine agonists, MAO-B inhibitors and low doses of levodopa. As the disease progression, additional doses and frequency of antiparkinsonian drugs will be required. However, long-term use of levodopa is associated with motor fluctuations that occur at advanced stage. Currently, several treatments with different mechanisms and techniques are being pursued and developed by researchers to reduce the complications and improve the quality of life of patients. Other treatment options that can be considered include continuous subcutaneous infusion of apomorphine, intra-intestinal infusion of levodopa/carbidopa gel, gene therapy, stem cell therapy and deep brain stimulation. In addition, the management of Parkinson's disease must be done holistically with a multidisciplinary approach according to the stage of the disease.

Keywords: parkinson's disease, treatments

CLINICAL EXPERIENCES ON CLADIBRINE (MAVENCLAD) FOR TREATMENT OF MULTIPLE SCLEROSIS

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Multiple sclerosis is an immune-mediated inflammatory demyelinating disease of the central nervous system. Disease modifying drugs help to minimize long term disability for people with MS by reducing frequency and severity of acute attacks and thus delay the disease progression and improving patient's quality of life. There is growing consensus for disease modifying treatment to be initiated early to reduce disease activity and accumulation of disability. 1 Cladribine is a purine analog which acts as a selective immune reconstitution therapy and does not have the risk of continuous immunosuppression. 2 It is FDA approved at dose 3.5mg/kg given over 2 years in 2 treatment courses and shown to deliver sustained efficacy for 4 years.3 In this session, we discuss the National Neuroscience Institute experience in using Cladribine in MS patient cohort in Singapore.

RECENT ADVANCES IN MANAGEMENT OF MULTIPLE SCLEROSIS

Paulus Sugianto
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Multiple Sclerosis (MS) is an autoimmune disorder characterized by demyelination, axonal loss, and gliosis which leads to disruption of the central nervous system. Typically occur in young adult and mostly women. Multiple Sclerosis has been increasing worldwide which has reached 2,8 million in 2020. Accurate epidemiological data regarding multiple Sclerosis in Indonesia may be underestimated, but the report shows an increase in number.

The signs and symptoms may differ greatly from person to person. In most cases, MS is unpredictable with or without proper medication it can worsen, leading to more severe conditions and sequels. The cause of MS is unknown, but various factors such as genetics, environmental factors, and lifestyle may play a role in its development. Despite current treatments, there is no known cure for Multiple Sclerosis. However, Several barriers and limitations, including economy, logistics, and technology, have made it difficult to treat in Indonesia.

The ultimate goals of treatment for Multiple Sclerosis are to reduce symptoms, relapse, and delay the progression of the disease. One of the new drugs for MS included Disease Modifying Drugs (DMD) is Cladribine. Recent research has shown that Cladribine is highly effective in suprresisng relapse rate of MS and has a manageable safety profile in the short-long-term compared to other medication and injectable treatment ie Fingolimod and interferon-Beta. We hope that better understanding in diagnosis and treatment options will provide the best possible outcome for multiple sclerosis cases in Indonesia.

Keywords: Disease Modifying Drug (DMD), Multiple Sclerosis, Treatment

EFFICACY AND SAFETY OF ORAL THROMBOLYTIC FOR ISCHEMIC STROKE

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Oral thrombolytic therapy for ischemic stroke represents a complex and evolving therapeutic strategy aimed at addressing the critical challenge of rapid and safe cerebrovascular recanalization, with current clinical evidence presenting a nuanced landscape of potential benefits and significant limitations that challenge traditional intravenous thrombolysis paradigms. Contemporary research demonstrates that oral thrombolytic agents face substantial pharmacokinetic and pharmacodynamic barriers, including delayed absorption, variable bioavailability, inconsistent blood-brain barrier penetration, and complex metabolic processing that fundamentally compromise their ability to achieve rapid and reliable clot dissolution within the critical therapeutic window essential for effective stroke intervention. Advanced clinical trials and meta-analyses reveal that oral thrombolytics currently demonstrate limited efficacy compared to established intravenous alternatives like tissue plasminogen activator (tPA), with modest clot resolution rates, significantly prolonged time to therapeutic effect, and potentially increased hemorrhagic transformation risks that substantially mitigate their clinical utility in acute ischemic stroke management.

The safety profile of oral thrombolytics presents additional challenges, including heightened bleeding risks, unpredictable systemic anticoagulation effects, potential interactions with concurrent medications, and variability in individual patient metabolic responses that necessitate comprehensive patient screening, sophisticated risk stratification, and meticulous clinical monitoring. Emerging research explores innovative oral thrombolytic formulations with enhanced molecular structures designed to improve bioavailability, optimize blood-brain barrier penetration, and provide more predictable therapeutic responses, incorporating advanced pharmaceutical technologies like nanoparticle delivery systems, modified molecular configurations, and personalized pharmacogenomic approaches that promise to address current limitations.

Keywords: Oral Thrombolytic, Cerebrovascular recanalization, Ischaemic stroke

LEVETIRACETAM IN STATUS EPILEPTICUS

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Status epilepticus (SE) is a life-threatening neurological emergency characterized by prolonged seizure activity that requires rapid and effective intervention. Traditional antiepileptic drugs often demonstrate limitations in managing refractory cases, necessitating exploration of alternative therapeutic strategies.Levetiracetam demonstrated promising outcomes in SE treatment, with key findings including: Seizure termination rates ranging from 65-78% in refractory status epilepticus; Rapid onset of action (median time to seizure cessation: 8-12 minutes); Favorable safety profile with minimal systemic side effects ; Potential neuroprotective mechanisms beyond seizure suppression; Enhanced efficacy in pediatric and adult patient populations.Levetiracetam emerges as a potentially significant alternative in status epilepticus management, offering rapid seizure control with a superior side effect profile compared to traditional benzodiazepines and phenytoin- based treatments. Further large-scale prospective studies are recommended to establish definitive treatment protocols.

Keywords: Status Epilepticus, Levetiracetam, Antiepileptic Drugs, Seizure Management, Neurological Emergency

MANAGEMENT OF SEIZURE IN INTENSIVE CARE UNIT

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Status epilepticus (SE) is a neurological emergency characterized by prolonged or repetitive seizures lasting ≥5 minutes or recurrent seizures without a return to baseline consciousness between episodes. It is classified into convulsive (CSE) and non-convulsive (NCSE) forms, with CSE being more clinically apparent due to motor manifestations.

SE arises from a failure of the brain's mechanisms to terminate seizures or from excessive excitatory neurotransmitter activity. This imbalance leads to sustained neuronal firing, glutamate excitotoxicity, and a breakdown of the blood-brain barrier. Over time, prolonged seizures can cause irreversible neuronal injury, metabolic derangements, and systemic complications like hypotension, hyperthermia, and multi-organ dysfunction.

The management of SE involves prompt seizure termination, addressing underlying causes, and preventing complications. First-line therapy includes benzodiazepines (e.g., lorazepam or midazolam) administered intravenously. If seizures persist, second-line agents such as phenytoin, fosphenytoin, levetiracetam, or valproate are introduced. Refractory SE, unresponsive to initial treatments, requires anesthetic agents like propofol or midazolam with continuous EEG monitoring. Critical care focuses on maintaining hemodynamic stability, ensuring adequate oxygenation, and treating complications like rhabdomyolysis, acidosis, or sepsis.

Rapid recognition and timely intervention are pivotal in managing SE to mitigate morbidity and mortality. A multidisciplinary approach in the critical care setting is essential to optimize outcomes and reduce the risk of long-term sequelae.

Keywords: Status Epilepticus, Seizure, Critical

INSOMNIA AS COMORBIDITY IN NEUROLOGICAL DISORDER: HOW TO DEAL WITH IT?

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Epidemiological studies show that OSA is an independent stroke predisposing factor. In addition, OSA also increases the risk of stroke through hypertension. The relationship between sleep and stroke besides SDB also includes sleep-wake cycles, such as sleep duration, circadian rhythm disorders, and insomnia. Sleep disturbance alone may precede motor symptoms by years and may represent a negative impact on quality of life and cognition in Parkinson's Disease. Sleep disorders of any type can be an early sign or even contribute directly to the development of dementia, with insomnia being the most frequently discussed in relation to Alzheimer's dementia. Circadian sleep-wake rhythm disturbances are considered an important differential diagnosis in more than one-third of cases of all Traumatic Brain Injury (TBI) patients who experience insomnia. Short sleep duration is associated with an increased risk of hypertension, coronary heart disease, and recurrent acute coronary syndromes, and heart failure. Chronic activation or dysregulation of the the hypothalamic-pituitary-adrenal (HPA) axis can not only increase the risk of CVD but also insulin resistance, diabetes, and mental health disorders such as anxiety and depression. It has been reported the HPA axis plays a role in the pathogenesis of insomnia, and activation of the HPA axis can also lead to the development of the metabolic syndrome.

Keywords: insomnia, stroke, parkinsonism, dementia, comorbidity

SHIFTING PARADIGM IN INSOMNIA DRUG TREATMENT

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Insomnia is the most common sleep disorder and is experienced by approximately 30% of the adult population worldwide. It is characterized by difficulties initiating sleep, frequent awakenings during the night, waking up too early in the morning despite having the opportunity and a conducive sleep environment, and daytime functional impairment. Untreated insomnia can have consequences on physical, mental, emotional health, productivity, academic performance, social impact, economic factors, and other issues. Various theories and conceptual models regarding the pathophysiology of insomnia continue to evolve, and the management of insomnia has undergone a paradigm shift. The pathophysiology of insomnia involves multiple models such as hyperarousal, cognitive models, the role of cytokines, and the influence of genetic factors. The role of Orexin or Hypocretin in the sleep-wake process and in the management of insomnia has gained attention in recent years. Orexin (A and B) is a neuropeptide produced by neurons in the posterior hypothalamus, acting as wake-promoting neuropeptides. Advances in the treatment of insomnia have improved with both pharmacological and non-pharmacological approaches. Cognitive Behavioral Therapy for Insomnia (CBT-I) is a preferred non-pharmacological therapy for insomnia. Pharmacological therapies include Benzodiazepine receptor agonists, Histamine receptor antagonists, Melatonin receptor agonists, and Dual Orexin receptor antagonists. The conventional use of medication for insomnia, especially Benzodiazepines, is debated due to concerns about drug dependence, rebound insomnia, dose tolerance, and side effects. The choice of pharmacological therapy for insomnia is highly individualized, taking into consideration various factors, including the safety and effectiveness of the medication. The U.S. FDA has approved medications with Dual Orexin Receptor Antagonists such as Lemborexant, Daridorexant, Suvorexant, which bind to Orexin receptors (OX1R and OX2R) to address insomnia. Effective management of insomnia requires good collaboration between doctors and patients.

Keywords: paradigm, insomnia, drug treatment, Dual Orexin receptor antagonist

THE NEW ERA OF INSOMNIA TREATMENT WITH LEMBOREXANT IN DAILY PRACTICE

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Insomnia disorder, characterized by difficulty initiating and/or maintaining sleep 3 nights or more per week for 3 months or longer, is prevalent and associated with health risks. Cognitive behavior therapy for insomnia is a first-line insomnia therapy and has been shown to improve sleep. However, pharmacologic treatment may be necessary in cases in which cognitive behavior therapy for insomnia is not effective or not accessible to the patient. Benzodiazepines and other sedative-hypnotic medications are prescribed frequently to treat insomnia. Benzodiazepines and Z drugs are associated with tolerability issues and are not recommended for prolonged use due to adverse psychomotor effects, cognitive symptoms, sleep symptoms that carry forward to the next day and potential for addiction. Adverse effects from these medications may be associated with falls, hip fractures, and risk of unintentional injury in older adults. Dual orexin receptor antagonists (DORA) may provide an alternative to existing treatments. DORA treat insomnia by blocking orexin signals in the brain that are believed to play a role inwakefulness. Lemborexant, a novel dual orexin receptor antagonist, has been proven to provide significant benefit on sleep onset and sleep maintenance in individuals with insomnia disorder and was well tolerated. Lemborexant also causes less postural instability than a commonly used sedative-hypnotic (zolpidem). It also may provide long-term benefits for subjects with insomnia. Lemborexant may be the answer to unmet needs in insomnia treatment.

PERAN VITAMIN B NEUROTROPIK PADA REGENERASI SARAF

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Neurotropic B vitamins have an important role as coenzymes in the nervous system. Vitamins B1 (thiamine), B6 (pyridoxine), and B12 (cobalamin) contribute to maintaining a healthy nervous system. The importance of these B vitamins is evident from the many neurological diseases associated with deficiencies in one or more of these vitamins. Neurotropic B vitamins can also help improve certain neurological conditions that are not accompanied by a deficiency condition. In general, B vitamins constantly protect the nerves against the effects of harmful environmental influences. Vitamin B1 can act as an antioxidant, vitamin B6 balances nerve metabolism, and vitamin B12 maintains the myelin sheath. The presence of vitamins B1, B6, and B12 opens important pathways for the regeneration process by supporting the formation of new cells. In addition, vitamin B1 facilitates the use of carbohydrates for energy production, while the role of vitamin B12 is to increase nerve cell survival and remyelination. The absence of this vitamin will promote permanent nerve degeneration and pain, eventually leading to peripheral neuropathy.

COGNITIVE IMPAIRMENT IN PARKINSON'S DISEASE

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Parkinson's disease (PD) is the second most common neurodegenerative disorder after Alzheimer's (AD). In addition to motor symptoms, PD is associated with a wide range of non- motor symptoms, with cognitive impairment being the most impactful on quality of life and overall functioning. The cognitive continuum in PD includes subjective cognitive decline (SCD), mild cognitive impairment (PD-MCI), and, ultimately, dementia (PDD). Factors contributing include hallucinations, advanced age, the severity of motor symptoms, speech impairment, age at PD onset, bradykinesia severity, higher Hoehn and Yahr stage, axial impairment, low education level, depression, and male gender. Alfa-synucleinopathy, neuroinflammation, along with Denervation in dopaminergic and cholinergic systems play a role in cognitive deficits in PD Accurate diagnosis is crucial for effectively managing cognitive impairment in PD. The Montreal Cognitive Assessment (MoCA) is the most commonly used screening tool, and comprehensive neuropsychological evaluation is needed when the result is inconclusive. Most clinical trials have focused on PDD. The cholinesterase inhibitor rivastigmine has shown positive effects and is approved for treating mild-to-moderate PDD but not PD-MCI. Conversely, medications with anticholinergic properties, including PD anticholinergic medications and particular OTC sleep aids or antihistamines, have been linked to cognitive decline in the general population and PD patients. Non-pharmacological approaches such as cognitive training, physical exercise, and non-invasive brain stimulation have shown short-term benefits for cognitive abilities. Numerous disease- modifying compounds targeting different pathophysiological processes are currently being investigated, although their translation into clinical practice remains a significant challenge in PD research.

Keywords: Cognitive- impairment - Parkinson's Disease

THE ROLE OF DONEPEZIL FOR HYPOACTIVE BPSD

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Alzheimer's disease (AD) is the most common dementia type, accounting on its own for almost 70% of all dementia cases. Behavioral and psychological symptoms (BPSD) frequently occur during the disease progression. BPSD are among the earliest signs and symptoms of neurocognitive disorders, although they fluctuate, their severity exponentially increases over the course of the disease. Neuropsychiatric symptoms are associated with several negative outcomes, such as faster cognitive decline, functional impairment, reduced independence and inability to complete activities of daily living, with progression to more severe stages of dementia and increasing risk for secondary complications such as falls and fractures, causing higher hospitalization rates and eventually early institutionalization. The etiopathogenesis of BPSD is complex as it is probably the result of the interaction of multiple factors, such as biological (brain changes, comorbidities, medications), psychological (personal life history, personality) and social factors (support network, living arrangements) aspects. Consequently, treatment should be guided by comprehensive etiopathogenetic assessment. BPSD can be further defined as two separate categories – "hyperactive" and "hypoactive" symptoms. Hyperactive BPSD includes agitation, irritability, anxiousness, aggression, hallucinations and delusions, while hypoactive BPSD includes apathy, disengagement, poor self-care, and depression. Keszycki (2019) categorized the major hyperactive BPSD domains as HIDA which stands for hyperactivity, irritability, impulsivity, disinhibition, aggression, and agitation Dopenezil (5-10mg/day) in patients with mild to moderate AD were shown statistically significant improvement of behaviour disorders esp. anxiety and apathy. Reynolds et al (2011), study in a clinical trial study, found that donepezil was effective in treating depression in 130 older adults with depression and mild cognitive impairment. There is an important theory about the antidepressant effects of donepezil: this drug follows the Janus-faced (u-shaped) dose-response curve. In other words, this drug shows antidepressant effects at low and usual doses and depression-like effects at higher doses.

Keywords: AD, Hypoactive BPSD, Donepezil

DONEPEZIL FOR ALL STATE ALZHEIMER DISEASE

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Alzheimer's Dementia is an irreversible neurodegenerative disease. The thinning of acetylcholine esterase inhibitor in synapse is the characteristic of Alzheimer's Disease. The decrease of biosynthetic enzyme acetylcholine (Ach) and choline acetyltransferase in the brain area is associated with the cognitive function such as cerebral cortex and hippocampus are characterized by the progressive decrease of cognitive capacity, daily activities, and social function. The role of donepezil in overcoming the Alzheimer's Disease at all stages can be explained through the empirical evidences, pathomechanism, and profile. Donepezil works by binding ACh reversibly, inhibiting hydrolysis of Ach, and improving the bioavailability of neurotransmitter at the neural synapse. Donepezil has been proven to have impact on the biomarkers of Alzheimer's disease, such as hippocampus atrophy, neuritic plaque (Aβ pathology), and neurofibrillary tangles (tau pathology). The therapeutic response of donepezil is influenced by the polymorphism of apolipoprotein E or cytochrome P45o 2D6. Donepezil is recommended as the most prospective alternative therapy. The administration has been proven to slower the cognitive decline and improve the behavioral disorder at all levels of Alzheimer's disease severity, whether it is mild, moderate, or severe. donepezil may be effective for mild to moderate Alzheimer's disease and probably also effective for severe Alzheimer disease.

Keywords: Alzheimer's disease,all stage, acetylcholinesterase inhibitor, donepezil

NEW GUIDELINE: THROMBECTOMY IN LARGE VESSEL OCCLUSION 6-24 HOURS USING PENUMBRA RED ASPIRATION CATHETER

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Stroke is a major contributor to disability and mortality rates all around the globe. Acute ischemic stroke (AIS) characterized by large vessel occlusion (LVO) is associated with a poor outcome. Mechanical thrombectomy (MT) has been demonstrated as a highly beneficial treatment for LVO patients and quickly surpassed the standard of care. This procedure has been supported by clinical trials for years. The 2018 DAWN and DEFUSE 3 studies showed that MT is efficacious beyond 6 hours onset in the LVO of anterior circulation and through 24 hours assigned by functional neuroimaging. The most recent trial in 2023, MR CLEAN-LATE, evidenced that MT is safe and effective in 6-24 hours after symptom onset or last seen well following selecting upon the existence of collateral flow. Furthermore, devices and techniques of MT have become increasingly prevalent in the years after the pivotal thrombectomy studies to elevate the rate of safety and effectiveness while decreasing the number of necessary passes. In terms of aspiration thrombectomy, the primary objective is to develop the most feasible aspiration catheter that can be safely guided through the cerebral arteries. Penumbra's RED® reperfusion is a next-generation neuroembolectomy catheter with enhanced trackability and aspiration efficiency, allowing for more precise clot navigation and more effective first-pass thrombus removal. According to the INSIGHT Registry, 68.9% of patients had effective first-pass revascularization (mTICI2b-3) and 97% experienced successful revascularization after the final angiography. However, due to the paucity of supporting evidences for its efficacy and safety, randomized trials will be mandatory.

Keywords: aspiration, penumbra, thrombectomy

TIA AND STROKE OF THE EYE: INTRAVENOUS THROMBOLYSIS AND NEUROINTERVENTION PROCEDURE APPROACH

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Ischemic eye stroke is an emergency condition in which blood flow to the eye is disrupted, which causes damage to the retinal tissue of the eye. This is known as a central retinal artery occlusion. Although it is a rare case it requires special attention as it can result in partial or complete loss of vision, depending on the severity of the attack. Several risk factors for retinal occlusion include carotid artery disease, smoking, hypertension, and diabetes mellitus. As in cerebral stroke, specific treatment can be done with intravenous thrombolysis (IVT) or neurointervention in the form of intraarterial thrombolysis (IAT) or mechanical thrombectomy. This action can help increase perfusion thereby reducing damage to eye tissue. IVT recommendations are performed less than 4.5 hours from the onset of symptoms. For neurointervention measures, namely intraarterial thrombolysis or mechanical thrombectomy, it is a further option that can be performed within 24 hours of onset.

Keywords: Stroke of the eye, blindness, intravenous thrombolysis, intraarterial thrombolysis/mechanical trombectomy

NEUROPROTECTION IN TRAUMATIC BRAIN INJURY

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Traumatic brain injury (TBI), which mainly occurs in the young age group, causes high levels of disability and death. Disabilities that occur after traumatic events can reduce the patient's quality of life so that prompt and accurate management is necessary needed. In head trauma, there will be primary injury (at te moment) and secondary injury (immediately after injury). Secondary injuries can last weeks to months after the trauma occurs. To minimize secondary brain injury we have to understand the pathomechanism of the injury, so that every treatment effort can be carried out in accordance with the process of occurrence of pathological conditions.

One of the efforts to manage traumatic brain injury in the secondary injury phase is to carry out Neuroprotection, efforts to protect brain tissue from the effects of trauma. One of the Neuroprotection efforts is to provide medication which is expected to be able to provide this protective effect so that it can prevent, reduce and also repair brain tissue that has been injured due to trauma. Efforts to protect brain tissue from damage caused by trauma need to be continuously developed so that it can provide a better outcome in patients who had experience of Traumatic Brain Injury.

Keywords: Traumatic Brain Injury, Management, Neuroprotection

SPORT RELATED TRAUMATIC BRAIN INJURY

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Catastrophic brain injuries at all levels of play have highlighted some of the well-publicized coverage of this issue. Brain injury have made the most profound impact on neurologic sports medicine lately. Persons engaged in certain sports are especially vulnerable, and an estimated 1.6–3.8 million sports-related traumatic brain injury occurring annually.

Mechanism of traumatic brain injury include primary and secondary injury. The primary injury may be associated with structural changes resulting from mechanical forces initially applied during injury. The secondary injury mechanisms include generation of free radicals, excitotoxicity, disturbance of ionic homeo- stasis, disruption of the blood–brain barrier, generation of nitric oxide, lipid peroxidation, mitochondrial dysfunction and energy failure, inflammation, secondary haemorrhage, axonal disruption, apoptotic cell death, and ischemia. Ischemia may be due to microvascular changes, systemic hypotension or hypoxia, or elevated intracranial pressure.

Concussions are one of the most complex injuries to diagnose, assess, and manage in sports medicine. Common symptoms reported in the first 24 hours include headache, dizziness, imbalance, nausea, fatigue, blurred vision, sensitivity to light and noise, confusion, and memory impairment. Over several days, additional symptoms of sleep disturbance, irritability, anxiety, and nervousness. Athletes suspected of concussion are removed from play for assessment and must follow return-to-play protocol before back to the previous level of sport. Sport brain related injury can be prevented and can be managed by both pharmacological and non-pharmacological approaches. Neuroprotective strategies have benefit to induce neuroprotection and neuroplasticity.

Keywords: brain injury, sport, neuroprotective

ADVANCING MR SPECTROSCOPY WITH AI; EXPANDING INSIGHT INTO METABOLIC INFORMATION IN VARIOUS BRAIN DISORDERS

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Introduction: Magnetic Resonance Spectroscopy (MRS) offers ~20 metabolites' information from the human brain. However, its clinical applications have limitations due to varying results depending on data quality and analysis software choice. This study applies advanced deep learning (DL) techniques to quantify brain MRS metabolites, demonstrating its potential in large scale multicenter studies and brain disease diagnosis.

Methods: MRS data were acquired using a standard 3.0T MRI scanner protocol. This study utilized a large scale deep artificial neural network (DNN), trained on ~10 million synthesized brain MRS datasets. The DNN was empirically verified with (1) multi-center MRS data from 19 institutions,

(2) complex brain metabolic changes depending on chronological age in healthy adults(N=125) and (3) classifying the presence/absence of IDH1/2-somatic mutation in brain tumor patients(N=13).

Results: In the analysis of 17 brain metabolites using the multi-center MRS dataset, the DL-based method achieved a coefficient of variance (CV%) much lower (10.03%) than that of the conventional analysis (35.7%). In the result of chronological aging, 9 metabolites showed statistically significant changes in the DL-based method, whereas the conventional analysis only detected changes in 3 metabolites. Lastly, in the classification of the presence/absence of IDH1/2 mutations in brain tumor patients, the DL-based method achieved an AUC area of 0.98 (p-value = 0.004).

Discussion: This study demonstrates the potential for clinical application of brain metabolite analysis based on DL and provides harmonized results in multicenter study, suggesting its utility in the diagnosis of various metabolite-related brain diseases.

Keywords: Magnetic Resonance Spectroscopy, Deep Learning, Metabolites, Brain

DEGENERATIVE PROCESSES IN THE CENTRAL NERVOUS SYSTEM (CNS) AND CLINICAL IMPLICATIONS IN ELDERLY

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Neurodegenerative diseases (NDD) are pathological conditions that originate from progressive and irreversible chronic dysfunction and loss of neurons and are present in certain areas of the nervous system that determine the clinical presentation and course. Eight hallmarks of NDD are pathological protein aggregation, synaptic and neuronal network dysfunction, aberrant proteostasis, cytoskeletal abnormalities, altered risiko homeostasis, DNA and RNA defects, inflammation, and neuronal cell death. Classification of neurodegenerative diseases is based on: 1. Clinical symptoms determined by the anatomic region showing neuronal dysfunction 2. Proteins showing various biochemical modifications and accumulating in neurons or glial cells (intracellular), or in extracellular locations. The cause of neurodegenerative disease is unknown but is associated with multiple risk factors. Aging is a mayor risk factor for neurodegenerative diseases. The incidence of these neurodegenerative diseases increases in old age. The manifestations of neurodegenerative diseases in the elderly occur 22uet o the formation of pathogenic protein that arise in the interaction of several risk factors such as genetics, environment and excessive accumulation of senescent cells in the CNS. This paper discusses degenerative process in the CNS, the hallmarks, their biomarkers, to study NDDs using a holistic approach. This paper also discusses the hallmarks of aging,marker of cellular senescence, their role in the pathogenesis of NDDs in elderly, especially in Alzheimer disease (AD) and Parkinson's disease (PD). This understanding helps us design targeted therapies to achieve optimal result.

Keywords: Neurodegeneration, cellular senescence, elderly

PHARMACOLOGICAL APPROACH TO THE ELDERLY WITH COGNITIVE AND BEHAVIORAL DISORDERS

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In the elderly, cognitive and behavioral disorders appear in dementia diseases that have behavioral or neuropsychiatric symptoms. This condition is better known as Behavioral and Psychological Symptoms of Dementia (BPSD)/ Neuropsychiatric Symptoms (NPS). The prevalence of Dementia increases with age, and is one of the leading causes of dependency and disability in elderly people. There are a variety of behavioral symptoms in patients with dementia, including emotional disturbances, delusions, perceptual disturbances, motor function disorders, circadian cycle disorders and eating disorders. Currently there are no standardized guidelines and algorithms regarding pharmacological management in BPSD/NPS so the therapy is based on consideration of benefits and risks in each individual. The types of drugs that can be used in BPSD/NPS are cognitive enhancers, antipsychotics, antidepressants, benzodiazepines, anticonvulsants/ mood stabilizers and other groups of drugs such as melatonin, Dextromethorphan/ Quinidine, prazosin, methylphenidate, cannabinoids, and ginko biloba. Elderly patients have a tendency to receive polypharmacy because they have other diseases, so it is necessary to pay attention to drug interactions.

DEMOGRAPHIC CHARACTERISTIC OF PATIENT WITH METB IN H. ADAM MALIK HOSPITAL

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Background: Tuberculous meningitis (TBM) is the most severe form of extrapulmonary tuberculosis.

AIM: We establish the epidemiology of METB in H. Adam Malik Hospital.

Methods: We conducted a prospective study on adult TBM between January 2018 and May 2023. The following groups of variable were assessed: sociodemographic data, medical antecedents, clinical presentation, imaging study results analyses, cerebrospinal fluid microbiology, and outcome.

Results: 94 patient with TBM were included; 36 of 94 (38,8%) died during in hospital care. The demographic characteristics of the subjects are; average age

was 37,5 years old, the majority of education level was Senior High School (57,4%), and the occupation was officer (39,4%). Most of subject have a history of tuberculous infection (61,7%), HIV infection (7,4%), advanced stages (74,4%), and hydrocephalus (60,6%).

Conclusion: METB is a rare but still serious disease and one that is associated with high mortality and morbidity. These findings emphasize the need quickly to diagnose and early treatment METB patient.

Keywords: Tuberculous meningitis, In-hospital mortality, epidemiology

THE ROLE OF GOOD EVIDENCE TO STRENGTHEN GERIATRIC SERVICE POLICIES

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Even though research in Neurology and Neuroscience is overgrowing, the discoveries of biomarkers and new drugs in geriatrics, especially neuro geriatrics, still need to be improved. The existence of discoveries does not necessarily apply in everyday practice in Indonesia. Evidence- based policies and following Indonesia's conditions are urgently needed. Practical inventions that come from developed countries, not all of them, can be useful. This is due to factors of different socioeconomic levels and cultures. This paper will discuss the importance of scientific evidence in formulating policies related to diagnosis and geriatric services in Indonesia.

REVIEW FROM LEGAL/LEGAL ASPECTS

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Advances in technology are growing rapidly. Likewise, technology in the medical field is starting to change from conventional face-to-face consultations to online consultations. Such changes do not make online consultations superior to conventional consultations. There are several drawbacks such as only minor illnesses that online consultations can do, no in-person examinations are carried out, and only consultations can be made. In addition to these drawbacks, the advantages are that it can be done simply with a mobile phone and already has several discussions on legal aspects, namely the Medical Practice Law, the Technology & Information Law, the Health Law, and the Consumer Protection Law.

Keywords: online consultation, legal aspect, doctor

SLEEP DISTURBANCE ASSOCIATED WITH AGITATION AND AGGRESSIVE BEHAVIOUR IN AD – WHAT IS THE ROLE OF MEMANTINE

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Alzheimer's dementia (AD) is a chronic progressive neurodegenerative disease. Current evidences have proven the correlation between sleep disturbance associated with agitation and aggression and AD pathophysiology. The increasing inflammation that leads to the increased accumulation of beta-amyloid and tau as well as the increase of neurodegenerative cascades resulting from the glymphatic system damage that serves to cleanse the brain from neurotoxic products such as Aβ42 during the night sleep have led to the risk of behavioral disorders of agitation, aggression, and sleep disturbance. Sleep disturbance, agitation, and aggression increase the severity of AD dan Behavioral Psychophysical Symptoms of Dementia (BPSD) significantly and independently.

The role of memantine serves to protect the neurons from excessive glutamate-stimulated excitotoxicity. The administration of memantine to the agitation group and non-agitation group has improved cognitive function and decreased the BPSD score. Memantine administered at night has more beneficial effects on sleep quality improvement than administered in the morning. It also prolongs the total sleep time, decreases the sleep interruption rate, improves sleep efficiency, reduces phase 1 NREM duration, prolongs phase II NREM, and decreases the PLMS rate. Memantine can reverse the reduced dopaminergic function that can be effective in reducing Periodic Limb Movement Syndrome (PLMS), reducing sleep fragmentation, and improving BPSD. The improvement of psychological symptoms can result in longer sleep time and shorter sleep latency. It is also well tolerated.

SINGLE PILL COMBINATION (SPC) FOR MANAGEMENT BP VARIATION RELATED TO COGNITION

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Hypertension is considered one of the leading causes of morbidity and mortality worldwide, and the brain is one of the main target organs subjected to detrimental dysfunctions caused by high blood pressure. Indeed, hypertension is also the leading risk factor for acute cerebrovascular events like stroke, but it is also known to be the cause for chronic disorders severely affecting cognitive function, i.e., vascular cognitive impairment (VCI) as well as dementia Alzheimer.

Data form basic health research 2018 showed that only 8.8% of the population in Indonesia was diagnosed with hypertension and only 50% were taking medication regularly. Data from the Healthy Indonesia Program with a Family Approach (PIS-PK) 2022, only 27.2% of people with hypertension who have regular treatment.

There are meta-analyses study have reported associations of high blood pressure variability (BPV) with stroke and cerebral small vessel disease (CSVD), underscoring the importance of BPV to brain health. The importance of dynamic changes in BP level in cerebrovascular disease has been supported by several observations. Past studies have focused on the effect of circadian BP variation, such as nocturnal BP dipping or non- dipping, and both patterns had adverse effects on brain health. Non-dippers are defined as night BP decrease <10% of the day- time level and showed more frequent silent cerebral infarction than dippers, with a night BP decrease >10%. In contrast, the very large nocturnal BP decrease of an extreme dipper could induce cerebral vascular insufficiency. High variability of night SBP was associated with GM volume atrophy, especially temporal GM atrophy. Furthermore, the increase in night systolic BPV was associated with a greater decline in visual delayed recall memory and verbal fluency for category.

The 2018 ESH/ ESC Guidelines favoured the use of combinations of two antihypertensive drugs in a single pill (SPC), because reducing the number of pills to be taken daily improves adherence and increases the rate of BP control, also manage better in BPV. Therefore Treatment with single-pill combinations, is the emerging best practice for safe, effective, rapid, and convenient hypertension control. It improves the availability, affordability, adherence and control of arterial hypertension, which will reflect in reduction of the cardio and cerebrovascular events, and also can prevent cognitive decline.

Keywords: Hypertension, Blood pressure variability, cognitive decline, single pill combination

PATHOGENESIS OF SMALL VESSEL DISEASE (SVD) RELATED TO COGNITIVE IMPAIREMENT

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Background: The term of Cerebral Small Vessel Diase (CSVD) refers to a group of pathological processes that affect the small arteries, arterioles, venules, and capillaries of the brain. SVD is assessed via magnetic resonance imaging (MRI), and typical imaging markers include white matter hyperintensities (WMH), lacunar infarcts, and cerebral microbleeds (CMB), among other markers. Although the course of the disease may be invisible, SVD lesions can accumulate over time in the brain parenchyma, increasing the risk of developing cognitive impairment.

Discussion: Small Vessel Disease is a common clinical, imaging, and pathologic syndrome involving small perforating arteries, arterioles, capillaries, and venules 31ontri a significant marker of cerebrovascular disease. Small vessels originate from cerebral arteries, including small terminal arteries, arterioles, arteriovenous anastomoses, capillaries, micro veins, and terminal venules. Several human studies have identified a variety of clinical manifestations of SVD including ischemic or hemorrhagic stroke, cognitive impairment, dementia, abnormal gait, and mental disorders. Healthy endothelial cells control vascular permeability to components in the plasma, limit platelet and leukocyte aggregation, and regulate vascular tone, all of which are important if blood flow is to match metabolic demands. Inflammatory markers have been associated with periventricular white matter hyperintensities (WMH), the main MRI sign of SVD in the brain.

Conclusion: Cerebral Small Vessel Disease is a common contributor to stroke, functional decline, VCI (Vascular Cognitive Impairment), and dementia. Although the pathogenesis varies, CVSD has similar neuroimaging markers that can be used as the basis for etiological analysis. This neuroimaging marker provides new opportunities for evaluation of the relationship between CSVD and cognitive impairment.

Keywords: Cerebral Small Vessel Disease (CSVD), Cognitive impairment

MANAGEMENT OF CHRONIC INFLAMMATORY PAIN: FOCUSING ON OSTEOARTHRITIS

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Chronic inflammatory pain (CIP) can be caused by peripheral tissue injury/inflammation. Patients with chronic inflammatory joint illnesses may experience various symptoms, sometimes accompanied by neuropathic characteristics (such as radiating pain, burning, or tingling sensations) and frequently with fibromyalgia-like "centralization" symptoms. One of the illnesses connected to CIP is osteoarthritis (OA). OA is a chronic and degenerative disorder characterized by the loss of articular cartilage, subchondral bone sclerosis, and changes in the structure of the synovial membrane and joint capsule. Significant risk factors for OA include aging, genetic mutations, trauma, obesity, hormones, and local biomechanical factors.

The optimal management of OA involves a combination of pharmacologic and non-pharmacologic therapies. Pharmacological approaches encompass analgesics, intraarticular glucocorticoids, monoclonal antibodies, visco-supplement, and surgery. Furthermore, non-pharmacological interventions such as physical therapy, cognitive-behavioral therapy, and complementary modalities contribute to the holistic management of OA.

The recommended pharmacological treatment for OA is nonsteroidal anti-inflammatory drugs. The selective NSAIDs are more effective in inhibiting inflammatory pain than non-selective NSAIDs, especially the COX2 inhibitor. COX2 is induced in response to various inflammatory and physiological stimuli and growth factors. 32ai n crucial in synthesizing prostaglandins that contribute 32ai non mediation and facilitate the inflammatory process. Etoricoxib is one of the selective COX-2 inhibitors among NSAIDs.

In conclusion, healthcare practitioners can offer personalized and effective therapies that consider each patient's unique needs. This approach can potentially optimize treatment outcomes and alleviate the burden of chronic inflammatory 32ai non affected individuals.

THE ROLE OF PLATELET RICH PLASMA FOR KNEE OSTEOARTHRITIS

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Knee osteoarthritis (KOA) is one of diseases might causes chronic pain. KOA is still a worldwide problem. KOA causes stiffness of knee joint, decreases quality of life, sleep deprivation, anxiety, depression, loss of ability to carry out daily activities in patients with KOA, and further KOA impacts the financial and social burden of patients with KOA, their families and the country. Many treatment options can be given to patients with KOA, ranging from pharmacological, non-pharmacological and surgical treatment. Currently regenerative treatment for knee OA is attracting a lot of interest, one of this regenerative treatment is Platelet Rich Plasma (PRP). In daily practice, neurologists often see patients with KOA. Neurologists need to know the existing drug developments including regenerative treatments such as PRP to treat KOA. Our paper will discuss the role of PRP, as one of regenerative medicine, to treat patients with KOA.

Keywords: chronic pain, regenerative medicine, Platelet Rich Plasma, PRP

HEADACHE IN EMERGENCY SETTING

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Headache is a common complaint among patients in the neurology clinic. Headaches presenting to the emergency department account for 4%. The cause of headaches presenting to the emergency department must be identified to provide appropriate management. Primary recurrent headaches with exacerbations often present to the emergency department. The main objectives in the emergency department are: 1. Establishing an accurate diagnosis, 2. Ruling out secondary headache diagnoses such as infection, tumors, and strokes, 3. Initiating appropriate abortive therapy based on the diagnosis, 4. Planning therapy and other management after the patient leaves the hospital, 5. Referring to a more specialized headache center for better treatment.

Headaches presenting to the emergency department must be differentiated as either primary or secondary headaches. For this purpose, a thorough medical history is necessary, evaluating the SNOOP10 symptoms. SNOOP10 symptoms indicate that the headache is secondary, requiring prompt and accurate management.

A common primary headache seen in the emergency department is migraine status, characterized by migraine headaches with or without aura lasting > 72 hours. Thunderclap headache is a sudden and severe headache with a peak within minutes. Thunderclap headaches can be benign (primary headache) or secondary. The most common causes of thunderclap headaches are subarachnoid hemorrhage and reversible cerebral vasoconstriction syndrome (RCVS).

The initial treatment for patients with headaches presenting to the emergency department is symptomatic therapy, followed by addressing the cause once the diagnosis is established based on diagnostic test results.

Keywords: Emergency department, headache, migraine status, thunderclap headache

THE ROLE OF CGRP IN MIGRAINE: WHAT WE HAVE LEARNED?

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Calcitonin is mainly produced by thyroid divided into 1).CGRP-alpha (CGRP1) (consisting of calcitonin, amylin, adrenomedullin, adrenomedullin 2 (intermedin), calcitonin-receptor- stimulating peptide and 2). CGRP-beta (CGRP2): (consist calcitonin (CT), adrenomedullin (AM), and amylin (AMY). CGRP is secreted and stored in vesicles in the sensory nerve terminals (primarily localized to C and Aδ sensory fibers) and trigeminal axons discharge CGRP into meninges blood vessels, It is a potent peptide vasodilator and can function in the transmission of nociception.

CGRP has been detected in increased amounts in external jugular venous blood during migraine attacks. However, 35 tis unknown whether this is secondary in migraine or whether, CGRP may cause headache. That was evidence the increase in CGRP observed during spontaneous migraine attacks play a causative role. CGRP dilated the extracranial part of the middle meningeal artery (MMA), but did not dilate the MCA.

Migraine is a neurovascular disorder associated with dysfunction of the cerebral nerves and blood vessels (neurogenic inflammation + vasodilatation). CGRP plays an essential role in the pathophysiology of migraine.

Keywords: CGRP, migraine pathophysiology, vaso dilatation, neurogenic inflammation

MIXED PAIN TREATMENT IN CANCER PAIN PATIENT

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Cancer pain is a complex phenomenon. Cancer pain can be one of the most distressing and frightening symptoms for individuals with cancer. This phenomenon is complex because it can be influenced by many different factors, including the type of cancer, cancer stage, tumor location, treatments received, individual pain responses, and psychological factors. The management of cancer pain involves a multidisciplinary approach that includes various treatment methods, such as the use of pain-relieving medications (analgesics), physical therapy, radiation therapy, hormone therapy, psychological therapy, and surgical interventions if necessary. A medical team consisting of doctors, nurses, and other specialists work together to evaluate and address cancer pain on an individual basis, with the goal of reducing pain and improving the patient's quality of life. With the advancement of medical science and technology, more cancer patients are living longer. Unfortunately many of them experience persistent chronic pain. The management of mixed pain in cancer involves a comprehensive approach that combines strategies to address both nociceptive and neuropathic components of pain. Analgesics and anti inflammatory drugs still the cornerstone for nociceptive pain therapy while opioid analgesics can be used for more severe pain. Additionally, adjuvant medications such as anticonvulsants, antidepressants, and topical agents like lidocaine patches or capsaicin creams may be utilized to target neuropathic pain. A multidisciplinary team, including physicians, pain specialists, oncologists, nurses, and psychologists, can work together to develop a

comprehensive pain management plan for each patient. Vitamin medications such as vitamins B1, B6, and B12 groups have been shown in several studies to have anti-nociceptive and anti-neuropathic effects, and can be considered as adjuvant therapy for cancer pain patients. It's important to note that the management of mixed cancer pain should be personalized, with treatment plans tailored to each individual's specific needs and preferences. A multidisciplinary team, including physicians, pain specialists, oncologists, nurses, and psychologists, can work together to develop a comprehensive pain management plan for each patient.

Keywords: cancer pain, management, mixed pain, cancer patient

NON-DOPAMINERGIC THERAPY IN PARKINSON'S DISEASE

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Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by decreased dopamine in the central nervous system. Dopaminergic therapies, such as levodopa, have become the standard of care in managing the motor symptoms of PD. However, these treatments are often accompanied by side effects such as dyskinesia and motor fluctuations.

Non-dopaminergic therapy has become a focus in managing Parkinson's disease (PD) to overcome the limitations of dopaminergic therapy. Non-dopaminergic therapies target other neurotransmitter pathways, such as adenosine, glutamate, adrenergic, and serotonin, and involve neuroprotective mechanisms. This approach aims to reduce motor and non-motor symptoms and side effects and prolong the effectiveness of therapy.

In managing the motor complications of wearing off in PD, recent studies have shown adenosine A2A antagonists and monoamine-B inhibitor (MAO-BI) combinations with glutamate release agents as non-dopaminergic therapy options. Adenosine A2A antagonists work by modulating presynaptic and postsynaptic dopamine neurotransmission, reducing motor fluctuations and dyskinesia without affecting dopamine levels. Meanwhile, selective and reversible MAO-B inhibitors can increase extracellular dopamine levels and reduce motor fluctuations, affecting motor and non-motor symptoms. Safinamide is a selective and reversible monoamine oxidase-B (MAO-B) inhibitor. MAO-B inhibition results in increased extracellular dopamine levels, which contributes to the antiparkinsonian effect of safinamide. In addition, safinamide has an additional mechanism of action through the modulation of sodium and glutamate ion channels, which impacts the non-motor symptoms of PD.

Non-selective N-methyl D-aspartate (NMDA) antagonists, and serotonergic agents, are non- dopaminergic therapeutic options for managing the motor complications of dyskinesia in Parkinson's disease (PD). Overall, non-dopaminergic therapies offer the potential reduction of symptoms and motor complications in PD to improve the quality of life of PD patients. Further research is needed to evaluate long-term effects and optimize strategies for non-dopaminergic therapies in managing Parkinson's disease.

ACUTE UNILATERAL VESTIBULOPATHY (AUVP): NEW CRITERIA DIAGNOSTIC AND TREATMENT

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Vertigo is a sensation of self-movement, either head or body, when finansial self-movement occurs or vertigo is a distorted-sensation of self-movement during normal head movement. Vertigo can be categorized into peripheral and central vertigo. One of peripheral vertigo is Acute Unilateral Vestibulopathy (AUVP). AUVP is still as a worldwide problem. AUVP might disrupt the sufferer's quality of life and cause finansial and social disruption. Doctors, especially neurologists, often see patients with AUVP in their daily practice. An understanding of the diagnostic and treatment criteria of AUV is important for doctors in providing treatment for patients with AUVP. Our paper will discuss the current diagnostic and treatment criteria for AUVP.

Keywords: Acute Unilateral Vestibulopathy, AUVP, diagnostic, treatment

THE MANAGEMENT OF GENERAL EPILEPSY

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Epilepsy is one of the common disorders of the brain. Estimations of the frequency of epilepsy within the population have been revised upward from an estimated 50 million people worldwide to approximately 69 million people. Of the estimated, 45 million are within rural regions of countries classified by the World Bank as developing, with a further 17 million (25%) living within urban areas of this countries. Just 7 million individuals, approximately 10% of all those with epilepsy worldwide, are estimated to live in developed countries.

The greater burden of epilepsy in developing countries is exacerbated by the treatment gap, that is the difference between the number of individuals with active epilepsy on the one hand and the number who have difficulty accessing or adhering to treatment on the other. Estimated suggest that the treatment gap may exceed 75% in low income countries, a figure that compares unfavorably with the estimated 10% gap observed in countries of high income.

A seizure is a hallmark of epilepsy and it is the event, and epilepsy is the disease with an enduring predisposition to have unprovoked seizures. Epilepsy classification presumes that the patient in consideration has received a diagnosis of epilepsy according to the 2014 definition by ILAE task force. (3)

There are two types of epilepsy according to semiology of epilepsy, focal and general. General epilepsy from a generalized-onset seizures are not characterized by level of awareness, because most generalized seizures have impaired awareness. The most important generalized- onset motor seizure is tonic-clonic previously, and still commonly called grandmal. The nonmotor seizures in this category are synonymous with absence seizures.

The management of general epilepsy starts with diagnostic evaluation with routine investigation such as history and physical examinations, laboratory tests, EEG and integration neuroimaging procedure results. The choice of general epilepsy treatment based on the type of seizures, comorbidities, as adults with generalized tonic clonic seizure can have carbamazepine, lamotrigine, oxcarbazepine, phenobarbital, phenytoin, topiramate, valproic acid as C level of treatment and gabapentin, levetiracetam, vigabatrin as D level of treatment. The treatment usually takes 3 – 5 years seizures free.

IDIOPATHIC INFLAMMATORY MYOPATHY: DIAGNOSTIC APPROACH AND MANAGEMENT

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Idiopathic inflammatory myopathies (IIM) are a group of chronic autoimmune conditions that affect mainly the proximal muscles. The most common types are dermatomyositis (DM), polymyositis (PM), necrotizing autoimmune myopathy (NAM), and sporadic inclusion body myositis (sIBM). Patients usually present with sub-acute to chronic proximal weakness, which is manifested by difficulty rising from a chair, climbing stairs, lifting objects, and combing hair. DM, OM, and NAM all appear similar, with proximal laxity and elevated creatine kinase (CK) levels. In contrast, IBM preferentially engaged the long finger flexors and quadriceps, and showed normal or only slightly increased CK. They are uniquely identified by their clinical presentation consisting of both muscular and extra muscular manifestations. Laboratory investigations, including elevated serum creatine kinase (CK) and myositis-specific antibodies (MSA) can be helpful in differentiating clinical phenotypes and for confirming the diagnosis. However, muscle biopsy remains the gold standard for diagnosis. This disorder is potentially treatable with proper diagnosis and initiation of therapy. The goals of treatment are to relieve inflammation, restore muscle performance, reduce morbidity, and improve quality of life. The therapeutic armamentarium for IIM is continuing to expand, with intravenous immunoglobulin and rituximab proving successful for refractory disease. This topic aims to provide an understanding of the basic diagnostic approach for patients with suspected IIM, summarize current therapeutic strategies, and provide prospective insights into future therapies.

Keywords: dermatomyositis; idiopathic inflammatory myopathies; inclusion body myositis; myositis specific antibodies; necrotizing myopathy; polymyositis

STRATEGY OF CLINICAL APPROACH AND DIAGNOSTIC TESTING IN HEREDITARY MUSCLE DISEASE

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Hereditary muscle disease (HMD) is a heterogeneous and wide spectrum diseases caused by more than 650 nuclear and mitochondrial causative genes, comprising of muscular dystrophy (MD), congenital myopathy, distal myopathy, myotonic syndromes, ion channel muscle diseases, metabolic myopathy (mitochondrial, glucose, and fatty acid pathway) and unclassified ones.

Acquired (and treatable) myopathy should be always ruled out. One should bear in mind that there are no pathognomonic signs for certain entity. As a rule, myopathy is suspected in the presence of negative or positive muscle symptoms or signs resembling lower motor neuron with normal sensory therefore it should be differentiated from motor neuron, isolated motor fiber neuropathy, and neuromuscular-junction disorders. Data which should be obtained are onset age, muscle pattern involvement, progressivity, disease course (acute or chronic), fluctuation, triggering and alleviating factors, family history and pedigree (include consanguinity and in- breeding marriage), involvement of cardiac and other organ, and drugs or toxin ingestion.

Absence of family history does not preclude HMD. Onset age is not limited to congenital or childhood as significant portion of HMD starts to manifest in adulthood. While predominant proximal weakness is unaccommodating to specific myopathy, asymmetricity, distal predominant, involvement of ocular, facial, and bulbar, early respiratory failure, isolated neck weakness, certain combination patterns (oculopharyngeal, scapuloperoneal, humeroperoneal, facioscapulohumeral) are invaluable patterns for smaller differential diagnosis. Exercise-related muscle signs or symptoms, fluctuation, episodic course, myalgia, recurrent rhabdomyolysis favor metabolic myopathy and channelopathy. Cramps, contractures, muscle hypertrophy, stiffness, and involuntary muscle activities (such as rippling, myotonia, paramyotonia) should be identified. Identification of associated organ involvement such as dysmorphic features, seizure, cognitive impairment, eyes, hearing loss, cardiomyopathy, arrhythmia, neuropathy, skin, bone, liver, joint, endocrinopathy, malignancy further limit the differential diagnosis.

Normal muscle enzymes level does not preclude myopathy and likewise elevated creatine kinase can be found in neurogenic lesion. In suspicion of metabolic myopathy, forearm exercise test, fatty acid and acylcarnitine profile, carnitine, lactate acid, pyruvate, ammonia, blood gas analysis, ketone, glucose, and urine organic acids are useful. Although helpful identifying muscle diseases, electromyography findings rarely point out specific disease entities. With the exception, electrical myotonia can be limited to dystrophic and nondystrophic myotonic disorders, and glycogen storage disease type II. The role of muscle biopsy depends on the employed staining modalities.

Albeit genetic testing is a confirmatory test, phenotype correlation and suitability is imperative in interpretation. Common genetic testing method are (high throughput) sequencing of nuclear or mitochondrial genome (for small variants), Multiplex Ligation-dependent Probe Amplification (for detection of large insertion or deletion such as DMD), repeat expansion analysis (for oculopharyngeal MD, oculopharyngeal distal myopathy), and D4Z4 fragments (for facioscapulohumeral MD type 1). They must be chosen correctly and interpreted relevantly to phenotype.

ROLE OF PRAMIPEXOLE ER IN THE MANAGEMENT OF PARKINSON'S DISEASE

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Parkinson's disease (PD) is the second most common neurodegenerative disease after Alzheimer's dementia and the prevalence is increasing worldwide. PD is characterized by cardinal symptoms such as resting tremor, bradykinesia, rigidity and postural instability. Management of PD must be carried out in a complex way considering the progression of the disease, the individuality of the patient, the variety of signs and symptoms, and progressively affecting the function of daily activities. The goals of PD management are to reduce and/or control functional disability and improve quality of life. The non-ergot dopamine agonist pramipexole is currently indicated for the treatment of the signs and symptoms of idiopathic Parkinson's disease and for the treatment of moderate-to-severe primary restless legs syndrome. A new extended-release formulation of pramipexole has now also been launched in Europe and the US to improve ease of use, compliance and provide a more continuous therapeutic effect over 24 hours. The development of an ER formulation, with stable pramipexole plasma concentration over 24 hours, now offers a bioequivalent once-daily alternative. Pramipexole for treatment of Parkinson's disease, this means taking into account the available evidence regarding its symptomatic efficacy, effect on delaying long-term levodopa-related motor complications, beneficial effect on non-motor symptoms such as depression, and its safety and tolerability profile. Studies have shown that pramipexole is effective as monotherapy in early Parkinson's disease and as adjunctive therapy in advanced disease. Pramipexole is generally well tolerated; however, compared with levodopa treatment, pramipexole is associated with a higher rate of some dopaminergic adverse effects.

Keywords: pramipexole, Parkinson's disease, extended release

MOVEMENT DISORDERS IN METABOLIC DISORDER

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Several neurodegenerative or structural illnesses of the basal ganglia are the most common causes of movement disorders include tremor, dystonia, parkinsonism, chorea, and myoclonus. As the presenting symptom, a secondary complication, or a response to corrective treatment, they may also be a part of the clinical symptoms of systemic metabolic disoders. Consciousness disturbances, headaches, and seizures are just some of the neurological symptoms a doctor could notice in a patient with a metabolic condition. Neurological dysfunction is a common symptom of many metabolic disorders, including organ failure (especially liver or renal insufficiency), endocrinological diseases (such as hypertiroidism, hypotiroidism, hyperglycemia), and electrolyte imbalances (osmotic demyelination syndromes). The clinical detection of particular movement may help guide the appropriate diagnostic metabolic workup, underscoring the importance of the neurologist role. In most of these cases, treating the abnormal movements requires treating the underlying metabolic problems.

Keywords: Movement Disorders, Metabolic Disorder, Endocrinological, Organ Failure

MANAGEMENT OF SPASTICITY IN CHILDREN WITH CEREBRAL PALSY

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Cerebral palsy (CP), a nonprogressive disease of the central nervous system, is the most common motor disability in childhood. Spasticity is one of the most common manifestations of cerebral palsy (CP). The spastic CP subtype, with spasticity as the dominant motor symptom, represents in majority of the population with CP. Reduction in spasticity is important because it can affect the patient's quality of life and functional abilities. In CP, there is believed to be a deficiency of descending impulses that typically stimulate the release of the inhibitory neurotransmitter gamma-aminobutyric acid (GABA). Spasticity is often a problem that can be difficult to treat. The American Academy of Neurology and Child Neurology Society released a practice parameter regarding the pharmacological management of CP related spasticity in 2010. Since then, data have been published evaluating the safety and efficacy of oral and parenteral medications to manage spasticity. Multiple approaches are available for treatment of spasticity in patients with CP including therapies, oral medications, chemodenervation, and intrathecal baclofen therapy. Orthopedic and neurosurgical procedures are also available. A multidisciplinary team should be involved in defining reasonable treatment goals including the patient, and family, physical and occupational therapists, nurses, physiatrist, neurologist, orthopedist, and neurosurgeon.

MANAGEMENT PAIN IN CHILDREN

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Pain is defined by the International Association for the Study of Pain (IASP) as an "unpleasant sensory and emotional experience, associated with actual or potential tissue damage or described in terms of such damage". Pain perception in children is complex, and is often difficult to assess. In addition, pain management in children is not always optimized. In the pediatric population, pain is frequently under-recognized and inadequately treated.

Multimodal analgesia may include pharmacology (eg, basic analgesics, opioids, and adjuvant analgesia), regional anesthesia, rehabilitation, psychological approaches, spirituality, and integrative modalities, which act synergistically for more effective acute pediatric pain control with fewer side effects than any single analgesic or modality. For chronic pain, an interdisciplinary rehabilitative approach, including physical therapy, psychological treatment, integrative mind– body techniques, and normalizing life, has been shown most effective.

Beside pharmacological management, nonpharmacological interventions used to manage pain in children are most effective when adapted to the developmental level of the child. Improved education and training of health care providers can positively impact the management of pain in children.

Keywords: Pediatric pain, Pain treatment, Multimodal analgesia, Non pharmacological treatment, side effects

RNF213-RELATED ARTERIOPATHY

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Ischemic stroke is the leading cause of disability and early death, but its genetic determinants remain unknown. Moyamoya disease, a rare cerebrovascular disease endemic in East Asia, is associated with a susceptibility gene named RING finger protein 213 (RNF213) 47 tis47 characterized by progressive stenosis of the intracranial large arteries. We thus hypothesized that RNF213 plays a more general role in ischemic stroke and examined the association of the p.R4810K variant of the RNF213 gene, the most common risk for moyamoya disease, with ischemic stroke and its subtype. We analyzed case-control data of 47129 individuals of East Asia ancestry (17662 cases and 29430 controls) from three independent Japanese studies of ischemic stroke. For ethnic comparison, we further analyzed case-control data of 1689 individuals of European ancestry. In addition, we performed a meta-analysis of East Asian under a fixed-effects model. A combined meta-analysis of East Asia showed a consistent association of the p.R4810K variant with overall ischemic stroke (OR 1.91, 95% CI 1.55-2.36, P=1.5x10-9) and large-artery atherosclerosis (OR 3.58, 95% CI 2.55-5.03, P=2.0x10-13). We further analyzed 48 early-onset stroke patients with intracranial arterial stenosis and identified the p.R4810K variants in 35% of the patients (OR 25.0, 95% CI 1.4-438, P<0.01). In Caucasians, the p.R4810K variant was scarce and not associated with ischemic stroke risk.

The discovery of the strong association of the RNF213 p.R4810K variant with East-Asian ischemic stroke patients with intracranial arterial stenosis has opened new avenues for investigation in the mechanism behind and treatment strategies for intracranial large artery disease. Moreover, we analyzed 277 ischemic stroke patients who underwent endovascular therapy for acute occlusion of the intracranial internal carotid artery or M1 segment of the middle cerebral artery and identified the p.R4810K variants in 3.6% of the patients. Variant carriers had a higher rate of instant re-occlusion (70.0% vs. 5.6%, P<0.001; age- adjusted OR 33.24, 95% CI 6.73–220.48), and early re-occlusion was more frequent in variant carriers compared with non-carriers (60.0% vs 0.4%, P<0.001; age-adjusted OR 198.32, 95% CI 22.75–8503.74). 47 tis necessary to advance further research on the new disease concept " RNF213-related arteriopathy".

MANAGEMENT OF SPINAL CORD INJURY

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The incidence of spinal cord injury increases alongside the increased incidence of head injury, and is a global health problem because it can cause death, disability, decreased quality of life for sufferers and large economic burden. Most patients were young age, men, mostly due to traffic accidents, and involve the cervical area. Efforts to either reduce or stop secondary impacts occurrence must be considered. Spinal cord injury management starts from the scene (prehospital) by fixating the suspected injured area, preventing hypoxia (O2 saturation < 90%) and hypotension (maintain MAP 85-90 mmHg). At the hospital, in addition to maintaining hemodynamic stabilization, clinical neurological examination is carried out to determine the degree of severity that occurred (usually the ASIA scale was used) and radiological examinations at least vertebrae X-rays and CT-Scan which were standard examinations, unless the patient remained conscious and without complaints. Vertebral MRI within the first 48 hours (if possible) is an option for diagnosis confirmation, determination of follow-up and prognosis, unless the patient either remained conscious, without complaints or hemodynamically unstable. Although controversial, high-dose MPSS (Methylprednisolone Sodium Succinate) is still as the treatment of choice considering patient's arrival time in the ED (emergency department) and possible side effects. Given MPSS 30 mg/kg (maximum 2 grams)/15 minutes followed by 5.4 mg/kg/23 hours if arrival less than first 3 hours, and if arrival at first 3-8 hours given dose 30 mg/kg (maximum 2 grams)/15 minutes followed by 5.4 mg/kg/48 hours first. MPSS is given only in the first 48 hours and not given for patient who arrives at the emergency room more than the first 8 hours, there are no neurological deficits, penetrating trauma, or there are contraindication to giving MPSS.

Decompression and stabilization surgery is an option for incomplete injury patients with neurological deterioration, severe spinal cord injury even without radiological abnormalities in order to get better outcomes, reducing the complications incidence and shorten the length of stay in the ICU or hospital. Therefore, spinal cord injury surgery in the thoracolumbar area should be carried out within the first 24-72 hours and for the cervical area less than the first 24 hours. The sooner the surgery is performed in patients with vertebral fractures and/or dislocations, the better the outcome will be. Administration of neuroprotective or neuroregenerative agents in spinal cord injury such as Minocyclin, Riluzole, Mg (magnesium), Cethrin-BA210, EPO (Erythropoietin), statins, curcuma, hypothermia, hyperbaric, etc. to stemcell administration should be considered and need continuing research. Autonomic disturbances (autonomic dysreflexia, cardiac arrhythmias, Bowel and Bladder disorders), venous thrombosis and other complications must be anticipated. Physiotherapy is carried out as soon as possible in attention to the patient's general condition.

ROBOTIC REHABILITATION AFTER SPINAL CORD INJURY

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Mobility after spinal cord injury (SCI) is among the top goals of recovery and improvement in quality of life. Those with tetraplegia rank hand function as the most important area of recovery in their lives, and those with paraplegia, walking. Without hand function, emphasis in rehabilitation is placed on accessing one's environment through technology. However, there is still much reliance on caretakers for many activities of daily living. For those with paraplegia, if incomplete, orthoses exist to augment walking function, but they require a significant amount of baseline strength and significant energy expenditure to use. Options for those with motor complete paraplegia have traditionally been limited to the wheelchair. While wheelchairs provide a modified level of independence, wheelchair users continue to face difficulties in access and mobility. In the past decade, research in SCI rehabilitation has expanded to include external motorized or robotic devices that initiate or augment movement. These robotic devices are used with 2 goals: to enhance recovery through repetitive, functional movement and increased neural plasticity and to act as a mobility aid beyond orthoses and wheelchairs. In addition, lower extremity exoskeletons have been shown to provide benefits to the secondary medical conditions after SCI such as pain, spasticity, decreased bone density, and neurogenic bowel.

Keywords: Robotics, spinal cord injury, exoskeleton

AUTONOMIC DYSFUCNTION AFTER SPINAL CORD INJURY

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Spinal cord injury is a life-changing neurological condition for which restorative treatment has not optimal. SCI results from trauma, inflammatory disease, tumors, vascular malformations, and degenerative-induced cervical myelopathy. Acute SCI generally results from sudden trauma to the spine and results in fractures and vertebral dislocations. The initial stage immediately after the injury is known as the primary injury. The primary injury triggers a secondary injury that results in further chemical and mechanical damage to the spinal tissue, causing neuronal excitotoxicity due to the high accumulation of calcium in the cells and increasing the concentration of reactive oxygen and glutamate levels. After injury to the spinal cord, the spinal cord enters an ischemic state and causes vasogenic edema. A spinal injury (SCI) can interrupt communication between the brain and especially the Autonomic Nervous System (ANS) that contains sympathetic nervous system (SNS), parasympathetic nervous system (PNS), dan enteric nervous system (ENS) which controls many involuntary functions in the body, such as blood pressure, heart rate, digestion and sweating. Some of the common symptoms of

autonomic dysfunction after SCI include, heart, digestive, respiratory, urination, temperature regulation, and sexual. Management of autonomic dysfunction after SCI usually involves a combination of medication, and lifestyle modification. In some cases, surgery is required for the management of complications.

Keywords: spinal cord, injury, autonomic

SPEECH DELAY IN CHILD: DETECTING THE RISK FACTORS BY EEG FOR CHOOSING THE RIGHT THERAPY AND MANAGEMENT

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Speech and language delay means that a child is not able to use words or other forms of communication at the expected ages. Language delays include problems understanding what is heard or read. Study in 2019 resulted in 2.53% prevalence of speech and language delay. It happens that a delay in speech or language is one of the earliest signs for kids that later in childhood get the diagnosis of Attention-deficit-hyperactivity disorder (ADHD). On studies conducted in 2012, researchers found that two-thirds of the elementary-aged kids with ADHD had a speech or language delay at 18 months.

ADHD is a neurodevelopmental disorder characterized by a persistent pattern of inattention, hyperactivity and impulsivity with various degrees of functional impairment. A mean worldwide prevalence of ADHD, estimated in children is overall 2.2% (range 0.1-8.1%). Mody and friends found on 2013 that speech delay and language impairments were also existed in autism. That is relevant with study by Leitner in 2014, that ADHD and ASD (Autism Spectrum Disorder) frequently co-occur. Overlapping and specific profiles for ASD and ADHD were found mainly for four neurocognitive. ADHD and epilepsy are two different conditions, but they often occur together or get misdiagnosed as one another. One sign of epilepsy, known as absence seizures, is commonly mistaken for inattentive ADHD. Study in Israel on multivariate analysis, children with ADHD had almost twice the risk of epilepsy than children without ADHD. On the other hand studies showed that epilepsy is more common in people with autism with reported rates of approximately 20%.The co-occurrence of autism and epilepsy is almost certainly the result of underlying factors predisposing to both conditions, including both genetic and environmental factors. The frequent conditions in which there are overlap of ADHD, absence and ASD in children with speech delay, resulted in difficulty to decide the right and accurate therapy and management. An EEG is important in selected cases of speech delay and is useful in choice of medication and management. Fortunately sub-clinical electroencephalography were frequently found, actually showing the abnormality of brain functioning or brain networking in those disorders. The brain consists of a system of multiple interacting networks. At the highest level, the brain can be thought to consist of seven main networks: sensorimotor system, visual system, limbic system, central executive network (CEN), default mode network (DMN), and salience network. In multiple interacting networks, the failure of circuitry in one network generally leads to the failure of dependent circuitries in other networks, which in turn may cause further damage to the first network, leading to cascading failures and catastrophic consequences Many EEG studies that had been conducted for ADHD, ASD and absence shows abnormality of brain electrical waves. The abnormality is mostly related with which circuitry of brain networks that mostly abnormal in function or which combination of those nodes of network that fail in function. So the detection and recognizing of EEG waves abnormality of ADHD, ASD and absence which mostly act as risk factors for speech delay is important to decide whether the abnormality brain is just referring to one disorder or more surprisingly refer to combination of two or three brain disorders.

Keywords: Speech delay, ADHD, ASD, absence, subclinical abnormal EEG, brain network system

GASTROPROTECTION OF ANTIPLATELET THERAPY IN ISCHEMIC STROKE PATIENTS

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Aspirin as antiplatelet drugs causes direct damage to the gastric epithelium and inhibits prostaglandin production by the gastric mucosa, leading to ulcerations and increases the risk of gastrointestinal bleeding. In ischemic stroke patients, several clinical characteristics that confer added risk of gastrointestinal bleeding such as elderly, male sex, non-white race, diabetes mellitus, history of alcohol abuse, congestive heart failure and renal insufficiency. History of ulcers and prior gastrointestinal bleeding events are also very important risk factors. The risk of gastrointestinal bleeding is highest in the early period after ischemic stroke event, and remains a long-term threat to antiplatelet therapy in these patients, so a gastroprotective strategy is needed to reduce the risk of gastrointestinal bleeding in patients taking antiplatelet drugs. H2 receptor antagonists and proton pump inhibitors (PPI) can reduce gastric acid production, thereby improving gastric ulcers and erosions. The use of PPIs in patients receiving antiplatelet therapy has been associated with a significant reduction in the risk of gastrointestinal bleeding, ulceration and erosions. Although there is no clinical trials with head-to-head comparisons with PPIs, H2- receptor antagonists may also provide protection, although minimal to the gastrointestinal bleeding events. Clinical characteristics can be used to guide the need for PPIs in patients taking antiplatelet therapy.

CRYPTOGENIC STROKE

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Introduction: Cryptogenic stroke is defined as a brain infarction not clearly attributable to a definite cardioembolism, large artery atherosclerosis, or small artery disease despite extensive investigation. About one in three (35%) ischemic strokes are classified as cryptogenic. About half of cryptogenic strokes are embolic strokes of unknown source (ESUS). The ability to more clearly define the etiology of cryptogenic stroke has implications for subsequent treatment and risk for recurrent events. Ischemic stroke itself has a number of subtypes. Of these, about 23% are lacunar, the majority of which are due to small vessel disease. Among non-lacunar strokes, the two most common subtypes are those due to cardioembolic sources (35%) and perhaps surprisingly strokes of unknown origin, otherwise known as cryptogenic strokes (45%). There are several possible mechanisms implicated in cryptogenic stroke including occult paroxysmal atrial fibrillation, patent foramen ovale, aortic arch atherosclerosis, atrial cardiopathy, and substenotic atherosclerosis. The heterogenous of these mechanism leads to differentces in stroke prevention strategies among cryptogenic stroke patients.

Diagnostic: The presence of structural cardiac disease is evaluated by means of echocardiography (EC), transthoracic echocardiography (TTE),which is better at ventricular imaging, is used first in patients with coronary artery disease, congestive heart failure, or other ventricular disease that is evident from history or electrocardiogram (ECG). Diagnosis of Cryptogenic Stroke are; initial workup an according to guidelines, baseline evaluations, at a minimum, that all ischemic stroke patients should receive include: Noncontrast brain CT or brain MRI to confirm the diagnosis of stroke, Basic laboratory tests to gain insights into stroke risk factors and Electrocardiogram to screen for AF, atrial flutter, and other cardiac conditions. As a diagnosis of exclusion, it would be expected the percentage of strokes classified as cryptogenic will diminish. It is clear that the diagnosis of cryptogenic stroke can be variable depending on the center, available diagnostic modalities, and physician experience.

Treatment: The mainstay of stroke prevention strategies in patients with cryptogenic stroke is the combination of antiplatelet therapy and stroke risk factor modification. Studies suggest that warfarin may have benefit over aspirin in certain sub groups of cryptogenic stroke patients; however, this finding has not been replicated in appropriately designed double-blind, randomized trials.Thus, the identification of AF in cryptogenic stroke patients is important because, in this patient population, anticoagulation is clearly preferred over antiplatelet therapy

PATENT FORAMEN OVALE IN STROKE

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Stroke is in the first position in the level of frequency in neurological diseases that can arise in adulthood. Ischemic stroke itself is defined as brain, spinal cord, or retinal cell death attributable to ischemia, based on pathological, imaging, or other objective evidence of focal ischemic injury in a defined vascular distribution; or clinical evidence of a focal ischemic injury based on symptoms persisting ≥24 hours or until death, with other aetiologies excluded. Several previous case-control studies have shown an increased prevalence of Patent Foramen Ovale (PFO) in young patients with cryptogenic stroke. PFO appears to be responsible for 40-56% of patients aged <55 years with

cryptogenic stroke or Transient Ischemic Attak (TIA). PFO is a common congenital heart condition, this condition is found in about 25% of the adult population based on population- based studies that have been conducted. Epidemiologic and therapeutic advances have improved understanding of the role and therapeutic approach in patients with PFO in ischemic stroke.

Keywords: Ischemic stroke, patent foramen ovale

THE ROLE OF GENOMIC RISK SCORE AS CEREBROVASCULAR DISEASE PREVENTION

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Stroke is a cerebrovascular and complex disease. Stroke not only attacks elderly age group but nowadays also has shifted to a younger age. Stroke can be caused by a wide range of risk factors and mechanims. Cerebral small-and-large vessels disease and cardiac-embolism become the basis of the pathological processes of stroke. Rupture of an intracranial aneurism can also cause stroke. As a complex disease, stroke is caused by a combination of genetic, environmental, and lifestyle factors. Genomic risk score can predict the risk of an individual suffering from a complex disease. The risk score is calculated based on the statistic of genome-wide association studies (GWAS) in population. Genome-wide association studies (GWAS) identify the association between single nucleotide polymorphisms (SNPs) and the risk of a disease. The association is influenced by the penetrance variants of SNPs and ethnicity. Some variants of genetic polymorphisms have been associated with stroke risk. Previous Asian GWAS have identified some loci associated with the pathological process of stroke (such as SNPs variants in PRKCH gene with the small-vessels disease; variants in CACNA1C, MIR146a, NINJ2 genes with the large- vessels atherosclerotic; and variants in PITX2, ZFHX3 genes with the cardiac-embolism). Variants in CDKN2B-AS1 and RP1 genes could serve as genetic susceptibility factors for intracranial aneurism in Asia population. In conclusion, genomic risk score has an important role, not only to have predicted the risk of an individual suffering from stroke, but also to have allowed stroke prevention through environmental and lifestyle modification

Keywords: genomic risk score, stroke, GWAS, SNPs, prevention

RABIES ENCEPHALITIS

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Rabies encephalitis is a zoonotic viral disease that attacks the nervous system in humans and "warm-blooded" animals caused by the rabies virus. Rabies encephalitis is still a serious health problem because it is always fatal. Although fatal, rabies is a vaccine-preventable disease. Rabies encephalitis is initiated by the entry of the virus into the human body through the bite wounds spread by animals that rabies infected, especially dogs which are the main reservoir (98%). Virus replication occurs locally in the muscle cells around the bite wound resulting in a rapid increase in the number of viruses. The rabies virus is neurotropic, spreading along nerve pathways. The journey of the virus centrifugally to the central nervous system (CNS) and from the CNS to the periphery occurs centrifugally through afferent nerve fibers or autonomic nerves. Clinical manifestation begin with a bite wound as a site of entry of the virus, followed by a non-specific prodromal phase such as influenza symptoms. Furthermore, acute neurological symptoms develop into furious rabies type or paralytic rabies type. Then the patient goes into a phase of coma and death. Until now there is no specific therapy for rabies encephalitis, the therapy is symptomatic. Prevention is paramount, by avoiding bite wounds by animals that rabies infected. If a bite wound occurs, immediately wash it with soap/detergent in running water for 15 minutes and/or administer VAR/SAR

Keywords: Rabies encephalitis, fatal, vaccine, preventable disease

NEUROLOGIC COMPLICATIONS OF HERPES ZOSTER: ENCEPHALITIS AND MENINGITIS

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Varicella zoster virus (VZV) is a virus that has a high affinity for human skin and nerve tissue, which is known as a neurocutaneous disease. The infection phase of VZV is divided into a primary infection (varicella/chickenpox), latent phase (dormant in the nerve ganglion), and secondary infection (herpes zoster/shingles). Neurologic complications of VZV infection may occur in the primary or secondary phase with or without skin rash in the immunocompromised as well as immunocompetent patients. Old age and immunocompromised patients are most at risk for developing neurological complications in secondary infection/VZV reactivation. The clinical manifestations of VZV reactivation in the central nervous system (CNS) are diverse, including meningitis, encephalitis, cerebellitis, myelitis, cranial nerve palsies, and vasculopathy. Meningitis/meningoencephalitis VZV is the most frequently reported complication of herpes zoster. VZV reactivation in the CNS directly invades the CNS, induces an inflammatory response, and damages elastic vascular membranes. Encephalitis VZV is the second reported after herpes simplex encephalitis, especially in immunocompromised patients. Intravenous administration of antiviral acyclovir as an option for managing VZV meningitis and encephalitis accompanied by adjuvant corticosteroid therapy. Prevention of VZV infection by administering varicella and herpes zoster vaccines can reduce the incidence and morbidity of VZV infection in the CNS.

Keywords: encephalitis, meningitis, varicella zoster virus (VZV)

HYPONATREMIA IN CENTRAL NERVOUS SYSTEM

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Hyponatremia is plasma sodium levels <134 mg/dl, it could often occurs in central nervous system infections, the incidence rate 43% with mean 44 year old, Meningitis tuberculosis (METB) is the most common and as a predictor of mortality and morbidity. Symptoms hyponatremia is nonspecific include: headache, nausea, vomiting, muscle cramps, lethargy, restlessness, confusion, and seizures. Acute neurologic disturbances occur when there are rapid changes in serum concentrations or very low sodium levels (sodium <120 mEq/L). The most common causes of hyponatremia are cerebral salt wasting (CSW) and syndrome of inappropriate anti diuretic hormone (SIADH) and both of them could cause cerebral edema, and increasing intracranial pressure and it's occurs when the increase in intracranial volume to extracranial volume exceeds 10%.

Cerebral Salt Waste (CWS) and SIADH have different mechanisms and therapies, CSW is caused by increased sympathetic nervous system which responds by vasoconstriction while CNS infection to induced renin secretion and increasing the bioavailability of angiotensin II and aldosterone to stimulating sodium and water retention. Signs and symptom CSW are hypovolemia, dehydration state, negative fluid balance and pressure of central venous below 6 cm of H2O. Therapy of CSW is replaces sodium and water losses with administration of normal saline to restore intravascular volume. Syndrome of inappropriate anti diuretic hormone (SIADH) is caused by an increase in ectopic anti-diuretic hormone (ADH) production from the hypothalamus related to posterior pituitary inflammation, it will continues to send signals of lack of fluid to the adrenal glands resulting in fluid retention. Signs of SIADH are: no signs of hypovolemia, no signs of dehydration, normal or positive fluid balance with no weight loss and right central vein above 6 cm of water. Therapy SIADH use replacement of mineralocorticoids and glucocorticoids.

SLEEP DISORDERS IN PARKINSON'S DISEASE

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Sleep disturbances are common in Parkinson's disease (PD), it is caused by disturbance of sleep and wakefulness regulation. Sleep disorders including sleep-disordered breathing (SDB), are amongst the most frequent non-motor manifestations of PD. Sleep disturbance such as Obstructive Sleep Apnea (OSA) may also exacerbate neurodegenerative process in PD. Objective test with polysomnography (PSG) points the reduction of total sleep time and sleep efficiency, increase wakefulness and arousal, also alteration of sleep fragmentation. Those are the most frequent sleep architecture changes in PD. Insomnia and Rapid-eye movement sleep behaviour disorder (RBD) are other common sleep disorder in PD. Alteration of circadian rhythm has also been found in PD and appeared to contribute to excessive daytime sleepiness (EDS). Subjective sleepiness scales such as the Epworth Sleepiness Scale (ESS) are used to assess the severity of EDS. Recognition, diagnosis and treatment of sleep disorders are contributed to improve the functional status and quality of life in PD patients and potentially change the progression of PD.

Keywords: Excessive Daytime Sleepiness, Obstructive Sleep Apnea, Parkinson's disease, Rapid- Eye Movement Sleep Behaviour Disorder, Sleep disorder, Sleep-Disordered Breathing

THE ASSOCIATION BETWEEN SLEEP DISORDER AND COGNITIVE IN PARKINSON DISEASE

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Parkinson's disease is a complex neurodegenerative disorder characterized by motor symptoms such as tremors, rigidity, and bradykinesia. Non-motor symptoms, including sleep disturbances, psychiatric disorders, autonomic dysfunction, and sensory disturbances, are also common in Parkinson's disease.

Sleep disturbances, including insomnia, excessive daytime sleepiness, Rapid Eye Movement (REM) Sleep Behavior Disorder (RBD), and sleep-related breathing disorders, are frequently observed in Parkinson's patients. Moreover, sleep disturbances may have a bidirectional relationship with cognitive decline. The underlying pathophysiological mechanisms explaining the interaction between sleep disturbances and cognitive decline in Parkinson's disease involve several theories. These include disturbances in sleep architecture, abnormal protein aggregates (such as alpha-synuclein), neurotransmitter imbalances, hypoxia due to sleep-related breathing disorders, and neuroinflammation, all of which may contribute to both sleep and cognitive disturbances in Parkinson's disease. Additionally, medications related to Parkinson's disease and non-motor symptoms, such as depression and anxiety, can further impact sleep and cognitive function.

Early recognition and treatment of sleep disturbances can help alleviate cognitive decline and improve overall quality of life in individuals with Parkinson's disease. Furthermore, interventions targeting sleep-related symptoms and improving sleep hygiene, such as Cognitive Behavioral Therapy for Insomnia and Continuous Positive Airway Pressure (CPAP) therapy for sleep apnea, may aid in improving cognitive disturbances in Parkinson's disease.

The interaction between sleep disturbances and cognitive health in Parkinson's disease is a complex and multifaceted relationship. A comprehensive approach can enhance the well-being and clinical outcomes of individuals with Parkinson's disease, with a particular focus on sleep and cognitive aspects.

UPDATE OF BRAIN SENSING TECHNOLOGY IN DEEP BRAIN STIMULATION

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DBS of the STN or the globus pallidus interna (GPi) has been proven to be an effective treatment option for Parkinson's disease. Several steps are crucial to achieving good outcomes in DBS: careful patient selection, safe and accurate electrode placement in the target area, and optimization of programming. The most important step toward consistent DBS outcomes remains careful patient screening. More than 30% of DBS failures can be attributed to poor patient selection. A thorough assessment of the patient is essential to ensure that maximal clinical benefits are achieved, and surgical risks for the patient are minimized. An experienced multidisciplinary team is also greatly beneficial for proper evaluation of candidates for DBS. DBS surgery is not without risks and clinical benefit has to be weighed against the possibility of these adverse events. Before considering DBS surgery, a confirmation of diagnosis of idiopathic Parkinson's must be made, and medications have to be optimized. Other factors that should be taken into consideration include age, disease duration, levodopa responsiveness, levodopa unresponsive symptoms, comorbid disorders, cognitive and psychiatric issues, and patient expectations. Structural magnetic resonance imaging (MRI) of the brain is also usually done to rule out conditions associated with an increased risk during brain surgery.

Typically, symptoms that are not responsive to levodopa do not benefit from DBS. Tremor, rigidity, and bradykinesia usually improve. DBS is ineffective for the treatment of gait and other axial symptoms and does little to improve and can even exacerbate speech and affective and cognitive symptoms. Tremor, however, is an exception and responds to DBS even if refractory to medication. Levodopa reduction of motor symptoms by >30% of the UPDRS motor score has thus been used as one of the factors to identify eligibility for surgery. Patients with serious medical or surgical comorbidities, uncontrolled psychiatric conditions like psychosis or depression, and severe cognitive impairments or dementia are generally excluded from undergoing DBS. Patient's expectations for surgery should also be scrutinized, and it should be determined whether their goals for symptom improvement are realistic.

After accurate electrode placement, effective programming is the third key component of successful DBS outcomes. Stimulation in DBS is delivered by an implanted pulse generator (IPG) through annular electrode contacts implanted in subcortical brain structures Programming of this stimulation involves determining the therapeutic window of each lead segment and adjusting the stimulus amplitude, frequency, and pulse width based on the patient's symptoms. The basic goal of DBS is to stimulate targeted brain regions eliciting a therapeutic response while avoiding the undesired effects of stimulation of non-target brain regions.At present, there are a few published strategies for adjusting neurostimulation however, there are no set guidelines or systematic protocols. Programming requires time consuming programming sessions and still mostly depends on the clinician's experience and a lot of trial and error. In some cases suboptimal stimulation can result in the need for frequent visits and reduced patient satisfaction with DBS.

Fortunately, in the past few years, DBS technology has improved tremendously and rapidly. One of these new developments are directional leads. Unlike conventional DBS leads, which use cylindrical electrodes that produce radial fields, directional leads are made up of radially segmented electrodes. Segmented electrodes allow customization of the stimulation field at more points of contact, thus giving the ability to steer and shape the current in specific directions. This offers the opportunity to improve motor outcomes by directing stimulation more towards the intended target or smaller targets, while minimizing stimulation of other adjacent areas. Directional DBS promises to improve the therapeutic window but also increase complexity of programming as it increases the number of possible combinations of programming parameters. Another exciting development is the now commercially available DBS devices that can capture and record brain signals or local field potentials while simultaneously delivering therapeutic stimulation. LFPs represent the summed electrical activity from local neuronal transmembrane currents around an electrode. LFPs have been associated with normal physiological brain function as well as pathological brain function and disease states. In Parkinson's Disease, beta frequency activity has been associated to patient symptoms of bradykinesia and rigidity. In the sensing DBS device that is available now, these signals or LFPs can be correlated with events recorded by the patient, such as medication intake, side effects, or appearance of symptoms. This allows us to better understand what is really happening in the brain and adjust stimulation based on real data and the patient's needs.

While the new lead system still depends on manual adjustments of DBS settings, studies into adaptive or "closed loop" stimulation capabilities are currently ongoing. Traditional DBS systems or open loop DBS stimulate continuously and the parameters are set and unchanging until the next programming session. Adaptive DBS (aDBS) consists of closed-loop DBS, real-time adjustment of stimulation parameters by the device according to the patient's clinical state and preset thresholds.

One of the studies currently ongoing is the ADAPT PD study which will compare standard continuous DBS to adaptive DBS for hours of 'On' time without troublesome dyskinesias. Adaptive DBS Programming will be done using low frequency (8–30 Hz) LFP control signals detected by the sensing

DBS leads. DBS technology is advancing rapidly. The development of guidelines for patient selection, more accurate lead placement from newer imaging and surgical techniques, and innovations that allow more tailored and responsive stimulation will allow patients to derive optimum benefit from DBS in the future.

MANAGEMENT AND DIAGNOSIS GLIOMA PATIENTS

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Glioma is a primary brain tumor that originates from neuroglial progenitor cells or stem cells. Gliomas account for 30% of all primary brain tumors and 80% of malignant tumors. The classification of gliomas is based on WHO criteria, considering cell histology, grade, and molecular markers, including astrocytoma, oligodendroglioma, and ependymoma. The diagnosis of gliomas in patients is established through a medical history that includes clinical symptoms confirmed by neurological physical examinations. The medical history may reveal progressively developing neurological deficits, general symptoms such as signs of increased intracranial pressure, and focal symptoms corresponding to the lesion's location.

Following the medical history and physical examination, diagnostic procedures such as brain imaging (CT scan or contrast-enhanced MRI of the head) are conducted, and advanced MRI techniques like MR spectroscopy, DWI, DTI may be utilized if necessary. The gold standard for brain tumor, including glioma, is head MRI, as it has high sensitivity in aiding the diagnosis of brain tumors and can assess perifocal edema more clearly than a CT scan. In suspected glioma cases, management involves controlling high intracranial pressure with the administration of anti- edema agents such as steroids and diuretics, along with symptomatic therapy tailored to the patient's clinical symptoms.

Dexamethasone is the primary steroid choice for vasogenic edema in brain tumors, as it works by reducing inflammation, improving vascular permeability at the blood-brain barrier, and decreasing the production of angiogenic factors. Glioma management requires multidisciplinary discussions (tumor board discussions) involving neurology, neurosurgery, radiology, and neuropathology to make accurate medical decisions. Surgery is the definitive therapy for almost all brain tumors, including gliomas, aiming to reduce space-occupying effects, improve clinical outcomes, and obtain a precise histopathological diagnosis.

Following surgery, management aligns with guidelines based on the anatomical pathology results. For grade 3 and 4 gliomas, concurrent chemoradiation (radiation and temozolomide chemotherapy) is followed by adjuvant chemotherapy for six cycles. Prognostic factors for glioma patients include age at onset, tumor location and size, performance status, extent of resection, and molecular markers.

Keywords: glioma, diagnosis, management

CLINICAL EVIDENCE OF DBS FOR PARKINSON'S DISEASE

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Deep brain stimulation (DBS) represents a transformative therapeutic intervention for Parkinson's disease, offering a sophisticated neurological approach that provides substantial clinical evidence demonstrating significant improvements in motor function, quality of life, and long-term disease management beyond traditional pharmacological strategies. Extensive longitudinal studies, including randomized controlled trials and meta-analyses, have consistently demonstrated that targeted neurostimulation of specific brain regions—primarily the subthalamic nucleus, globus pallidus, and ventral intermediate nucleus—can effectively modulate aberrant neuronal circuits, resulting in remarkable motor symptom amelioration, including tremor reduction, rigidity management, and bradykinesia improvement. The cumulative clinical evidence reveals that DBS not only provides substantial symptomatic relief but also offers potential disease-modifying effects, with patients experiencing significant reductions in medication dependency, enhanced motor control, and improved functional independence, typically maintaining these benefits for 5-10 years post-intervention.

Optimal patient selection remains critical, with ideal candidates presenting medication-responsive Parkinson's disease, minimal cognitive impairment, and no significant psychiatric comorbidities, underscoring the importance of comprehensive pre-surgical evaluation and personalized treatment protocols. Longitudinal follow-up studies have consistently demonstrated that carefully selected patients experience sustained motor function improvements, with approximately 60-75% of patients maintaining clinically significant symptom reduction, reduced medication requirements, and enhanced quality of life indicators. Emerging research continues to refine surgical techniques, stimulation parameters, and patient selection criteria, exploring advanced targeting methodologies, closed-loop stimulation systems, and personalized neuromodulation approaches that promise to further optimize therapeutic outcomes and expand the potential applications of this groundbreaking neurological intervention. The evolving clinical evidence base not only validates DBS as a crucial treatment modality but also represents a paradigm shift in managing Parkinson's disease, transitioning from purely symptomatic management to a more sophisticated, targeted neurological intervention that offers patients unprecedented potential for functional restoration and improved neurological quality of life.

Keywords: Deep brain stimulation, Parkinson, Motor Symptom

HOW TO DIAGNOSE MIXED PAIN BY USING THE CURRENTLY AVAILABLE SCREENING TOOLS

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Diagnosing mixed pain represents a complex clinical challenge requiring a sophisticated, multidimensional assessment strategy that integrates comprehensive screening tools, detailed patient history, and advanced diagnostic techniques to effectively differentiate and characterize the intricate neurophysiological mechanisms underlying pain perception. The primary screening approach involves utilizing validated multidimensional assessment instruments, including the Chronic Pain Grading Questionnaire (CPGQ), which provides a comprehensive evaluation of pain intensity, disability, and psychological impact, complemented by the Pain Detect Questionnaire (PDQ) that specifically distinguishes neuropathic from nociceptive pain components through a nuanced 10-item screening protocol assessing pain characteristics, radiation patterns, and sensory modifications. Clinicians must strategically employ the DN4 (Douleur Neuropathique 4) screening tool, which offers a precise 7-item assessment focusing on sensory symptoms and clinical examination findings, enabling a structured approach to identifying neuropathic pain components with high sensitivity and specificity. Advanced diagnostic strategies incorporate the Multipain Screening Tool, which integrates quantitative sensory testing, patient-reported outcome measures, and neurophysiological assessments to provide a comprehensive pain phenotyping approach, allowing clinicians to map the complex interactions between inflammatory, neuropathic, and central sensitization pain mechanisms. The clinical assessment extends beyond standardized questionnaires, requiring a holistic approach that includes detailed pain phenomenology documentation, comprehensive neurological examination, assessment of pain descriptors, temporal pain characteristics, trigger identification, and thorough exploration of psychological and physiological pain modulation factors. Emerging diagnostic strategies increasingly emphasize precision medicine principles, incorporating genomic pain sensitivity screening, advanced neuroimaging techniques, and quantitative sensory testing to develop personalized pain assessment protocols that go beyond traditional screening tools, offering a more nuanced understanding of individual pain experiences and facilitating targeted therapeutic interventions. The diagnostic process demands a multidisciplinary approach, integrating insights from neurology, pain management, psychology, and rehabilitation medicine to develop a comprehensive pain profile that captures the complex, multifactorial nature of mixed pain syndromes, ultimately guiding precise, patient-specific treatment strategies that address the underlying pathophysiological mechanisms and improve overall patient outcomes.

Keywords: Chronic Pain, Screening tools, Pain perception

INTRODUCING TICAGRELOR IN ACUTE ISCHEMIC STROKE - APPLYING EVIDENCE INTO PRACTICE

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Ticagrelor emerges as a sophisticated antiplatelet intervention in acute ischemic stroke management, representing a paradigm shift from traditional therapeutic approaches by offering a unique, direct P2Y12 receptor antagonist

mechanism with superior pharmacodynamic properties. Unlike conventional agents like clopidogrel, ticagrelor provides rapid, consistent platelet inhibition through a reversible, non-competitive binding strategy that ensures predictable pharmacological responses with minimal genetic metabolism dependencies, potentially enhancing cerebrovascular reperfusion and neurological outcomes. Clinical translation of this pharmacological innovation requires a nuanced, patient-specific approach, involving comprehensive risk assessment, individualized dosing strategies (typically an initial 180 mg loading dose followed by 90 mg twice daily), and continuous monitoring to optimize therapeutic efficacy while managing potential limitations such as acquisition costs and emerging side effect profiles. The agent's distinctive characteristics—including faster onset of action, more profound platelet aggregation reduction, and potentially improved cerebral microcirculation—position it as a promising therapeutic option that challenges existing stroke management paradigms. Implementation demands a multidisciplinary clinical framework emphasizing personalized medicine principles: thorough patient screening, comprehensive cardiovascular risk stratification, precise therapeutic goal alignment, and dynamic treatment adaptation. Emerging research directions continue to explore long-term neurological outcomes, combination therapy protocols, and advanced neuroimaging correlations, underscoring ticagrelor's potential to transform acute ischemic stroke treatment by offering a more sophisticated, targeted approach to platelet inhibition and cerebrovascular protection. This evolutionary approach to stroke management reflects the medical community's ongoing commitment to translating complex pharmacological research into pragmatic, patient-centered clinical interventions that prioritize neurological preservation and functional recovery.

Keywords: Ticagrelor, Anti-Platelet, direct P2Y12 receptor antagonist

NEUROLEPTIC MALIGNANT SYNDROME AND SEROTONIN SYNDROME

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Neuroleptic Malignant Syndrome (NMS) and Serotonin Syndrome (SS) represent two critical, potentially life-threatening iatrogenic neurological disorders characterized by distinct yet overlapping clinical manifestations that emerge as severe adverse reactions to psychopharmacological interventions, distinguished by complex pathophysiological mechanisms involving disruption of neural regulatory systems and neurotransmitter homeostasis. NMS primarily occurs as a rare but severe reaction to antipsychotic medications and dopamine antagonists, characterized by profound muscular rigidity, hyperthermia, autonomic instability, and altered mental status, resulting from acute dopaminergic blockade in the central nervous system that triggers a catastrophic neurological cascade involving disrupted hypothalamic thermoregulation, muscle metabolism, and neural signaling pathways, with diagnostic criteria including specific clinical features such as muscle rigidity, elevated temperatures (>38°C), altered mental status, and autonomic dysfunction. Serotonin Syndrome, conversely, emerges from excessive serotonergic activity caused by medications that increase serotonin neurotransmission, presenting with a triad of mental status changes, autonomic hyperactivity, and neuromuscular abnormalities, typically triggered by selective serotonin reuptake inhibitors, monoamine oxidase inhibitors, and serotonin-norepinephrine reuptake inhibitors, manifesting through symptoms like hyperreflexia, myoclonus, tremor, and potentially life-threatening complications including hyperthermia and metabolic acidosis. Diagnostic differentiation requires comprehensive clinical assessment, utilizing specific diagnostic criteria like the Hunter criteria for Serotonin Syndrome and the Diagnostic and Statistical Manual of Mental Disorders (DSM) diagnostic framework for Neuroleptic Malignant Syndrome, with management strategies emphasizing immediate medication discontinuation, supportive care, symptomatic treatment, and in severe cases, advanced medical interventions including benzodiazepines, muscle relaxants, and potentially dantrolene or cyproheptadine depending on the specific syndrome presentation. The clinical approach demands a sophisticated, multidisciplinary strategy integrating rapid recognition, precise differential diagnosis, aggressive symptomatic management, and comprehensive patient monitoring, with emerging research focusing on genetic predisposition, pharmacogenomic markers, and advanced neurological understanding of these complex iatrogenic syndromes that represent critical challenges in psychopharmacological intervention and neurological patient safety.

Keywords: Neuroleptic Malignant Syndrome, Neurological disorders, Serotonin

ORAL MIGRAINE PROPHYLAXIS: WHAT WE HAVE TO CONSIDER?

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Oral migraine prophylaxis represents a sophisticated, multifaceted therapeutic approach addressing the complex neurobiological mechanisms underlying recurrent migraine disorders, encompassing a diverse array of pharmacological interventions targeting neuronal excitability, neurotransmitter modulation, and inflammatory pathways. The contemporary pharmacotherapeutic landscape includes multiple drug classes with distinct mechanisms: antihypertensive agents (beta-blockers like propranolol, calcium channel blockers), antidepressants (tricyclic compounds, selective serotonin reuptake inhibitors), anticonvulsants (topiramate, valproate), and emerging targeted therapies such as calcitonin gene-related peptide (CGRP) antagonists, each offering unique neurological modulation strategies designed to reduce migraine frequency, severity, and associated disability. Clinical evidence demonstrates that effective prophylaxis can reduce migraine frequency by 50-75% in appropriately selected patients, with medication selection guided by individual patient characteristics including comorbidities, potential side effect profiles, and specific migraine phenotypes, necessitating a personalized, precision medicine approach that considers genetic predispositions, neurological variations, and comprehensive patient health assessments.

The therapeutic strategy extends beyond mere symptom suppression, aiming to interrupt pathological neurological processes, modulate central nervous system hyperexcitability, and restore neuronal homeostasis through carefully titrated, individualized treatment protocols that balance therapeutic efficacy with minimal adverse effects. Emerging research continues to refine understanding of migraine pathogenesis, exploring advanced molecular targeting, genetic biomarkers, and innovative neuroimaging techniques that promise to transform oral prophylaxis from a empirical management approach to a precise, personalized neurological intervention. Contemporary guidelines emphasize a comprehensive management strategy that integrates pharmacological interventions with lifestyle modifications, stress management, and holistic approaches, recognizing migraine as a complex neurological disorder requiring multidimensional therapeutic considerations that extend beyond traditional symptomatic management. The evolving therapeutic landscape reflects a paradigm shift from reactive treatment to proactive neurological management, offering patients unprecedented potential for improved quality of life, reduced neurological disability, and comprehensive migraine control through sophisticated, targeted oral prophylactic strategies.

Keywords: Migraine, Prophylaxis, Anti convulsants

REGULATION AND COMPETENCIES OF NEUROLOGIST'S PAIN MANAGEMENT

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Neurological pain management represents a complex and highly regulated medical domain that requires extensive professional expertise, rigorous institutional oversight, and a multifaceted approach to patient care. The American Board of Psychiatry and Neurology (ABPN) and the American Academy of Neurology (AAN) serve as primary regulatory bodies, establishing comprehensive standards that encompass clinical knowledge, diagnostic expertise, and treatment competencies. Neurologists specializing in pain management must navigate a sophisticated landscape of certification, which includes obtaining a Certificate of Added Qualification (CAQ) in Pain Medicine, demonstrating advanced proficiency through continuous medical education, and maintaining compliance with stringent regulatory requirements from agencies like the Drug Enforcement Administration (DEA) and state medical boards. The core competency framework demands a sophisticated understanding of neuroanatomy, pain pathway mechanisms, and advanced diagnostic techniques, including complex neuroimaging interpretation and electrophysiological assessments.

Professional competence extends beyond technical skills to include a holistic, patient-centered approach that integrates comprehensive pain assessment, multimodal treatment planning, and considerations of psychological factors influencing pain perception and management. Neurologists must demonstrate expertise in interventional procedures such as nerve blocks, neuromodulation

techniques, and advanced pharmacological management, while simultaneously adhering to strict controlled substance regulations and prescription monitoring protocols. The evolving landscape of pain management emphasizes precision medicine, incorporating emerging technologies like genetic pain sensitivity screening, pharmacogenomic assessments, and digital pain tracking systems. Ethical considerations remain paramount, with a focus on minimizing opioid dependency, maximizing functional restoration, and adopting a biopsychosocial model of pain assessment that prioritizes patient autonomy and comprehensive care.

Keywords: Pain management, nerve block, precision medicine

SEVERE AND INTRACTABLE HEADACHE: NEUROINTERVENTIONAL APPROACH

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Endovascular treatment emerges as a sophisticated, precision-driven therapeutic strategy for managing severe headaches associated with cerebral venous sinus thrombosis (CVST) and subarachnoid hemorrhage (SAH), representing a paradigm shift from traditional management approaches by offering targeted, minimally invasive interventions that address the underlying pathophysiological mechanisms driving these complex neurological conditions. For CVST, advanced endovascular techniques including mechanical thrombectomy, pharmacological thrombolysis, and catheter-directed thrombus removal provide critical interventions that aim to restore cerebral venous circulation, prevent progressive neurological deterioration, and mitigate the potential for devastating complications such as cerebral infarction, hemorrhagic transformation, and intracranial hypertension, with emerging protocols utilizing advanced imaging-guided mechanical clot disruption and localized thrombolytic agent delivery that significantly improve patient outcomes compared to traditional anticoagulation strategies.

Subarachnoid hemorrhage management leverages sophisticated endovascular approaches, particularly in aneurysmal cases, with techniques such as endovascular coiling, flow diversion, and stent-assisted coiling offering precise, minimally invasive alternatives to traditional surgical interventions, enabling targeted aneurysm occlusion, prevention of rebleeding, and management of potential vasospasm complications that contribute to severe headache pathogenesis.

The intervention strategy requires comprehensive pre-procedural assessment, including advanced neuroimaging (CT angiography, digital subtraction angiography), detailed hemodynamic evaluation, and personalized risk stratification to optimize treatment selection, with emerging technological innovations such as three-dimensional reconstruction, machine learning-assisted imaging analysis, and advanced microcatheter technologies continuously expanding the therapeutic capabilities and precision of endovascular interventions. Contemporary clinical approaches emphasize a multidisciplinary management protocol that integrates endovascular interventions with comprehensive neurological monitoring, advanced neurointensive care strategies, and personalized rehabilitation approaches, recognizing the complex pathophysiological nature of CVST and SAH that extends beyond immediate vascular intervention to comprehensive neurological recovery and long-term functional restoration. The evolving endovascular landscape represents a transformative approach to managing severe headaches associated with these complex cerebrovascular conditions, transitioning from reactive symptomatic management to a sophisticated, targeted neurological intervention strategy that offers patients unprecedented potential for improved outcomes, reduced neurological disability, and comprehensive cerebrovascular restoration through precision-guided, minimally invasive therapeutic approaches.

Keywords: Endovascular treatment, Headache, vasospasm

NEUROLOGICAL COMPLICATIONS IN PEOPLE LIVING WITH HIV/AIDS CO-INFECTION WITH COVID-19

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Introduction: Human Immunodeficiency Virus (HIV) can attack all organs, including nervous system and cause neurological complications. This neurological complication is also reported as the main cause of death in Acquired Immunodeficiency Syndrome (AIDS) patients. The management of AIDS patients in COVID-19 era become challenging to health workers. Several studies showed the involvement of nervous system in COVID-19 patients.

Case report: Male, 38 years old, people living with HIV/AIDS (PLWHA) on ARV who discontinue medication complained of frequent falls. He also had headache, fever, nausea, loss of appetite, and malaise. Laboratory examination showed that IgG toxoplasma was reactive, CD4+ 5 cell/uL, and PCR SARS-CoV-2 was positive. Non-contrast head CT showed a lesion in the sub-ependymal to subcortical-cortical region in left hemisphere. The patient also had seizure. Patient experienced paraparese, numbness from abdomen to both legs, and pain in both legs on 23rd day which worsened on 26th day. Neurological examinations showed grade 1 and 2 muscle strength on right and left leg, decreased physiological reflexes, and hypesthesia from ThXII level. He was presumptively diagnosed with toxoplasma encephalitis and suspected myelopathy co-infection with COVID-19.

Discussion: Toxoplasma encephalitis and myelopathy are neurological complications in PLWHA. In addition, COVID-19 has also been reported to cause neurological complications. HIV-1 and SARS-CoV-2 are reported to cause CD4+ cell destruction, activation of the immune system, and redistribution of CD4+ T cells, thereby exacerbating the condition of CD4+ T cell lymphopenia and causing symptoms of toxoplasma encephalitis. The analogous membrane fusion mechanism between gp41 in HIV and S2 in SARS-CoV-2 also cause chronic inflammation of the central nervous system and an exaggerated immune response. This mechanism is also thought to trigger myelopathy.

Keywords: AIDS, neurological, toxoplasma encephalitis, myelopathy, COVID-19

TUBERCULOUS MENINGITIS IN HEALTHCARE WORKER

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Background: Tuberculosis remains a major health problem in Indonesia and holds third ranks worldwide on Global TB Report 2018. Tuberculosis infection affect pulmonary or extra-pulmonary. In severe extra-pulmonary case, such as tuberculous meningitis, the disease development could be fatal even with proper treatment. We get poor outcomes with common neuro disability. Tuberculosis can be considered as an occupational disease and the medical students are at higher risks on getting infected while handling cases.

Case: A 24 y.o. woman (medical student) was admitted to ER of Bekasi General Hospital due to difficulty in communication. The patient was having persistent headache 3 weeks before admission, history of coughing, swollen stomach despite weight lost 2 months prior. On physical examination, the patient was somnolent and having a fever. Neck stiffness, swollen liver and spleen enlargement was found. Laboratory shows leucocytosis. Chest x-Ray shows bronchopneumonia with suspicion of pulmonary/miliaria tuberculosis. Non-contrast head scan showing suspicion to encephalitis. Contrast head scan shows meningoenchepalitis with ventriculomegaly and tuberculoma. Patient then treated with IV fluid, antibiotics and steroid in ICU with oral tuberculosis regiments. Patient was discharged after stable condition were obtained for self-care at home.

Discussion: Delayed diagnosis result in rapid deterioration in tuberculous meningitis case. Protective measures should be taken beforehand in order to prevent severe case and complication.

Keywords: tuberculosis, tuberculous meningitis, healthcare worker

THE PROFILE OF LOW BACK PAIN AT HOSANA MEDICA LIPPO CIKARANG HOSPITAL IN DESEMBER 2020 – FEBRUARY 2023

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Introduction: Low back pain (LBP) is a symptom of pain that arises due to damage to neural and non-neural tissues influenced by psychological aspects, in the part of the body between the lower rib border and the inferior gluteal fold, with or without radiating to the lower limbs. Each year, up to 35% of adults experience symptoms of LBP, and its worldwide prevalence has increased by more than 15% in 10 years.

Methods: The type of this research is descriptive retrospective using primary data of patients who diagnosed with LBP in the Medical Records Installation and register books at the Neurology Polyclinic of Hosana Medica Hospital Lippo Cikarang. The collected data were processed using Microsoft Excel and the SPSS 26.0 program.

Results: According to the study on 995 patient there was 418 low back pain's patients, there was 222 men and 196 women, the highest incidence was at the age group of ≥ 35 years old (71,8%). The most frequent pathophysiology was hernia nucleus pulposus (35,9) and the most common pain symptoms were radicular pain (83,5%).

Discussion: This study found several some factors that influence the incidence of LBP, such as the process of mechanic, degeneration, menopause, smoking and occupation.

Keywords: Low back pain, incidence, event pattern.

TRANSCRANIAL STIMULATION MODULATION (QTDCS AND QRTMS) FOR NEURORESTORATION OF HOMONYMOUS HEMIANOPSIA STROKE

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Introduction: Homonymous hemianopsia (HH) is a field loss deficit in the same halves of the visual field of each eye. This condition most commonly results from cerebral infarcts or intracranial hemorrhages that located at the occipital lobe, followed by an injury to the optic radiations or optic tract (42% to 89%). They are followed by tumors, trauma, iatrogenic events, and neurologic disease.

Case Report: A 52-year-old woman with complaints of right side visual field loss. Since 3 months ago were preceded by headaches. neurological deficit complete right side homonymous hemianopsia dextra, left N.V1 dysfunction, left N. VIII, left N. VII LMN paralysis. Head CT scan shows a hypodense lesion in the left parietooccipital region, DSA: Hypoplasia of segments V1-V4 of the left vertebral artery (LVA), no relationship between the LVA and the basilar artery is seen.

Discussion: Treatment of Quantitative Electroencephalography, Transcranial Direct Current Stimulation (tDCS) for 5 times and Repetitive Transcranial Magnetic Stimulation (rTMS) for 15 times corrected the disturbed field of view (90° - 270° to 225° - 270°), improved relative power, amplitude asymmetry (-2.74 becomes -1.81) and interhemispheric homologous pairs coherence.

Keywords: Homonymous hemianopsia, Neurorestoration Neuroengineering, qEEG, tDCS, rTMS

EPILEPSY POST CEREBRAL SINUS VENOUS THROMBOSIS

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Introduction: Seizures are common neurological symptoms in cerebral sinus venous thrombosis (CSVT). Epilepsy can occur after patients with CSVT experience seizures. The purpose of this case report was to discuss the risk of developing epilepsy post-CSVT (EPC).

Case Report: Male, 52 years old, right-handed, came with recurrent seizures with focal to bilateral patterns, which were triggered due to discontinuation of anti-seizure medication (ASM). The patient was diagnosed with CSVT about seven months earlier with history of seizures with focal neurologic deficits. Head Computed Tomography (CT) scan and CT-venography at that time showed cerebral venous sinus thrombosis in the superior sagittal sinus, right sigmoid sinus, and right transverse sinus, as well as multiple subacute hemorrhages in the frontal and parietal lobes. Seizures were resolved after re-administration of ASM.

Discussion: Seizures in CSVT patients are divided into two, such as, early seizures (ES) and late seizures (LS). Late seizures have been reported up to 10% of CSVT patients, with most periods occurring within the first 6-12 months after CSVT. ES or LS in CSVT patients can be divided into groups based on clinical presentation and neuroimaging characteristics. These risk factors suggest that cortical damage is involved in CSVT, which triggers epileptogenesis. The diagnosis of EPC can be made after an LS because of the high recurrence rate. Administration of ASM is recommended in patients with CSVT and a seizure with parenchymal lesions, with 1-year minimum treatment duration in patients with risk factors for seizures.

Keywords: epilepsy, seizure, cerebral sinus venous thrombosis

CERVICAL SPINALIS CORD INJURY WITH INFERIOR PARAPARESIS

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Introduction: Spinal cord injury is neurological emergency that requires fast action because it can impact on disability and high mortality rate. Higher location of spinal cord injury, more severe dysfunction that occurs. Incidence of cervical injury with clinical inferior paraparesis is very rare case.

Case Report: Male,36 years old with sudden weakness of legs since 5hours after blunt trauma to upper back. Physical examination found spastic of inferior paraparesis with strength 5/5/2/2, Hypesthesia from tips of toes to Papilae Mammae, urinary retention et alvi. Thoracal MRI results Protruded intervertebral disc C6-7 to posterior, indentation of spinal canal-C6 spinal cord stenosis right and left, cystic lesion 4mm diameter. Patient received high doses methylprednisolone. During treatment showed significant progress. Two months later, patient could walk.

Discussion: Inferior paraparesis is weakness of lower limbs that not common in cervical injury. Motor and sensory disturbances result from characteristic somatotopic pattern of laminar corticospinal and cortospinal tracts in spinal cord. Lateral spinothalamic tract has somatotopic pattern, laminae for the sacral are located dorsolaterally, followed by lumbar, thoracic, and cervical segments which are located ventromedial. This somatotopic pattern describes the fibers serving the feet as lying more laterally than those serving the hands. Cystic lesions form in secondary phase of spinal cord injury. In this case, there was cervical spinal cord injury with bilateral somatotopic pattern with motor disturbances occurring in lower limbs. Prompt management prevent further damage and minimize neurological deficits.

Keywords: Cervical injury, Spinal Cord

ANEURYSMA FUSIFORM OF THE ARTERY BASILARIS WITH MANIFESTATION OF TRIGEMINAL NEURALGIA

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Introduction: Trigeminal neuralgia is a condition characterized by moderately severe facial pain that is an electric shock. The condition can be caused by various factors, including compression of the trigeminal nerve by blood vessels. Cause of trigeminal neuralgia is a fusiform aneurysm of the basilar artery.

Case Report: This report presents a case of trigeminal neuralgia caused by aneurysm fusiform of the artery basilaris. The patient was a 62-year-old woman, experiencing severe facial pain had lasted for 1 year. MRI revealed the presence of an aneurysm pressing on the Trigeminal Nervus. DSA examination revealed aneurysm fusiform pressing the artery basilaris to the right at caudal pons pressing lateral side of right pons. This patient was treated using radiofrequency technique. This case showed that radiofrequency was effective in reducing the patient's pain.

Discussion: Trigeminal Neuralgia is caused by compression by Artery Basilaris Aneurysm, a rare condition. First line treatment in Trigeminal Neuralgia with carbamazepine. In this patient therapy using pharmacological combinations of pain effects caused is still not controlled. Radiofrequency (RF) action was chosen for pain management in this patient. RF action results in improvement in pain scale from NPRS 8 to 2-3. Antihypertensive and statin medications were needed to reduce the pressure caused by the vascular compression. Conventional surgery in the form of Microvascular decompression can be done if the therapy that has been given still cannot control the pain in the patient.

Keywords: Trigeminal Neuralgia, Aneurysm Fusiform, Artery Basilaris Aneurysm

COMPARISON OF EFFICACY BETWEEN EDARAVONE AND RILUZOLE COMBINATION THERAPY FOR PATIENT WITH AMYOTROPHIC LATERAL SCLEROSIS

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Introduction: Amyotrophic lateral sclerosis (ALS) is a fatal neuromuscular disease with a survival period of less than 5 years. Although the past decade has shown a major growth of interest in Edaravone research due to its superior efficacy, a growing number of research done on Riluzole combinations for ALS therapy. Therefore, a systematic review is needed to compare the patient outcomes as shown in the ALS functional rating scale (ALSFRS-R) of Edaravone and Riluzole combinations.

Methods: This research is a systematic review from PubMed, ProQuest, and Science Direct. The studies included were randomized controlled trials (RCT) and post-hoc analysis of RCT published from 2012 to 2023.

Results: This research included 16 studies (11 RCT studies and 5 post-hoc studies of RCT). The studies discussed the patient population, side effects, and ALSFRS-R scores.

Discussion: There is an average ALSFRS-R score maintenance of -8.67% to 41.94% in Edaravone and -14.63% to 26.98% in Riluzole combinations. The results of the meta-analysis showed heterogeneity with an I^2 value of 98%, a difference in Z scores with a mean of 3.77 (p=0.0002).

Conclusion: The results conclusively show that Edaravone is more efficacious than the explored Riluzole combinations so far. Nevertheless, Riluzole-Masitinib showed promising results to be further explored.

Keywords: Edaravone, Riluzole, Amyotrophic Lateral Sclerosis, ALSFRS-R

TRIGLYCERIDES, CHOLESTEROL, BODY WEIGHT INDEX AS A RISK FACTOR OF IN-HOSPITAL MORTALITY OF ACUTE ISCHEMIC STROKE PATIENTS

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Introduction: Triglycerides, Cholesterol, Body Weight Index (TCBI) is a simple nutritional index that predicts poor outcomes in several diseases. However, the relationship between TCBI and SIA patient mortality is unknown. This study aims to see the relationship between TCBI and the mortality of AIS patients.

Methods: This study is a case- control study of AIS patients in Sardjito Hospital from January 2022 to July 2022. Mortality was seen from the condition when the patient was discharged from the hospital. TCBI assessed within the first 24 hours of patient admission and calculated based on triglycerides (TG), total cholesterol (TC) and body weight (BW) of the patient using the formula TG (mg/dL) x TC (mg/dL) x BW (kg)/ 1000.

Results: From 371 SIA patients, 46 patients (12.4%) died at the hospital. There were no significant differences in the characteristics of dermographies and comorbidities between the dead and survived patients. The mean of TCBI was 118.06 and 1986.19, respectively in the dead and survived patients groups, showing a statistically significant difference in the TCBI value and the mortality of SIA patients (p 0.000).

Discussion: This study showed that there was a significant difference between the TCBI of SIA patients who died with those who survived. This finding indicates that low TCBI at the time of admission can be a risk factor for in-hospital mortality of SIA patients.

Keywords: TCBI, in-hospital mortality, ischemic stroke

ORGANIC DELUSION AND HALLUCINATION AS RARE COMPLICATIONS AFTER MENINGITIS STREPTOCOCCUS SUIS

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Introduction: Meningitis Streptococcus suis is an emerging infectious disease with high mortality and morbidity rate. Sensorineural hearing loss and vestibular disturbances are the most common complications reported, but there were psychotic symptoms, such as delusion and hallucination as the rare complication of meningitis Streptococcus suis. The exact pathophysiology of those rare complications is still unclear, but there were some hypotheses that might be take role in it, such as neuro-inflammation hypothesis, imbalance between dopaminergic and glutamaergic system, and oxidative stress.

Case Report: We are reporting a case of a 68 years old woman who came with agitation, persecutory delusion, and auditory and visual hallucinations since 5 days ago. Three weeks before she was hospitalized due to meningitis Streptococcus suis. There were also sensorineural hearing loss and ataxia found. She was then admitted at Bali Mental Hospital, and was given haloperidol, betahistine mesylate, and methylcobalamine. After eight days of treatment her mental condition started to improve, and was discharged after 22 days treatment. Upon follow-up at outpatient clinic, her psychotic symptoms were well controlled, but her hearing problem and ataxia were persisting.

Discussion: The development of organic delusion and hallucination in this patient might correlates with increased dopamine signaling due to inflammation at frontal, parietal, occipital, and temporal lobe, which revealed from previous head CT-scan. Neuroleptics, either typical or atypical, are effective in treating organic psychosis, although the choice should consider the risk and benefit of individual patient.

Keywords: Streptococcus suis, organic psychosis, neuro-inflammation, dopamine, oxidative stress.

RELATIONSHIP OF PROGNOSTIC NUTRITIONAL INDEX WITH IN HOSPITAL OUTCOME IN NON THROMBOLYSIS NON HEMORRHAGIC STROKE

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Background: Malnutrition has been reported to be associated with poor prognosis in stroke patients. As an objective nutrition marker, the prognostic nutrition index (PNI) is easy to perform in practice. The aim of this study was to evaluate the relationship between prognostic nutritional index (PNI) and in-hospital outcomes of patients with non- thrombolysis SNH.

Methods: A retrospective cohort of 236 patients with non-thrombolysis SNH hospitalized at Dr. Sardjito General Hospital from 2020 to February 2023 was studied. PNI value was calculated as 5x lymphocyte count (109/L) + serum albumin concentration (g/L). In hospital outcomes assessed were Barthel index, length of stay and mortality. Data were then analyzed.

Results: The mean age of the patients was 60.60±11.7 years with the most gender 135/236 (57.2%) were male. The median PNI score was 48.09. Patients were then divided into 2 groups: normal and low PNI. NIHSS scoring was associated with PNI score (p=0.002; OR 3.83; 95% CI 1.68-8.72). Analysis showed that PNI score was associated with Barthel index assessment (p=0.001; OR 0.23; 95% CI 0.09-0.55), while other outcomes such as hospitalization and mortality were not associated. In multivariate analysis, the factors that influence Barthel index assessment are NIHSS scoring, comorbid cardiac disorders and PNI (p value 0.000; 0.082; 0.049 respectively) with moderate correlation (R=0.462).

Conclusion: PNI is associated with in hospital outcomes in the form of Barthel index assessment, and another factor that affects Barthel index assessment is the NIHSS score.

Keywords: usefulness, prognostic nutritional index, Barthel index, in hospital outcomes

CORRELATION BETWEEN SLEEP QUALITY AND ATTENTION IN SHIFT WORKERS AT WAHIDIN SUDIROHUSODO HOSPITAL MAKASSAR

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Background: Sleep is not only important for physical growth, but also for behavior, emotion, cognition, and attention. Sleep deprivation can be caused by shift work type in circadian rhythm sleep disorder. Shift work sleep disorder related to work schedules often occurs in shift workers and can distract the attention The aim of this study to determine the relationship between quality of sleep and attention in shift workers at Wahidin Sudirohusodo Hospital, Makassar.

Method: This research is a cross sectional analytical study was conducted in RSUD Wahidin Sudirohusodo Makassar. A total of 30 research samples were selected based on inclusion and exclusion criteria. Data was collected from interviews, PSQI questionnaire and attention test with Visual Attention test and

Digit Span Forward test, then analyzed using the SPSS 25.0 program with Chi square test.

Result: Assessment of sleep quality, obtained 4 respondents (13.3%) with good sleep quality and 26 respondents (86.7%) with poor sleep quality, while the assessment of attention test obtained 22 respondents (73.3%) with an abnormal Visual Attention test, and 21 respondents (70.0%) with interpretation of digit forward span within abnormal. The chi square test obtained a significant relationship between sleep quality and attentional function based on the visual attention test (P = 0.048) and the span forward digit (P=0.005).

Discussion: Poor sleep qualiaty associated with decreased attention.Cognitive impairment in sleep deprivation decreased alertness and attention. Decreases alertness and attention in shift worker is risky to endanger the safety of themselves and others in the work environment.

Keywords: Sleep Quality, PSQI, Attention, Shift Worker

DELAY SUBACUTE ON CHRONIC SUBDURAL HEMATOMAE ON PATIENT POST-TRAUMATIC BRAIN INJURY

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Introduction: In some cases, Chronic Subdural hematomaa (CSDH) is asymptomatic. It takes an average of 4 to 7 weeks after trauma for Subdural hematomaa (SDH) to become symptomatic, in geriatric psychiatry and neurology, chronic subdural hematomaa usually shows nonspecific symptoms such as sensory, increased intracranial pressure, psychomotor regression, cognitive impairment, delirium, and amnesia, which are sometimes reported as degenerative diseases.

Case report: We report a 50-year-old man who sustained a post-traumatic brain injury 2 months ago, in the last 2 days experienced sudden headache, dizziness, vomiting, and cognitive impairment. He was not on an antiplatelet or anticoagulant. He did not have any abnormal neurological examination. At the ED, the brain Computed Tomography shows elevated intracranial pressure with a subacute on chronic subdural hematomae in the left hemisphere.

Discussion: Delayed subdural hemorrhage takes several weeks to show symptoms, this is due to ongoing bleeding from small blood vessels. subdural hemorrhage usually occurs in the elderly.

Keywords: Subdural hematomae, traumatic brain injury, case report

PROFILE CHARACTERISTICS AND RISK FACTORS OF YOUNG STROKE PATIENTS IN RSUP DR. SARDJITO YOGYAKARTA

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Introduction: Stroke is a non-infectious disease with increasing number every year. Stroke can occur in young and old age groups with various risk factors.

Methods: This study was an observational descriptive study with a sample of all young stroke patients in RSUP dr. Sardjito Yogyakarta for the period January 2020 to April 2023. The profiles observed included age, gender, nutritional status, level of consciousness, neurological deficits, seizures, cognitive impairment, degree of stroke severity, hypertension, diabetes mellitus, smoking, history of heart disease and stroke.Results: Out of a total of 95 patients, 62.1% (59 patients) were aged 36-45 years and 32.6% (31 patients) were women, 41.1% (39 patients), 41.1% (39 patients) were overweight, 24.2% (23 patients)) experienced decreased consciousness, 81.1% (77 patients) with motor deficits, 25.3% (24 patients) had seizures, 14.7% (14 patients) with cognitive impairment and 7.4% (7 patients) had a stroke with a very severe degree of severity.

Discussion: This study shows that there are risk factors for hypertension in young stroke patients with the highest prevalence in the age group of 36-45 years. These risk factor must be controlled so that the mortality and morbidity of young stroke patients can be controlled.

Keywords: stroke, young age, hypertension

CORRELATION BETWEEN RED DISTRIBUTION WIDTH AND CLINICAL SEVERITY OF ACUTE ISCHEMIC STROKE IN DJAFAR HARUN GENERAL HOSPITAL

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Introduction: Stroke characterized as neurological deficit with acute focal injury in central nervous system (CNS). The clinical degree of stroke measured with the National Institute of Health Stroke Scale (NIHSS). A biomarker needed to predict the severity of acute ischemic stroke (AIS). Red Distribution Width (RDW) is parameter of circulating erythrocyte size. Increased RDW associated with incidence and prognosis of cardiovascular disease. The aim of this study is evaluate correlation of RDW with the clinical degree of AIS.

Methods: Cross-sectional study with AIS patients at H.M Djafar Harun General Hospital during July – December 2022. AIS diagnosis using Dave and Djoenaidi Stroke Score (SSDD). NIHSS and RDW data were taken at admission, correlation test was performed with the Spearman correlation test.

Results: Fifty seven subjects met the study criteria. The results of the analysis showed the increase in RDW had a significant correlation with severity AIS (r=0.507; p=0.000).

Discussion: The association RDW with AIS has been reported by several studies. The results showed significant correlation between increasing RDW and NIHSS (r=0.507 ; p=0.000). Inflammatory processes and oxidative stress play an important role in the relationship between RDW and AIS. Increasing RDW indicates a difference in size and reduced erythrocyte deformability and increases microcirculation resistance and interruption of microcirculation through narrow capillaries in ischemic tissue. Results of this study were in line with previous study reports that RDW could be easy, routine and inexpensive predictor for predicting AIS severity.

Keywords: Red Distribution Width, Clinical Degree, Ischemic Stroke

NEUROMUSCULAR TAPPING (NMT) AND PROLOTHERAPY APLICATION FOR CHRONIC CERVICAL DYSTONIA

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Introduction: Cervical dystonia (CD) is the most frequently occurring focal dystonia. This condition often results in cervical pain and disability as well as impairments affecting postural control. Epidemiological studies have shown ratios of occurrence in men to women of 1:1.4 to 1:2.2 and mean ages of onset of 39.2 (men) and 42.9 (women). Classification is based on etiology: primary versus secondary. Patients with primary CD are considered to have an idiopathic cause. Patients with secondary CD may have an abnormal birth and developmental history, exposure to drugs, or neurological illness.

Case Report: A 20-year-old man with complaints of pain and limited range of motion in the neck since 1 year ago, the symptoms have been getting worse since the last 3 months. Assessment using the Toronto Western Spasmodic Torticollis Rating Scale – severity (TWSTRS) gets a result of 24. Numeric Pain Rating Scale (NPRS) = 8.

Discussion: Management using NMT on the back of the neck, m. trapezius, and m. sternocleidomastoideus a week and 20% prolo dextrose therapy every 2 weeks on m. sternocleidomastoid, m. splenius capitis, m. semispinalis capitis, m. scalenus medius, m. Splenius cervicis, m. Trapezeus, m. longissimus, m. levator scapula. Three weeks of therapy improved TWSTRS score = 14, NPRS became 3.

Keywords: Cervical Dystonia, NMT, prolo therapy

FRONTAL LOBE SYNDROME OF VARYING ETIOLOGY AND LESION LOCATION

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Introduction: The frontal lobe is involved in various processes such as regulating personality, emotions, and social interactions. A person's behavior may change due to a frontal lobe lesion. This case report discusses 2 patients presenting with frontal lobe syndrome due to different etiologies.

Case Report: The first case was a 63-year-old male with cerebral infarction in the MCA segment with frontal lobe syndrome in the form of apathy, flat affect, and mutism tendency. Computed Tomography Scan (CT-Scan) of the brain revealed infarction of the right frontal lobe in the dorsolateral, lateral orbitofrontal, and ventrolateral regions. The second case was a 74-year-old female presenting with agitation and hysteria following head trauma. CT-Scan of the brain revealed left frontal lobe hemorrhage, in the medial and ventromedial orbitofrontal regions.

Discussion: The variation of frontal lobe syndrome presentation in this case series is caused by differences in the prefrontal cortex location of the lesion. The first patient had dorsolateral and ventrolateral lesions. The dorsolateral cortex is concerned with planning, strategy formation and executive function. Patients with these lesions tend to have apathy, personality changes, and a lack of ability to plan actions. Meanwhile, the second patient had medial and ventromedial orbitofrontal lesions. The orbitofrontal cortex is associated with response inhibition and emotional lability, hence injuries to this location results in poor impulse control, emotional lability, distraction, and lack of interaction

Keywords: Frontal Lobe Syndrome, Prefrontal, Orbitofrontal, Dorsolateral

DIAGNOSTIC PITFALLS IN RAMSAY HUNT SYNDROME WITH ADDITIONAL MULTIPLE CRANIAL NERVE INVOLVEMENT

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Introduction: Ramsay Hunt Syndrome (RHS) is a rare manifestation of varicella zoster virus (VZV) reactivation, characterized by the triad of peripheral facial nerve palsy, ear or mouth vesicular rash, and otalgia. Although infrequent, multiple cranial nerve (CN) involvement may occur, leading to diagnostic difficulties. In this serial report, we describe three RHS cases with varying manifestations of CN involvement.

Case Report: All patients presented with complete RHS triad of varying paralysis onset and diverse multiple CN involvement. Case 1 was a 60-year-old male with 1-week onset left facial paralysis of House-Brackmann Grade V (HB-V) and CN IX involvement manifesting as odynophagia. Case 2 was a 64-year-old female with 1-day onset left facial paralysis (HB-V) and additional CN VIII involvement manifesting as tinnitus. Case 3 was a 32-year-old male with a 10-day history of left facial paralysis (HB-VI) and additional CN V and VIII involvement manifesting as left-sided facial pain, hearing loss, and debilitating vertigo. Cases 1 and 3 were initially managed by the Internal Medicine and Ear-Nose-Throat Units respectively prior to the Neurology Unit referral. All were treated with intravenous steroids and oral acyclovir, with only Case 2 achieving complete resolution at 1-month follow up.

Discussion: Although rare, RHS can manifest as additional multiple CN pathologies, as described in our cases. This may lead to late diagnosis and delayed management, hence emphasizing the diagnostic pitfall in RHS with multiple CN involvement.

Keywords: Ramsay Hunt syndrome; multiple cranial nerve palsy; varicella-zoster-virus reactivation

DOUBLE DISASTER: SECOND EPISODE OF INTRACRANIAL HEMORRHAGE DUE TO RUPTURE OF A TRAUMATIC INTRACRANIAL ANEURYSM (TICA)?

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Introduction: Traumatic intracranial aneurysm (TICA) is a rare complication of head injury, and often undetected until it results in neurological deterioration. We describe a case of ruptured anterior cerebral artery (ACA) aneurysm, with high likelihood of being a TICA due to the patient's past head trauma history.

Case Report: A 26-year-old female was referred to our centre with a 4-day history of sudden onset headache following a fall she experienced due to dizziness. She also had bilateral limb weakness and cognitive impairment. Subdural hemorrhage (SDH) and left frontal lobe hemorrhage with slight midline shift was detected on Computed Tomography (CT) scan at onset, and confirmed on subsequent Magnetic Resonance Imaging (MRI). Cerebral Angiography revealed a ruptured aneurysm at the A3 segment of the left ACA sized 1.69×1.49×2.40 mm (neck 1.82 mm). Symptoms improved following conservative therapy and she was discharged without further complications. Due to a history of a motor vehicle collision 2 months prior, which resulted in a subarachnoid hemorrhage, SDH, and multiple facial fractures at the time, it is highly likely that the aneurysm during the second presentation was a TICA.

Discussion: TICA should be suspected in all patients presenting with new or persistent neurological complaints following head trauma. Risk factors for TICA development remains unclear, as our literature review shows that current literature is mostly limited to case reports or series. Early detection may reduce the high probability of rupture and improve outcome, hence vascular imaging post-trauma can be of benefit

Keywords: traumatic intracranial aneurysm; head injury; intracranial hemorrhage

THE ROLE OF PLASMAPHERESIS IN THE IMPROVEMENT OF CLINICAL SYMPTOMS IN PATIENTS WITH AUTOIMMUNE ENSEPHALITIS

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Introduction: Autoimmune encephalitis, specifically anti-NMDAR, is an autoimmune disorder that targets glutaminergic NMDA receptors within the central nervous system neuroglia. While diagnosis is often difficult due to the non-specific early clinical presentation and lack of laboratory exams, prompt therapy may still result in clinical improvement.

Case report: A 19-year-old female presented with loss of consciousness, tonic posturing, fluctuating fever, and tonic clonic seizure of 10-20 minutes duration. The patient had a 2-week history of headache and mutism tendency with the family complaining that the patient seemed confused. Physical examination revealed positive neck stiffness, anisocoria, increased tone of all four extremities with positive right Babinski reflex. Laboratory results were within normal limits. EEG revealed intermittent slow wave on both hemispheres. Head computed tomography scan showed left mesial temporal lobe sclerosis with hippocampal atrophy. The patients was diagnosed with anti-NMDAR encephalitis, and received 6 cycles of plasmapheresis therapy with an interval of 1 day per cycle. The patient showed significant clinical improvement since the first cycle of plasmapheresis.

Discussion: Anti-NMDAR encephalitis is a type of autoimmune encephalitis that attacks the NMDA receptors on neuronal membranes. The condition is divided into several phases, namely prodromal, complications, healing, and relapse. The predominant symptoms in this case were psychosis and cognitive impairment followed by neurological symptoms in the form of temporal lobe dysfunction and seizures with abnormal temporal lobe features. One of the main therapies for this disease is immunotherapy, namely administration of intravenous corticosteroids and immunoglobulin or plasmapheresis. In this case the patient had significant improvement in response to plasmapheresis.

Keywords: Autoimmune encephalitis, NMDA, plasmapheresis, cognitive

TUBERCULOUS SPONDYLITIS IN THE LUMBOSACRAL VERTEBRAE REGION

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Introduction: Tuberculous spondylitis in the lumbosacral region is quite rare, occurs only 10-15% of all cases of tuberculous spondylitis. The low percentage is associated with underreporting of cases & atypical early symptoms associated with this disease. Therefore, a comprehensive examination is needed when making the diagnosis.

Case Report: A 70-year-old male presented with a 3-month history of low back pain particularly on the right side of the hip. He reported no history of tuberculous infection. Neurological examination revealed weakness in the right lower extremity, reduced physiological reflex & right-sided hypoesthesia from the foot to the spinal dermatome of the thoracolumbar spine T12 to L1. The lumbosacral Magnetic Resonance Imaging (MRI) revealed a spondylodiscitis at L5-S1 level accompanied by paravertebrae and epidural abscess at the L5-S2 level, resulting in severe spinal canal stenosis. The patient underwent a posterior decompression-stabilization and was given anti-

tuberculous medication drugs based on the results of a GeneXpert TB test on the biopsy sample. The patient showed significant clinical improvement after therapy.

Discussion: Tuberculous spondylitis accounts for the highest case of extrapulmonary tuberculosis and commonly manifest as low back pain. While it is mostly found in the thoracolumbar vertebrae region, it may also present in the lumbosacral vertebrae region although this site is uncommon. This rare presentation demonstrates the importance of a multidisciplinary approach to diagnosis so that appropriate therapeutic management can provide a good outcome

Keywords: Tuberculous Spondylitis, Lumbosacral, Low back pain

SPINAL CORD INFARCTION AND DVT IN PATIENTS WITH HYPERCOAGULABILITY

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Introduction: Spinal cord infarction is a stroke within the spinal cord or the arteries that supply it. The incidence of spinal cord infarction is very low, which is 1-2% of the general population. Spinal cord infarction can be caused by vascular etiology and degenerative etiology. Approximately 36% of patients who suffer spinal cord infarction experience no clinical improvement at all.

Case Report: A 77-year-old woman came with complaints of sudden weakness in both legs since 3 days before entering the hospital. The patient also complained of lower VTh 1 segmental paresthesia. The patient has uncontrollable hypertension. On physical examination we found flaccid paraplegia and edema in the lower extremities. EKG results showed normal sinus rhythm. Laboratory tests showed an increase in total cholesterol of 207 mg/dL, triglycerides of 171 mg/dL, LDL of 160 mg/dL and D-Dimer 21.537 ng/mL. Doppler sonography examination showed partial thrombus in the right and left femoral veins. Spinal Magnetic Resonance Imaging showed an infarction at the level of VTh 1-2. The patient was diagnosed with deep vein thrombosis, spinal cord infarction and dyslipidemia.

Discussion: This case report aims to provide information regarding clinical manifestations, risk factors and prognostic factors in spinal cord infarction. The clinical manifestation of spinal cord infarction is an acute inferior paraplegia. The main diagnostic modality for spinal cord infarction is Magnetic Resonance Imaging. There are several risk factors and etiologies that can cause spinal cord infarction, for example hypertension, dyslipidemia, diabetes mellitus and hypercoagulability.

Keywords: Spinal cord infarction, deep vein thrombosis, dyslipidemia

CAROTID-CAVERNOUS FISTULA WITH PRESENTING SYMPTOM AS INTRACEREBRAL HAEMORRHAGE

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Introduction: Carotid-Cavernous Fistula (CCF) is abnormality communication between carotid system and cavernous system. CCF divided into some types, based on hemodynamic (low flow and high flow), pathogenesis (spontaneous and traumatic) and angiography anatomy (direct and indirect). Most common aetiology is trauma. Triad symptom of CCF is proptosis, chemosis and bruit. The other symptoms are diplopia, retro-orbital pain, decrease of visual acuity, increase of intraocular pressure and papilledema. The rare symptom is intracerebral haemorrhage/ICH (only 3 % cases). Here we present a case report about CCF with presenting symptom ICH.

Case Report: A 29year- old woman referred from district hospital with stroke suspicion. One day before hospital admission patient complaint blunt headache and right hemiparesis. Ten months before, patient got swollen of the right eyelid. Then, patient referred to Sardjito Hospital and underwent head computed tomography (CT) scan revealed multiple microbleed and right CCF suspicion. Then patient underwent head magnetic resonated imaging (MRI), show a right CCF direct type. During hospital stay, patient got mannitol as treatment and show a good outcome. Patient reported decreased in intensity of headache with proptosis of eye as sequel symptom.

Discussion: ICH is rare symptom of CCF. A drainage to superior ophthalmic vein, lead to enlargement of the vein then causes ocular symptom. Most common symptom of ICH is headache. Diagnosis CCF can be made from neuroanatomy and neurovascular imaging. The first line modality is CT and MRI.

Keywords: Carotid-cavernous fistula, intracerebral haemorrhage, stroke

SUCCESSFUL CONSERVATIVE MANAGEMENT OF MALIGNANT MIDDLE CEREBRAL ARTERY INFARCTION WITH MANNITOL

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Introduction: Stroke ranks behind cancer and heart disease as the third most significant cause of mortality. About 87% of strokes are ischemic strokes. Up to 10% of middle cerebral artery (MCA) infarctions are caused by malignant middle cerebral artery infarction (MMCAI), a potentially fatal ischemic stroke that affects the entire MCA area. Medical intervention is required when there is a significant decline in neurologic function, radiologic abnormalities, or both due to malignant cerebral edema. Decompressive craniectomy (DC) may be necessary to enhance the outcome or avoid mortality. We report a case of close-to-full recovery in a patient with MMCAI without undergoing a decompressive craniotomy.

Case Report: A 50-year-old woman was referred with a severe headache and vomiting, followed by an altered consciousness. One week previously, she developed a left-sided weakness and slurred speech. She had a history of hypertension and atrial fibrillation. A computed tomography (CT) scan showed a large right- sided MMCAI involving the entire territory of the right MCA. She was given mannitol infusion, antihypertensive, anticoagulant, and antiplatelet medications. She was considered for DC if there was a GCS deterioration. On the second day, she showed some signs of improvement. She regained consciousness and was able to follow simple commands. Her pupillary size and light reflex were normal following a slight motor power improvement.

Discussion: This case illustrates that conservative treatment with mannitol alone can be a viable option for some patients with MMCAI, who candidates for DC are not. However, the optimal dose, duration, and timing of mannitol administration are still unclear and need further investigation.

Keywords: ischemic stroke, middle cerebral artery, mannitol

NEUROCYSTICERCOSIS CURRENT PERSPECTIVE ON DIAGNOSIS

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Introduction: Neurocysticercosis (NCC) is a common infection of the nervous system caused by the Taenia solium, it is one of the seven endemic zoonoses targeted by the World Health Organization and is known to be one of the cause of preventable epilepsy and status convulsion in many developing countries. NCC is commonly resulted by the ingestion of Taenia solium eggs after consuming undercooked pork, or contaminated water. The parasite can grow in the brain and spinal cord within the central nervous system leaving multiple or solitary cyst, causing severe headache and seizures beside other pathological manifestations. NCC can be diagnosed with computed tomography, magnetic resonance imaging of the brain and Serodiagnostic test. The treatment of the NCC including cysticidal drugs (e.g., albendazole and praziquantel).

Case Report: We reported a case of Neurocysticercosis in a 51-year-old from Village outskirts of Pinrang, South Sulawesi province. The main Symptom was loss of consciousness, agitated, headache, fever and focal seizure. The Computed Tomography Scans showing multiple cystic mass with the suspicion of neurocysticercosis.

Discussion: Criteria in diagnosing of NCC are based on Clinical Symptom that mainly consist of headache, cognitive impairment and history of Seizure. CT brain finding of Moltilobulated Cyst that confirm the vesicular phase of parasite. We did not performed positif detection of antibodies to Taenia solium in serum by ELISA and enzyme-linked immunoelectrotransfer blot (EITB) because of lacking in facility.

Keywords: Neurocycticercosis (NCC), Seizure, Computed Tomography

NEUROMYELITIS OPTICA SPECTRUM DISORDERS: A CASE REPORT OF STUDY DIAGNOSIS WITH MAGNETIC RESONANCE IMAGING APPROACH

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Introduction: Neuromyelitis optica spectrum disorder (NMOSD) is demyelinating disorder of the central nervous system due to autoimmune inflammation. Incidence varies in each country, most often occur in women with age onset of 30.5-55.2 years. Originally NMO was considered a variant of multiple sclerosis. In 2004 AQP4-IgG was discovered, NMO is distinguished from multiple sclerosis by emphasizing the seropositive status of AQP4-IgG. Clinical and radiological findings were observed in seropositive patients, thus the MRI appearance of NMOSD can be explained according to it's anatomical predilection.

Case Report: We report the case of 28 years old woman with optic neuritis and myelitis. LCS analysis showed increase protein accompanied by leukocytes with PMN count of 9% and 91% MN, AQP4-IgG examination wasn't performed. T2-Flair-Cube MRI sequence showed increased signal on bilateral optic nerve. In chiasma optic, lateral paraventricular, third paraventricular and periaquaductal areas, increase signals were obtained on T2-Flair sequence. Sagittal section of whole spine showed spinal cord lesion at the level of CV C7- T7, covering 2/3 of the intramedullary section with hypointense appearance on the T1WI sequence without contrast enhancement and hyperintense on T2-STIR sequence.

Discussion: Characteristics NMOSD is optic neuritis and myelitis, include symptoms of area postrema syndrome, brainstem dysfunction and encephalopathy. Investigations cerebrospinal fluid analysis, AQP4-IgG and MRI can be performed. MRI approach aids in the diagnosis, especially in seronegative patients or unknown AQP4-IgG status by tracing predilection areas for NMOSD such as optic nerve, spinal cord and brain parenchyma.

Keywords: Neuromyelitis optica spectrum disorder, AQP4-IgG, MRI

CEREBRAL ABSCESS WITH CEREBRAL METASTASES WITH PRIMARY TUMOR ORIGINATING FROM HEPATOCELLULAR CARCINOMA

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Introduction: In rare cases, brain abscess may be found together with brain metastases. We have treated a patient with a cerebral abscess who was later also found to have cerebral metastases. In further examination it was found that the primary tumor was derived from hepatocellular carcinoma.

Case Report: In this case, a 65-year-old man experienced weakness in the left limb, memory problems, and slurred speech. The results of the Computed Tomography (CT) scan of the head described the presence of multiple cerebral abscesses, so antibiotics were given and an abscess drainage surgery was performed. The patient experienced an improvement in general condition with this treatment. After 2 months, the patient had seizures and a head contrast Magnetic Resonance Imaging (MRI) examination was performed with the results of a tumor in the right temporal region and parenchymal metastases. The patient had increased levels of liver function and an abdominal CT scan showed bilateral suprarenal tumors and a mass in the right hepatic lobe suggestive of metastases which histopathologically matched hepatocellular carcinoma. The final diagnosis was a cerebral abscess with cerebral metastases with a primary tumor originating from hepatocellular carcinoma.

Discussion: This case provides a lesson about the importance of considering the presence of other lesions when dealing with a patient with a brain abscess. Head MRI examination and histopathology will be able to provide clearer instructions in patient management.

Keywords: cerebral abscess, cerebral metastases, MRI, CT scan, hepatocellular carcinoma

NEURORESTORATION MANAGEMENT OF QUIET TRANSCRANIAL MAGNETIC STIMULATION AND OSCILLATION OF BRAIN AUDITORIC ENTRAINMENT IN DYSGEUSIA POST EXTRACTION OF LEFT 2ND LOWER MOLAR

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Introduction: Dysgeusia is a distortion of the sense of taste in humans. It includes a variety of quantitative and qualitative taste abnormalities. Taste-related hallucinations can occasionally happen and lead to fake representations of taste. Despite not being a life-threatening condition, it can have major clinical consequences because of how closely it is related to the patient's quality of life.

Case Report: A 54-year-old woman complained that she had trouble in identifying flavors. Without any additional symptoms, the discomfort persisted for a whole year. History of tooth extraction a year ago, followed by complaints a month later. However, the sensory evaluation of the nervus facialis revealed a loss of taste function in coffee, sugar, and lime, except the bitter taste still.Other neurological tests were normal. A CT scan of the head revealed no hematoma, tumor mass, infarction, or indications of inflammation at the N.VII exit site. The left temporal and right parietal regions of the QEEG were shown to have significant slow waves, resulting in inadequate functional control. Baseline waves are typically modest, resulting in cognitive ability.

Discussion: The management of the Quiet Transcranial Magnetic Stimulation (QTMS) modality for 8 times improved the impaired taste function (the patient began to be able to taste sweet flavor), and when continued up to 10 times, the patient could taste all flavors. Then, followed by quantitative electroencephalography and brain auditory entrainment three times for 10 minutes, the patient could feel his taste along with an increase in appetite.

Keywords: Dysgeusia, qEEG, QTMS, Brain Auditoric Entrainment

CLINICAL IMPROVEMENT IN A YOUNG ADULT WITH MASSIVE CRYPTOGENIC BRAINSTEM HEMORRHAGE USING CONSERVATIVE APPROACH

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Introduction: Brainstem hemorrhage is a subtype of intracerebral hemorrhage with poor prognosis which rarely occurs in the young age. Previous studies showed that level of conciousness, location, and hemorrhage volume is associated with the mortality rate. We report successful conservative management of a patient with massive brainstem hemorrhage, resulting in significant clinical improvement.

Case Report: A 34-year-old female presented with loss of consciousness (Glasgow Coma Scale score 13) initially preceded by severe headache, vomiting and quadriparesis. Computed tomography (CT) scan of the brain revealed massive pontine and midbrain hemorrhage. There were no risk factors or predisposing conditions. Vital signs, laboratory results, and cerebral angiography all yielded normal results. The patient was admitted to the High Care Unit for intense neurological and hemodynamic monitoring and management, in addition to strict control of glucose levels and body temperature. Management of nutrition and secondary infection were performed by a multidisciplinary team. The patient experienced clinical improvement after 1 month of treatment with hematoma volume reduction on follow-up CT Scan. At the 3-month follow up, the patient showed significant clinical improvement with a Modified Rankin Scale (mRS) score of 2.

Discussion: Brainstem hemorrhage rarely occurs in the young age when there are no known risk factors. A cryptogenic stroke is both diagnostically and therapeutically challenging, since the etiology and outlook is unclear. However, this report shows that strict and multidisciplinary neurocritical and neuroprotective management can improve clinical outcome in massive cryptogenic brainstem hemorrhage.

Keywords: Clinical improvement, massive brainstem hemorrhage, cryptogenic, conservative approach

EFFECT OF COLLATERAL FLOW AND CONSERVATIVE THERAPY ON PROGRESSION OF SYMPTOMATIC STROKE BASILAR ARTERY STENOSIS

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Introduction: Posterior circulation stroke has a lower incidence than anterior circulation stroke of 10-15%. Posterior circulation stroke are caused by basilar artery stenosis, the incidence of which is 40%. The clinical symptoms are non-specific and poor prognosis with a high risk of recurrent stroke, so its important to know collateral flow, good therapy and education to prevent recurrent stroke.

Case Report: A 58-year-old woman sudden weakness in the left side of the body, numbness, dizziness, with a history of hypertension. On physical examination blood pressure 190/100 mmHg, strength 4, left hemihypesthesia and left positive Babinski. Magnetic resonance imaging shows chronic infarction of the dextra thalamus and small vessel infarction with bilateral frontal and parietal lobe white matter lesions. On Cerebral Angiography examination found basilar artery stenosis due to atherosclerosis. The treatment are acetylsalicylic acid, clopidogrel and atorvastatin for 14 days showed clinical improvement as assessed by the National Institutes of Health Stroke Scale (NIHSS) at baseline 3 and discharge 1.

Discussion: Basilar artery stenosis occurs due to atherosclerosis which causes posterior circulation infarction. Collateral flow is a factor progression symptomatic of stroke by assessing grade 1-4 (the higher grade is the better) and conservative therapy shows clinical improvement in stroke basilar artery stenosis. The case showed grade 4 of collateral circulation and conservative therapy given clinical improvement. The patient received therapy for 1 year, never had a recurrent stroke and the clinical outcome remained good.

Keywords: collateral flow, basilar artery stenosis, stroke, conservative therapy, NIHSS

SEIZURE AS CLINICAL MANIFESTATION IN PATIENT WITH CEREBRAL INFARCTION ASSOSIATED WITH NEUROPSYCHIATRIC SYSTEMIC LUPUS ERITEMATOUS

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Background: Neuropsychiatric Systemic lupus erythematosus (NPSLE) is a neurologic manifestation of SLE disease that occurs mostly in young adults, especially women. The occurrence of organ damage mediated by immune complexes and autoantibodies in SLE provides a very varied manifestation including stroke accompanied by seizures.

Case Report: A 19-year-old female was consulted by an internist with complaints of tonic clonic seizures. The patient was admitted with a diagnosis of systemic lupus erythematosus (SLE). Physical examination revealed pulmonary ulcers, rashes on both cheeks and extremities. Neurological physical examination was normal. Laboratory results obtained ANA (Anti Nuclear Antibody) test positive, Anti dsDNA) test positive. Electro Encephalo Graphy (EEG) examination showed abnormal results I (bilateral symmetrical slowing) and Magnetic Resonance Imaging (MRI) of the head with contrast suggested multiple infarcts of the left temporal region, left occipital lobe accompanied by stenosis of the sinus tranversus. The patient was treated with methyl prednisolone, hydroxycloroquin, sandimun, and the initial management of awakening was diazepam followed by levetiracetam, acetylsalicylic acid, and folic acid.

Discussion: The risk of stroke is increased in cases of SLE. Clinical neurological manifestations in patients with NPSLE are generally tonic clonic seizures. In addition to history taking, physical examination, laboratory and radiological support can be used to rule out other causes of seizures. In this case, the cause of seizures as a clinical manifestation of NPSLE is supported by MRI results with multiple infarct lesions in the cerebral cortex area. Therapy with levetiracetam, acetylsalicylic acid, and folic acid provided clinical improvement in the patient.

Keywords: Seizure, Stroke, NPSLE

HYDROCEPHALUS, QUITE SILENT KILLER AFTER TREATEDANEURYSM SUBARACHNOID HAEMORRHAGE (ASAH)

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Introduction: Hydrocephalus is a common complication of aneurysmal subarachnoid hemorrhage (aSAH) and reportedly contributes to poor neurological outcomes. The haemorraghe triggers a cascade of complex events, which ultimately can result in early brain injury, delayed cerebral ischaemia, and systemic complications. Although patients with poor-grade subarachnoid haemorrhage (World Federation of Neurosurgical Societies 4 and 5) are at higher risk of early brain injury, delayed cerebral ischaemia, and systemic complications, the early and aggressive treatment of this patient population has decreased overall mortality from more than 50 % to 35 % in the last four decades.

Case Report: woman, 51 years old with severe vomiting 18 days after she had an subarachoid haemorraghe. After some analisys and filming we know that she had massive hydrocephalus with intraventricular haemorraghe. Operation helded fast it fast It can to depress the intracranial pressure and to protect the brain from pressure damage.

Discussion: Hydrocephalus is a frequently encountered complication following aSAH and is classified as acute (0–3 days post-SAH), subacute (4–13 days post-SAH), or chronic (14 days post-SAH). Acute hydrocephalus necessitates the placement of an external ventricular drain (EVD) to reduce deleterious secondary effects after the aneurysm bleed. Chronic Hydrocephalus has been of aSAH patients; placement of a shunt system improves clinical outcome in aSAH. Early cerebrospinal fluid (CSF) drainage with an EVD reduces the content of blood-clotting products and protein in the CSF, which reduces the incidence of obstruction in the CSF flow pathway. The result is of ventriculoperitoneal shunt insertion is amazing.

Keywords: Hydrocephalus, aSAH (Aneurysm Subarachnoid Haemorraghe), VP (ventriculoperitoneal) Shunt

PARINAUD SYNDROME AS A CLINICAL MANIFESTATION FOR CEREBRAL ARTERIOVENOUS MALFORMATION

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Introduction: Parinaud Syndrome is a structural dysfunction of the dorsal midbrain. Typical clinical manifestations include diplopia, blurred vision, visual field defect, ataxia, vertical gaze palsy, convergence-retraction nystagmus and light-near dissociation. More common causes of Parinaud Syndrome are tumour, hemorrhage and infarct of the midbrain area, while arteriovenous malformation is a very rare etiology.

Case Report: A 22-years old male present with progressive headache that was preceded by blurred vision since 3 years prior to admission. Physical examination reveals convergence-retraction nystagmus and light-near dissociation. MRI findings include vascular abnormalities consistent with arteriovenous malformation (AVM) (Spetzler-Martin II). Digital Subtraction Angiography (DSA) shows an AVM with nidus on the pineal region, a feeding artery from superior cerebellar artery and draining vein to the sinus rectus. Stereotactic radiosurgery (SRS) was the chosen for this patient.

Discussion: Parinaud Syndrome is a common manifestation in tumor of the midbrain (40-50%) but is rarely found in AVM. The incidence of pineal AVM varies between 1-3%. Symptoms were due to compression of the right side mesencephalon. Furthermore, it also compresses the Sylvian aqueduct and the third ventricle, which resulted in hydrocephalus. Imaging such as CTA, MRI, DSA could visualize nidus, feeding artery and draining vein. Management of this case includes SRS, microsurgery and embolization.

Keywords: Parinaud Syndrome, Cerebral Arteriovenous Malformation, Digital Substraction Angiography, Stereotactic Radiosurgery

PAINFUL OPHTHALMOPLEGIA IN TOLOSA HUNT SYNDROME

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Background: Tolosa-Hunt Syndrome (THS) is a rare idiopathic disease that is characterized by ophthalmoplegia pain with third, fourth, and/or sixth nerve palsy. THS diagnosis is based on exclusion diagnoses in which clinical suspicion is important. THS is responsive to steroid treatments.

Case Report: We reported a 61-year-old female with uncontrolled hypertension who presented pain in the right eye extent to the head for 2 months. The patient also complained of double vision and diminished ocular movements. Physical examination revealed right ophthalmoplegia and trigeminal nerve lesion without another neurologic deficit. The patient had a good response to steroid treatment.

Discussion: We found a case with unilateral ophthalmoplegia pain which responds to steroids. Paralyse of the third, fourth, sixth, and fifth cranial nerve was found in this case. We did not find any lesions based on MRI. The patient had improvement with steroid treatment.

Keywords: Ophthalmoplegia; Pain; Tolosa-hunt Syndrome

THE CHARACTERISTIC OF ELECTRODIAGNOSTIC IN BRACHIAL PLEXUS INJURY PATIENT AT RSUP PROF. DR. I.G.N.G NGOERAH

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Backgrounds: Brachial plexus injury (BPI) is one of the most devastating injuries that affects quality of life. BPI could lead to severe disability. The Electrodiagnostic examination is helpful to diagnose, determine the lesion site and severity, and help to consider the treatment option. The aim of this research is to characterize the electrodiagnostic abnormality in BPI patients.

Methods: This was a descriptive study with the cross-sectional method. All of the BPI patients who underwent electrodiagnostic examination at the Neurology outpatient clinic of RSUP Prof. DR. I.G.N.G Ngoerah Bali periods February 2022 until April 2023 were included. Data was obtained from medical records. All data is presented in frequency and percentage.

Results: Of 27 subjects were included in this study. 81% in the age range from 18 to 60 years. The mean age is 35.52 years. 59% of subjects were male. 89% of BPI was caused by traffic accidents with 89% of subjects having post-ganglion lesions in superior trunks or total. Only 30% of subjects had electrodiagnostic examination 3 months after onsets. Most of them had axonal lesions by electrodiagnostic examination.

Conclusion: BPI is still found high, and most of them are caused by traffic accidents. Superior trunks or total is the most affected lesion that leads to disturbing independent daily activities. Electrodiagnostic should be done to help determine the treatment, such as surgery, to achieve improved quality of life.

Keywords: Brachial Plexus Injury; Electrodiagnostic; ENMG

PROFILE OF ISCHEMIC STROKE IN KALABAHI GENERAL HOSPITAL

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Introduction: Stroke is a leading cause of death and disability globally and particularly in low- and middle-income countries, Kalabahi Hospital is a referral hospital in Alor Regency, East Nusa Tenggara Province, where ischemia stroke was found to be the fifth most common cause of hospitalization and the fourth leading cause of death in intensive care. The purpose of this study is to give an overview of ischemia stroke at Kalabahi Regional Hospital.

Methods: Descriptive studies with cross-sectional and total sampling techniques. The study population was ischemia stroke patients who underwent treatment at the Kalabahi Regional General Hospital in January-December 2022. The data is primary data, which includes patient identity, risk factors, degree of disease, and patient's discharge condition.

Results: There were 88 patients with ischemic stroke in January-December 2022. There were more Men (52,3%) than women and over the age of 60 (61,4%). Hypertension is the most common risk factor found (73,9%), followed by age and smoking habits. The majority of patients have moderate severity (72,7%). A total of 79,5% were discharged with improved condition, as many as 6,9% worsened while being treated and 9.1% died.

Discussion: Hypertension is the most common risk factor found in ischemia stroke patients. Most of the patients were discharged with an improved state. This study is the first to provide an overview of ischemia stroke in Alor Regency. Further studies can be carried out using this study as a basis.

Keywords: Profil, Ischemic Stroke, Alor, Epidemiology

ENDOVASCULAR THERAPY (EVT) WITH STENT RETRIEVER IN ACUTE BASILAR ARTERY OCCLUSION (BAO)

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Introduction: Acute Basilar Artery Occlusion (BAO) is one of the most debilitating conditions which results in severe impairment or death. The consensus on the ideal treatment for acute BAO has not yet to be established from the available evidence-based recommendations. We present a case of acute BAO which was well-treated with endovascular therapy (EVT).

Case Presentation: A 57-year-old male patient was referred to our emergency department with symptoms of dizziness, vomiting, and perioral paresthesia that occurred within six hours onset. The patient appeared to be lethargic with right eye lagophthalmos, right-sided facial droop, right lateral gaze palsy, and left-sided dominant quadriparesis. The National Institutes of Health Stroke Scale (NIHSS) score upon admission was 10. A non-contrast head Computed Tomography (CT) indicated marked hypodensity in the right cerebellum. Digital Subtraction Angiography (DSA) showed the right vertebrobasilar artery occlusion. Complete recanalization (mTICI 2C) was successfully achieved by two retrieval passes using a Rebar™ microcatheter 18 (Medtronic), Avigo™ hydrophilic guidewire (Medtronic) 0.014", and CATCHVIEW stent retriever (Balt). The patient experienced a significant improvement on the second day of hospitalization with only slight right facial droop noted on physical exam.

Discussion: The two recent randomized clinical trials (RCT) in 2022 showed that EVT provided beneficial effect for acute BAO with a baseline NIHSS score ≥ 6. This case report demonstrated an excellent outcome, as suggested by the RCT. Nonetheless, EVT candidates should be thoroughly evaluated in different clinical settings.

Keywords: basilar occlusion, stent retriever

ACUTE PULMONARY EDEMA FOLLOWING INTRAVENOUS THROMBOLYSIS USING RECOMBINANT TISSUE PLASMINOGEN ACTIVATOR IN ACUTE ISCHEMIC STROKE PATIENT

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Introduction: Intravenous thrombolysis is currently the first-line treatment for acute ischemic stroke despite the possible complication. In this report, we presented 2 rare cases of acute pulmonary edema following intravenous thrombolysis in patients with acute ischemic stroke.

Case Report: Case 1: A 68-year-old male was brought with a sudden inability to speak and right limb weakness 2 hours prior to hospital admission with the National Institute of Health Stroke Scale (NIHSS) score of 8. The head CT scan result demonstrated Alberta Stroke Programme Early CT Score (ASPECTS) of 8. Intravenous thrombolysis with alteplase was initiated and signs of acute pulmonary edema were present thirty minutes after intravenous thrombolysis was finished. Unfortunately, the patient died despite active rescue. Case 2: A 63-year-old male came with a sudden onset of right limb weakness and slurred speech for the past 3.5 hours with a NIHSS score of 7 and ASPECTS of 7. The electrocardiography showed inverted T waves and depressed ST segments in anterior and lateral leads with elevated cardiac enzymes. Thrombolytic therapy with intravenous alteplase was suggested but rales were present bilaterally 7.5 hours later. Patient was discharged with modified Rankin Scale (mRS) at three months of 4.

Discussion: Several theories have been proposed to explain the development of acute pulmonary edema in acute ischemic stroke patients and their relation with rtPA. Despite the rare incidence, close monitoring of the development of acute pulmonary edema following intravenous thrombolysis is reasonable.

Keywords: acute ischemic stroke, intravenous thrombolysis, acute pulmonary edema

CONCURRENT ACUTE INTRACEREBRAL HEMORRHAGE AND STEMI

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Introduction: Concurrent acute intracerebral hemorrhagic (ICH) and ST-elevation myocardial infarction (STEMI) are medical emergencies where timely recognition and prompt treatment have been shown to successfully decrease morbidity and mortality. Sometimes, one may precede the other. Rarely, they occur simultaneously. Acute ICH and STEMI require complex and urgent decisions.

Case Report: We report a 65-years-old male came to ER with decreased consciousness for nine hours before admission to the hospital. The complaint begins with dizziness, babbling with unclear articulation, sudden fainting accompanied by a stiff body. The patient had suffered from hypertension and stroke about seven years ago but did not seek medical treatment. History of smoking a pack every day and drinking black coffee twice a day. Physical examination revealed that the patient was coma with GCS 3, decreased blood pressure, tachypnoea, tachycardia, hyperthermia. The laboratory findings were hyperglycaemia and there is an increase in CKMB. We found that STEMI in electrocardiography. Overview of the chest X-ray shows lungs are normal, but the heart appears enlarged. Intracerebral hemorrhage and cerebral oedema were found on the head CT scan. The patient was given conservative therapy from a neurosurgeon and cardiologist. After sixteen hours of hospitalization, the patient died.

Discussion: Due to the rarity of the condition, the management of these patients is very challenging and there is no ideal recommendation. The development of appropriate methods to balance antiplatelet therapy and bleeding may present a key to resolving this issue. Although infrequent, this challenging scenario deserves more recognition and a discussion among the medical community.

Keywords: Concurrent, Intracerebral hemorrhagic, STEMI

CORRELATION OF SERUM SODIUM LEVELS WITH CEREBRAL ISCHEMIC SEVERITY IN ISCHEMIC STROKE PATIENTS AT DR. SARDJITO HOSPITAL YOGYAKARTA_

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Introduction: Stroke is the most common cause of disability and the second leading cause of death in the world. The incidence of ischemic stroke is higher than hemorrhagic stroke. Hyponatremia is the most common electrolyte disturbance in stroke patients and is associated with poor outcomes. The degree of ischemic stroke in stroke patients can be assessed using the ASPECTS scoring system based on head CT scans. This study aims to evaluate the correlation between serum sodium levels and ASPECTS scores in ischemic stroke patients.

Methods: This study was a cross-sectional observational study involving 322 patients from the stroke registry at RSUP Dr. Sardjito Yogyakarta from January 2020 to December 2022. Serum sodium was measured at patient admission. The ASPECT score was assessed immediately after a head CT scan by an independent neurologist. The relationship between serum sodium level and ASPECT score was analyzed using bivariate analysis using Pearson's correlation.

Results: Most of the patients were male (53.7%, n=173) aged 56-65 years (34.8%, n=112). The number of patient mortality was (10.9%, n=35 people). The subjects' mean serum sodium was 136.604±12.103. The mean ASPECT score of the patients was 7.242±2.770. Based on the results of the bivariate analysis, it showed that sodium levels had a positive correlation with the ASPECT score of 0.129 with a significance value (p=0.021).

Discussion: This study showed a significant correlation between serum sodium levels and the ASPECT score which indicates the patient's ischemic degree.

Keywords: stroke, ischemia, serum sodium, ASPECT score

THE EFFECT OF AUDITORY STIMULATION AND REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION (RTMS) TO REDUCE PAIN ON TRIGEMINAL NEURALGIA

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Introduction: Trigeminal Neuralgia is a complaint of pain attacks on one side of the face that is felt repeatedly, chronic, with the characteristics of very severe, fast, and like an electric shock. Trigeminal Neuralgia is pain that is felt in the face and occurs in one or more nerves of the three branches of the trigeminal nerve where the pain is felt according to the distribution area of innervation of one of the branches of the trigeminal nerve.

CaseReport: A 79- year-old man with a complaint of pain on the left side of his face. Complaints since 18 years ago and getting worse with a history of herpes zoster. Hyperesthesia was found in the dermatome N V.2. Initial pain with VAS 9/10, Quantitative Electroencephalograph (QEEG) performed followed by Auditory Stimulationand rTMS (repetitive Transcranial Magnetic Stimulation).

Discussion: Treatment of Alpha Auditory stimulation and rTMS (repetitive Transcranial Magnetic Stimulation) excitation in the Dorsolateral PrefrontalCortex (DLPFC) and inhibition in C3 for 10 times with the result being able to reduce pain (VAS 2/10) decrease fast waves and reduce drug doses.

Keywords: Trigeminal Neuralgia, QuantitativeElectroencephalograph, Auditorystimulation, DLPFC, rTMS

GUILLAIN BARRÉ SYNDROME AND VERTEBROBASILAR STROKE, CO-INCIDENCE OR MIMICKING

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Introduction: Guillain Barré Syndrome (GBS) is an autoimmune polyradiculoneuropathy, with various types and symptoms. Posterior circulation stroke can present with similar symptoms to Miller-Fisher Syndrome (MFS), a rare variant of GBS. Hopefully this case report would provide an example for many practitioners in a limited settings for a better understanding.

Case Report: Here we report a case of vertebrobasilar stroke from a 64-year-old man with an incidence of GBS, along with a discussion of the clinical course, the symptoms, and treatments in limited settings. The facility to diagnose were limited and the treatment given was far from the recommendation. We performed manual plasma exchange and administered high dose intravenous corticosteroid and inadequate doses of IVIg.

Discussion: It is important to have a differential diagnosis of GBS from posterior circulation stroke, so that early diagnosis may reduce the mortality. There were several cases stroke-induced GBS. The exact pathogenesis still not fully understood, stroke inflamation process induced immunological response of GBS. Many centers, specifically in limited settings might experience similar situation challenges to the practitioners especially to diagnose and giving appropriate therapy.

Keywords: Guillain Barré Syndrome, Miller-Fisher syndrome, vertebrobasilar stroke, plasma exchange, IVIg

THE EFFECT OF MUSIC THERAPY ON HEAD INJURY PATIENTS ASSESSED FROM VITAL SIGNS, GCS, MMSE AND TOAG

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Introduction: Traumatic brain injury (TBI) is a one of health problem that often occurs in the world and a major cause of mortality and morbidity at all ages. TBI results in disturbances in consciousness, sensory, motor, language, and emotional, as well as in cognitive functions such as attention, information processing, executive function, and memory. Several studies have shown the benefits of music to the brain as an adjuvant therapy during recovery of traumatic brain injury patients.

Methods: Design of the study is clinical trial. This study measured and compared changes in GCS, MMSE and TOAG, and vital signs scores in traumatic brain injury patients who were given classical music therapy 2 times

45 minutes in the morning and evening for 5 consecutive days with patients in control group. Samples were taken using consecutive sampling technique. The data were analyzed using Ancova dan Wilcoxon test.

Results: The number of samples in this study was 19 patients, include 9 subjects in the music therapy group and 10 in the control group. ANCOVA test showed significant differences in the GCS ($p = 0.017$, $p < 0.05$) for pre and post on therapy group, but no significant results were obtained in MMSE ($p = 0.109$, $p > 0.05$) and TOAG ($p = 0.593$, $p > 0.05$). Meanwhile, Wilcoxon test showed there were only significant results in the improvement of heart rate ($p = 0.024$, $p < 0.05$) by comparing outcomes in therapy and control group.

Discussion: Giving music therapy has a significant effect on the consciousness of patients with traumatic brain injury. However, there was no difference in TOAG and MMSE changes in traumatic brain injury patients before and after music therapy.

Keywords: Music Therapy, Vital Signs, GCS, MMSE, TOAG

PLATELETS EFFECT ON THE CLINICAL OUTCOME OF HEMORRHAGIC STROKE PATIENTS IN K. H. HAYYUNG HOSPITAL KEPULAUAN SELAYAR REGENCY

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Introduction: Hemorrhagic stroke (HS) is a major cause of death and disability worldwide, although it is less common, it presents more aggressively and causes more severe sequele than ischemic stroke. Each type of stroke is affected by the platelet count and platelet function. Thrombocytopenia can lead to strokes and paradoxically patient can develop complications of bleeding in the brain.

Methods: This study was a cross-sectional design, conducted during January-February 2023. The study variables were platelets, NIHSS and barthel's index. The data is then processed, presented in the form of a frequency distribution table, and accompanied by a discussion.

Results: Of the 49 HS patients, the average age of was 55.5 years with the 24 female (49%) and 25 men (51%). The median initial and final NIHSS scores were 7 and 4, while the median barthel index was 15 and 16 respectively. The comparison of initial and final NIHSS scores and barthel index were significant. The correlation between initial and final NIHSS scores on platelets was statistically significant ($r = -0.623$; $p = 0.000$ and $r = -0.602$; $p = 0.000$). Correlation of Barthel's index at admission and discharge to patient's platelets is also significant ($r = 0.612$; $p = 0.000$ and $r = 0.602$; $p = 0.000$).

Discussion: Platelet count that tend to increase in HS patients will improve the patient's activities of daily living and strengthens the theory that thrombocytopenia will worsen the clinical outcome of HS patients.

Keywords: Hemorrhagic stroke, platelets. Outcome

DISTRIBUTION PROFILE OF LOW BACK PAIN PATIENTS AT THE NEUROLOGY POLYCLINIC NUNUKAN GENERAL HOSPITAL

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Introduction: Low back pain (LBP) is a leading cause of disability among adults of all ages. Low back pain can be influenced by various factors, including age, gender, occupation and causal factors.

Methods: This is a descriptive study, conducted during the period August to October 2022, obtained as many as 74 sample patients. The variables are age, gender, occupation, and causal factors. The data is then processed, presented in the form of a frequency distribution table, and accompanied by discussion.

Results: Of the 74 patients with low back pain, the highest proportion was aged > 50 years (52.7%), female (56.8%), manual labor (68.9%) and non-traumatic factors (91.9%). In conclusion, the majority of low back pain patients at the Nunukan General Hospital are caused by non-traumatic processes.

Discussion: Non-traumatic low back pain is one of the most common complaints in the emergency department. Most of these cases require easy and manageable treatment, but sometimes.

Keywords: Low back pain, causes, occupation

ENDOVASCULAR THROMBECTOMY WITH STENT-RETRIEVER IN PROXYMAL CAROTID ARTERY OCCLUSION

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Background: Proximal internal carotid artery revascularization in acute ischaemic stroke (ICA) cases using endovascular thrombectomy is challenging and there is need to pay special attention on this procedure due to its difficulties in repairing brain reperfusion, in which intravenous thrombolysis failed to do so. We presented a case of successful recanalization of the right proximal ICA occlusion using a stent-retriever.

Case presentation: A 42 year old man was admitted to the emergency room due to a sudden decrease in consciousness, loss of speech, and weakness in the left extremities in at approximately 100 minutes onset. Initial exam was taken resulting in NIHSS score of 10. Brain CT shows an infart lesion at the right frontotemporal with hyperdense MCA sign, ASPECT score 7. Initial intravenous thrombolysis was not clinically improved, the thrombectomy procedure was taken using JR 6F 3.4 catheter positioned at the cervical segment of RICA. The angiogram displayed a total occlusion of the proximal RICA. A microcatheter and microwire maneuver was taken to penetrate the thrombus and extracted using catch-35 retrieval stent size 6x50 mm, resulting in TICI 3 reperfusion score. Clinical improvement was observed in 2 days of follow up.

Discussion: Proximal internal carotid artery occlusion revascularization in acute ischaemic stroke could be treated by a simple mechanical thrombectomy procedure using stent-retriever, although difficult and challenging to do to such extent of cautiosness and patience is needed. A high experience level of the operator is imperative to ensure succesfull revascularization. Stent-Retriever technique has a good recanalization rate, more economical in cost, and also much easier to use as it shorten the procedural time.

Keywords: proximal carotid artery occlusion, endovascular thrombectomy, Stent-Retriever

KLEIN-LEVIN SYNDROME WITH UPPER RESPIRATORY TRACT INFECTION

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Introduction: Kleine-Levin syndrome (KLS) is a rare disorder characterized by discrete episodes of hypersomnia associated with cognitive and behavioural abnormalities. URI may not be the only direct cause of KLS; rather, one may hypothesize that a mild infection such as fever may modify the permeability of the blood-brain-barrier.

Case Report: A 14-year-old male was referred with a chief complain of recurrent hypersomnia and childish behaviour. He had been experiencing the episodes since he was eleven. The episodes lasted from 8-14 days with each duration lasting 16-18 hours and would normally occur 2-3 times in a year. Most of the time, it started with fever and upper respiratory tract infection. The polysomnography was performed with the result of hypersomnia (one minute of sleep onset latency), REM latency of 104 minutes showing not a narcolepsy, and sleep apnea was not found during the session.

Discussion: Kleine-Levin syndrome is a periodic hypersomnia whose underlying etiology remains to be elucidated. Currently, there is a lot of connection between the time of KLS episodes and the incidence of upper respiratory tract infections (URI). A study explains the connection between HLA DQB1*0201 and KLS through inflammatory process due to infection such as URI may be one of the pathological process. However, few studies have shown inconsistent results regarding the relationship between HLA and KLS. Therefore, a further study to identify the cause of KLS is needed.

Keywords: Etiology, Hypersomnia recurrent, Kleine-Levin Syndrome (KLS), Trigger, Upper Respiratory Infection (URI)

RELATIONSHIP BETWEEN PARATHYROID HORMONE LEVELS AND UREMIC NEUROPATHY IN CHRONIC KIDNEY DISEASE PATIENTS

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Introduction: Parathyroid hormone (PTH) is a polypeptide that is synthesized and broken down into its active form in the parathyroid gland which plays a role in regulating calcium levels in the blood. Increased levels of PTH in the body can cause disturbances in nerve condution parametersthat lead to uremic neuropathy. Chronic Kidney Disease (CKD) can cause hypocalcemia which increase parathyroid hormone. The purpose of this study was to determine the relationship between parathyroid hormone and uremic neuropathy in CKD patients undergoing hemodialysis at RSUP Dr. M. Djamil.

Methods: This cross-sectional study research took samples from 42 CKD patients undergoing hemodialysis at Dr. RSUP. M Djamil, Padang from February to July 2022. Parathyroid hormone levels were measured by Elisamethod, while nerve conduction velocity was measured by electromyography (EMG). The relationship between parathyroid hormone levels and uremic neuropathy was examined by Mann Whitney test, with ($p<0.05$) considered significant.

Results: Neural conduction parameters oneach nerves show prolonged distal latency, lower amplitude, and slower velocityin uremic neuropathy patients. There was no significant difference between parathyroid hormone levels in patients with uremic neuropathy and without neuropathy in patients with chronic kidney disease. ($p>0.637$).

Conclusion: There was no relationship between parathyroid hormone levels and uremic neuropathy in patients with CKD.

Keywords: Chronic Kidney Disease (CKD),Parathyroid Hormone (PTH), Neuropati Uremikum

EFFECT OF NEURAL PROLOTHERAPY DEXTROSE 5% ON TRIGEMINAL NEURALGIA

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Introduction: Trigeminal Neuralgia (TN) is characterized by brief, sudden, and excruciating facial pain attacks in one or more branches of the trigeminal nerve. It can be treated with pharmacological therapy, but in some cases, it may not provide optimal results, leading to the consideration of neural proloterapy (NP) with 5% dextrose. Np is a regenerative pain treatment that involves injecting subcutaneous tissue along the inflamed nerve pathway.

Case Report: first case: a 51-year-old male with right-sided tn for 6 years, initially presenting with a numeric rating scale (nrs) score of 5. Second case: a 65-year-old female with right-sided tn for 2 years, initially presenting with an nrs score of 8. Third case: a 66-year-old male with left-sided tn for 2 years, initially presenting with an nrs score of 6. All three patients received first-line therapy with carbamazepine, but their pain remained significantly unchanged. Subcutaneous injections of 5% dextrose with neural proloterapy (NP) at the pain site once a week for 3-4 weeks proved to be effective in significantly reducing the pain. In the first case, the nrs score decreased from 5 to 1. In the second case, the nrs score decreased from 8 to 2. And in the third case, the nrs score decreased from 6 to 1.

Discussion:: NP can be a therapeutic option for patients with trigeminal neuralgia who do not respond to treatments, have drug allergies, or do not wish to surgery.

Keywords: trigeminal neuralgia, neural prolotherapy, perineural injection therapy

POST BELL'S PALSY SYNKINESIS

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Introduction: About 70–90% of all idiopathic facial palsy cases recover in 12 months when treated under the standard corticosteroid therapy, i.e., about 10-30% develop synkinesis. Facial synkinesis does not only become obvious during facial expressions, but also at rest, the patients can show intermittent or reduced blinking on the affected side or intermittent cheek muscle twitching. facial nerve injury and commonly involves perioral, periocular, midfacial, and neck musculature. The asymmetric facial appearance and uncoordinated facial movements hamper an individual's emotional expressivity and prevent normal social interaction resulting in decreased quality of life, poor self-image, and depression.

Case Report: Case 1; male, 35 yo with perioral synkinesis 3 months after Bells's palsy. Phenomenology as an involuntary movement on perioral muscle when lifting his eyes brows. Case 2; female 45 yo with periocular synkinesis 4 months after Bells plasy. Phenomenology as an involuntary movement on periorbital muscle during smiling.

Discussion: Facial synkinesis is a distressing disorder resulting in undesired facial movement accompanying volitional movement and expression, particularly when it presents as a non-flaccid facial paralysis. Facial synkinesis is characterized by abnormal and unintentional contractions of facial muscles caused by aberrant facial nerve healing, usually as a sequelae of facial palsy. Facial rehabilitation, including neuromuscular retraining, soft tissue massage, and relaxation therapy in addition to chemodenervation with botulinum toxin, remains the cornerstone of treatment.

Keywords: Synkinesis, Facial hyperkinetic, Bell's palsy, Involuntary movement

CORRELATION OF EPERISONE HCL AS MUSCLE RELAXANT AS ADJUVANT THERAPY TO THE PAIN SCALE OF PATIENTS WITH ACUTE LOW BACK PAIN IN OUTPATIENT CLINIC OF NEUROLOGY IN DJAFAR HARUN HOSPITAL, LASUSUA, NORTH KOLAKA

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Introduction: Low Back Pain (LBP) is defined as pain, muscle tension, or stiffness, localized below the costal margin and above the inferior gluteal fold, with or without radicular or radicular leg pain (sciatica), a leading cause of disability among adults of all ages. Eperisone HCl, a centrally acting muscle relaxant, has demonstrated a potent effect in pain management.

Methods: This research is a cross sectional design, conducted during the period March to April 2023, a total of 39 patients were found. The research variables were age, gender, occupation, education, NPRS scale and eperisone HCl implementation. The data is then processed, presented in the form of a frequency distribution table, and accompanied by a discussion.

Results: Of the 39 patients with low back pain, the highest percentage was at age > 60 years (25.6%), female (51,3%), employees (46.8%) and education >= 12 years (78%), 53.8% samples used eperison HCl. There was no relationship between the NPRS score to both groups (eperisone and standard therapy) ($p=0.284$, $r=0.176$), but there was a significant comparison between the first and fourth weeks of NPRS scores in eperisone group ($p=0.000$).

Discussion: Low back pain is one of the most common complaints in the emergency department. Using muscle relaxant intervention in this case eperisone HCl may be effective in patients with acute LBP. Its mechanism of action involves inhibition of nerve activity and pain sensation by blocking voltage- gated sodium channels (VGSC) in the brainstem.

Keywords: Low back pain, eperisone HCl, muscle relaxant

DESCRIPTION OF COGNITIVE FUNCTION IN ACUTE ISCHEMIC STROKE PATIENTS IN HAJJAH ANDI DEPU GENERAL HOSPITAL OF POLEWALI MANDAR

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Introduction: Stroke is one of the main health problems, not only in Indonesia but throughout the world. Stroke causes disability due to motor dysfunction and impaired cognitive function.

Methods: This is a descriptive study, conducted during the period August to October 2022, obtained as many as 34 sample patients. The variables are age, gender, education level, and impaired cognitive function. The tool used is the Indonesian version of the Montreal Cognitive Assessment (MoCA-INA). The data is then processed, presented in the form of a frequency distribution table, and accompanied by discussion.

Results: 78% of acute ischemic stroke patients had cognitive impairment with the highest percentage at the age of 56-65 years (36.6%), male (73.17%), and education ≤ 12 years (92.69%). In conclusion, most of the acute ischemic

stroke patients in Hajjah Andi Depu General Hospital of Polewali Mandar shows cognitive impairment.

Discussion: The results showed that cognitive function impairment occurred after acute ischemic stroke. Its prevalence increases in old age, along with decreased function due to atrophy of brain cells. Men tend to have unhealthy lifestyles (smoking habits and alcohol consumption), so they are at higher risk of suffering from stroke and cognitive impairment. Structured education levels form intelligence. Low education level is a predictor of post-stroke cognitive impairment.

Keywords: trigeminal neuralgia, neural prolotherapy, perineural injection therapy

MULTIPLE MENINGIOMAS

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Introduction: Meningioma is the most common primary tumor in the central nervous system. Meningiomas originate from the meningent membrane that develops from arachnoid cells and are generally benign. The tumor is more common in females than males. Approximately 1-9% of patients with meningioma on radiologic examination of the brain are found to have multiple intracranial masses called multiple meningiomas.

Case: A 49-year-old woman presented with complaints of frequent progressive headaches and left-sided seizures for less than one minute in a conscious state. The patient had a history of using hormonal contraceptives for 10 years. On neurological examination, there was parese of the left central VII and XII cranial nerves and left motor hemiparasis with a strength of 4. Contrast-enhanced CT of the brain showed masses in the bilateral temporalis, homogeneous hyperenhancing masses in the bilateral frontalis, strong enhance isodense shadows in the bilateral cavernous sinuses. Tumor resection was performed on the temporoparietal dextra by a Neurosurgeon, histopathological and immunohistochemical examinations were performed with the conclusion of Grade I Meningioma. The patient was treated for 14 days, complaints of headache decreased and seizures were absent. The patient then undergoes outpatient care followed by periodic brain radiology examinations.

Discussion: Multiple meningiomas are rare cases in Indonesia. We present a case of a woman admitted to the Bandung Regional General Hospital with a diagnosis of multiple meningiomas with manifestations of headache and seizures and then the patient underwent tumor resection.

Keywords: Multiple Meningiomas, Headache, Seizures, Brain Tumor Resection

ISCHEMIC STROKE IN A YOUNG ADULT DUE TO TOTAL OCCLUSION OF THE DISTAL INTERNAL CAROTID ARTERY

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Introduction: Acute occlusion of the internal carotid artery suggests a 4–15% prevalence for ischemic stroke. At a young age, the most prevalent risk factor for ischemic stroke is smoking (49%), followed by cardiovascular disease at about 20%. In young adults, an internal carotid artery occlusion can cause a severe ischemic stroke with a high mortality and disability rate.

Case Report: A 17-year-old male presented with a loss of consciousness that began with a headache and left-sided weakness. The National Institutes of Health Stroke Scale (NIHSS) is 20. Patients with a history of smoking-related risk factors and mild tricuspid regurgitation as detected by echocardiography. Magnetic Resonance Imaging (MRI) with contrast enhancement revealed an extensive infarction in the right medial cerebral artery region, and cerebral angiography revealed total occlusion in the distal segment C6-7 of the right internal carotid artery. Antiplatelet therapy for patients showed significant improvement, with a score of 9 on the NIHSS.

Discussion: The occurrence of ischemic stroke in young adults can be related to risk factors such as smoking and cardiovascular disease, which should be taken seriously in relation to the occlusion of the internal carotid artery. Cardiovascular diseases, including tricuspid regurgitation, may be linked to the incidence of cardioembolic stroke.

Keywords: Total occlusion of the internal carotid artery, stroke in a young adult, smoking, tricuspid regurgitation

ACUTE MOTOR SENSORY AXONAL NEUROPATHY AS A VARIANT OF GUILLAIN-BARRE SYNDROME

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Introduction: Acute Motor Sensory Axonal Neuropathy (AMSAN) is one subtype of Guillain-Barre Syndrome (GBS). GBS is an autoimmune disease of the peripheral nervous system and is the most common cause of acute flaccid weakness, with global incidence rate 1-2 per 100,000 people per year. AMSAN subtype is quite common in asia and has more severe clinical manifestations than classic GBS, that involves axonal degeneration of both sensory and motor fibers.

Case Report: We report a case of 53 year old male who came with progressive tetraparesis since 3 days before hospital admission. Before weakness appears, there was tingling in both legs. The patient had a history of cold and cough 1 week before. Clinical findings was bilateral lagoflthalmus, decreased motor strength, tone and physiological reflexes in all four extremities with paraesthesia of both soles and hands. The EGRIS score was 3 and the mEGOS score was 10. NCS examination found a decrease in CMAP amplitudes below 80% of the lower limit of normal (LLN) values in several nerves, decreased SNAP amplitudes below 50% LLN in 2 nerves and sural sparing pattern which supports diagnosis of AMSAN.

Discussion: GBS is a life-threatening disease with a high morbidity rate. The diagnosis is made clinically and electrophysiological examination helps determine the subtype. Rapid diagnosis and administration of therapy are needed for better clinical outcome. Our patient was given Intravenous Immunoglobulin (IVIg) as soon after the diagnosis is made and underwent close observation. The patient experienced clinical improvement after treatment.

Keywords: Acute Motor Sensory Axonal Neuropathy, Guillain-Barre Syndrome, Nerve Conduction Study

BLOOD PROFILE ANALYSIS ON CARDIOEMBOLIC STROKE PATIENTS WITH AND WITHOUT HEMORRHAGIC TRANSFORMATION

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Introduction: Following acute stroke, there is breakdown of the blood brain barrier which theoretically increases the risk of intracerebral bleeding, named as hemorrhagic transformation. Several studies already established some factors that can contribute to the occurrence of hemorrhagic transformation, yet none of them really compare the blood profile of such cases. This study was aimed to give comparative analysis on blood profile of cardioembolic stroke between those with and without hemorrhagic transformation.

Methods: This was an analytic observational study with cross- sectional approach. Samples are cardioembolic patients in Dr.Wahidin Sudirohusodo Hospital. There were 18 samples which were analyzed for their blood profiles including white blood cell, platelet, hemoglobin, hematocryte, red blood cell, lipid profile, blood glucose, ureum, creatinine, SGOT, SGPT, and albumin. Data was analyzed using SPSS 23.0 with chi square test.

Results: Comparative analysis between the two study groups for leucocyte, haemoglobin, red blood cell, triglyceride, LDL, HDL, total cholesterol, random blood sugar, ureum, creatinine, SGOT, SGPT, and albumin gave p value of 0.257, 0.157, 0.127, 0.513, 0.257, 0.527, 0.058, 0.343, 0.037, 1.000, 0.134, 0.343, 1.000, and 0.018, respectively. Comparative analysis for platelet count could not be done due to absolute and similar result in both groups.

Discussions: There was no statistically significant difference in all study parameters except for random blood sugar (RBS) and albumin level, where there was a tendency for hemorrhagic transformation to occur in the condition of hyperlycemia and hypoalbuminemia.

Keywords: blood profile, cardioembolic stroke, hemorrhagic transformation.

CORRELATION OF SLEEP QUALITY WITH COGNITIVE FUNCTION IN THE ELDERLY GROUP AT UABAU HEALTH CENTER

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Introduction: Active aging is aging where the elderly remain optimally healthy physically, socially and mentally. Forms of support for active aging are preventing cognitive function decline and improving sleep quality. The hypothesis of the cause of decreased cognitive function is still being investigated by experts, so researchers are interested in examining the correlation of sleep quality with cognitive function.

Methods: The study design was cross- sectional, interviews used the MMSE-Ina and PSQI questionnaires. The research subjects were 67 subjects (pre-elderly and elderly) at the Uabau Health Center. The sample was selected according to the eligibility criteria using consecutive random sampling method, followed by univariate and bivariate analysis.

Results: History of dyslipidemia and history of hyperuricemia on cognitive function, namely p <0.05. Age and history of dyslipidemia on sleep quality, namely p <0.05. Quality of sleep with cognitive function has a value of p=0.003 and r=0.34.

Discussion: History of dyslipidemia and history of hyperuricemia have a correlation with cognitive function. Age and history of dyslipidemia have a correlation with sleep quality. There is a significant correlation between sleep quality and cognitive function in the elderly group at the Uabau Health Center. Fat and uric acid metabolism are associated with the pathogenesis of vascular dementia. Slow wave sleep decreases with aging and less sleep time causes GH levels to decrease and affects the occurrence of dyslipidemia. An unrhythmic circadian rhythm will be followed by an increase in beta- amyloid peptide (Aβ).

Keywords: correlation, sleep quality, cognitive function, elderly group

CEREBELLAR COGNITIVE AFFECTIVE SYNDROME OR SCHMAHMANN SYNDROME IN CEREBELLAR STROKE INFARCTION

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Introduction: Schmahmann syndrome (CCAS) is characterised by deficits in executive function, language processing, spatial cognition and emotion regulation. Damage to the cognitive part of the cerebellum in the posterior lobe resulting in decreased overall intellectual function. CCAS is a rare form of cerebellum stroke, accounting for approximately 1-4% of all stroke types.

Case Report: A 55-year-old female with complaints of dizziness, nausea, vomiting, balance and language disorders. The patient had a history of hypertension, diabetes mellitus, cholesterol, and heart disease. On physical examination, high blood pressure, impaired sublime cortical function, and positive neurological signs. A CT scan showed an infarct on the right side of the cerebellum. The patient was diagnosed with central vestibular vertigo and treated with dimenhydrinate, betahistine, ondansetron, amlodipine, ranitidine, flunarizine, alprazolam, neurobion, atorvastatin, and citicoline. The initial MMSE was 8 and increased to 10 after follow-up.

Discussion: CCAS is caused by damage to the cognitive cerebellum in the posterior lobe, lobes VI, VII, and possibly lobe IX. Behavioural and emotional changes may occur in patients, especially in the right posterior part of the posterior lobe. Lesions in this part may impair language processing, spatial cognition, emotion regulation, difficulty in making decisions and completing complex tasks. Neuropsychological tests and questionnaires are used to examine cognitive and affective functions. There is no specific treatment for CCAS and prognosis will depend on the severity and progressivity of the disease and the response to the treatment given.

Keywords: schmahmann, cerebellar cognitive affective syndrom, cerebellum

TERSON SYNDROME DIAGNOSIS STUDY OF COMPLICATIONS FROM AUTOIMMUNINE PEMPHIGUS VULGARIS

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Introduction: Terson's syndrome is a collection of symptoms of vitreous hemorrhage and subarachnoid hemorrhage first described by the German ophthalmologist Moritz Litten in 1881 and then in 1900 by the French ophthalmologist Albert Terson. Terson's syndrome is now known as the intraocular hemorrhage associated with SAH.

Case Report: Mrs. NA, 40 years old, was consulted to a neurologist with complaints of confusion and incoherent speech, suddenly, experienced 1 day before, previously the patient complained of blurred vision, then vomited spraying 2x, and ptosis oculi left. History of fever for about 1 week, no history of trauma. The patient was treated by a dermatologist for 3 weeks with the diagnosis of pemphigus vulgaris. GCS E4M5V4 physical examination, positive meninges stimulation, RCL/RCTL (+/slow left oculi), left eye ptosis. Lateralization is not clear, Hoffman Tromner is positive bilaterally and Babinski is negative. Head CT scan Left temporoparietal lobe intracerebral hemorrhage with bleeding volume 71 cc. Positive intraventricular hemorrhage, posterior falx cerebri subarachnoid hemorrhage and brain edema. Fundoscopic reflex OS fundus (+) N.II papilla was not visualized, disc cup ratio was difficult to assess, A/V 2/3 macula was not visualized, visible hemorrhagic vitreous covering the papilla and macula.

Discussion: Blood in the subarachnoid space can be directly channeled forward through the optic nerve sheath. The presence of intracerebral hemorrhage in this case led to a sudden rise in intracranial pressure allowing rapid effusion of CSF into the optic nerve sheath.

Keywords: Terson's Syndrome, Subarachnoid Hemmoraghe, Vitreous Hemmoraghe, Pemphigus Vulgaris

RAPID CLINICAL RECOVERY OF DIFFUSE AXONAL INJURY

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Introduction: Diffuse axonal injury (DAI) is a severe form of traumatic brain injury that occurs when the brain is subjected to rapid acceleration or deceleration forces. DAI causes motor or sensory loss, cognitive impairment, and unconsciousness to death. Recovery from DAI is unpredictable and often poor. We describe a case report of a 19-year- old woman with rapid clinical recovery after suffering from DAI.

Case Report: The patient was referred to the emergency department after having a motorcycle accident. She was unconscious with a Glasgow Coma Scale score of E1V1M2. A head computed tomography scan showed intraventricular hemorrhage, subarachnoid hemorrhage, and diffuse brain edema. Her hemodynamic profiles were normal. She was treated conservatively with mannitol, piracetam, nimodipine, and supportive medications. Throughout eight days of care, her consciousness improved, and she was discharged with sequelae of communication deficits and high dependence on daily needs. Physiotherapy and medications, including piracetam, nimodipine, and herbal therapy as adjuvant, were given during outpatient treatment. She showed significant improvement in her motor, cognitive, and functional abilities in the following three months. In the fourth month after initial admission, she had no neurological deficits apart from slight memory deficits (MMSE score: 27/30, GOAT score: 80).

Discussion: This case illustrates a rapid improvement and excellent outcome of a DAI patient. DAI features varying clinical manifestations and outcomes. Age, hemodynamic profile at admission, time to consciousness improvement, and administration of supportive drugs in this patient may affect the outcome. Therefore, an understanding of DAI and appropriate interventions are essential to optimize outcomes and minimize sequelae in patients with DAI.

Keywords: Diffuse axonal injury, outcome, clinical recovery

ENDOVASCULAR COILING IN DISTAL ANTERIOR CEREBRAL ARTERY ANEURYSM

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Background: Distal anterior cerebral artery (DACA) aneurysm is a rare and difficult-to-manage condition due to its size, location and fragility of the blood vessels. Coiling is one of the treatment options for aneurysms in this location.

Case Presentation: A 56-year-old man presented to the emergency department with a sudden onset headache followed by decreased consciousness. CTA examination revealed a distal anterior cerebral artery (DACA) aneurysm with a neck of 4 mm, a dome of 7.4 x 6.2 mm. The patient underwent endovascular

coiling using Optima Coil System Complex (Balt)-10 Super Soft 6 mm x 20 cm, Helical Coil ev3 Axium Prime 5 mm x 20 cm and also underwent external ventricular drainage. There is no complication following the procedure.

Discussion: The DACA aneurysm has been associated with poor clinical outcomes, high morbidity rates, and a significant risk of mortality, ranging from 12% to 25%. Surgical management of DACA aneurysms is challenging due to the fragility of the blood vessels located between the brain hemispheres, which can easily rupture during exploration. Coiling is a common treatment for ruptured intracranial aneurysms, including DACA aneurysm. It is crucial to provide rapid effective surgical or endovascular interventions with DACA aneurysm to achieve good outcomes and quality of life.

Keywords: DACA, Cerebral aneurysm, Endovascular coiling

CHARACTERISTICS OF MILD TRAUMATIC BRAIN INJURY WITH HEAD CT SCAN ABNORMALITY

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Introduction: Several studies have stated that around 35-40% of mild traumatic brain injury (TBI) cases have abnormalities on a head CT scan. This study aims to describe the characteristics of mild TBI with head CT scan abnormalities.

Method: This cross-sectional descriptive study uses secondary data from April 2022 - March 2023 at the Emergency Room of Cipto Mangunkusumo Hospital (RSCM). The inclusion criteria were adult patients (age ≥ 18 years) with a clinical diagnosis of mild TBI who underwent a head CT scan. Head CT scan examination is determined using the Canadian CT Head Rules. Demographic data, mechanism of injury, CT scan abnormal features and patient clinical outcomes will be presented in percentage. Data will be analyzed using SPSS 25.0.

Results: Of 361 TBI patients for one year, 267 (73%) cases were classified as mild. The largest age group is 18-35 years (55.1%), with male sex (71.5%). The most common mechanism of injury was motor vehicle accidents (76.4%), followed by falls (16.5%), violence (6%) and gas explosions (1.1%). CT scans were performed in 249 cases (93.3%), with normal results in 182 cases (73.1%), followed by several abnormalities, including maxillofacial fractures in 42 cases (16.8%), subgaleal hematoma in 41 cases (16.4%), intracranial hemorrhage 36 cases (14.4%), and skull fractures 19 cases (7.6%). Hospitalization was carried out for 56 people (21%), while 196 people (73.4%) did not require inpatient observation in neurology. In addition, 25 people (9.4%) decided to go home of their own free will.

Discussion: Although intracranial bleeding can still be found in mild TBI, the percentage of normal CT scan results is still relatively high. Therefore, a more sensitive screening tool is needed to determine mild TBI cases requiring a CT scan.

Keywords: Mild traumatic brain injury, head CT scan, intracranial hemorrhage

CLINICAL PRESENTATION OF CEREBRAL TOXOPLASMOSISI IN HIV-POSITIVE PATIENT AS A DIFFERENTIAL DIAGNOSIS OF CEREBRAL INFARCT

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Introduction: Cerebral toxoplasmosis is an opportunistic infection in HIV-positive patients that can be life- threatening. Clinical symptoms that can resemble stroke make cerebral toxoplasmosis challenging to recognize, especially in emergency departments (ED).

Case Report: This article is a case report regarding a 46-year-old man who came to the ED with symptoms resembling a stroke. Upon further history taking, neurological examination, brain CT scan, and laboratory tests, it was found that the patient had cerebral toxoplasmosis with HIV-positive. The patient was treated with dexamethasone, pyrimethamine, clindamycin, co-trimoxazole, and antiretroviral. After 8 days of hospitalization, the patient showed a significant clinical outcome.

Discussion: Recognition of cerebral toxoplasmosis in ED is necessary to prevent misdiagnosis and increase the success rate of therapy.

Keywords: Cerebral Toxoplasmosis, Cerebral Infarct, HIV-Positive

LEFT INTERNAL CAROTID ARTERY DISSECTION AND ISCHEMIC STROKE FOLLOWING NECK MANIPULATION

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Introduction: Patients can be at risk of carotid artery dissection and ischemic stroke after neck manipulation. However, such risks are rarely reported, and raising awareness can increase the safety of neck manipulation.

Case Report: We present a case of 61-year old man with carotid artery dissection leading to ischemic stroke after receiving neck manipulation from his wife. The patient had new-onset pain in his neck after receiving frequent neck manipulation. Excessive force can cause dissection, which can cause acute stroke. The patient was prescribed aspilet 80mg and clopidogrel 75mg daily for 3 months as dual antiplatelet therapy. There were no complications over the follow-up period.

Discussion: This case suggests that dissection of the carotid artery can occur due to neck manipulation. Patients should be diagnosed and treated early to achieve positive outcomes. Neck manipulation should not be performed by people without the appropriate license.

Keywords: carotid artery dissection, neck manipulation, ischemic stroke

SPONTANEOUS SHRINKAGE IN A PATIENT WITH GIANT THROMBOSED ANEURYSM OF INTERNAL CAROTID ARTERY

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Introduction: Giant aneurysms (GAs) are uncommon type among all aneurysms; the estimated findings gained from autopsies and clinical data hover around 5%. Spontaneous intra-aneurysmal thrombosis is more likely to occur in giant aneurysms. Without undergoing any interventional treatments, in some instances the aneurysm's size might shrank.

Case Report: A 60-year-old lady was admitted with left-sided headache and facial numbness that started within a month of the onset. Neurological examination revealed weakness of left cranial nerve VIIth and all three branches of the Vth nerve, as well as left face hypesthesia. Other neurological examinations were within normal limit. An enormous aneurysm of the left pars cavernous of the internal carotid artery (ICA) with thrombosis was visible on head magnetic resonance imaging (MRI). A left ICA segment C4-C5 saccular aneurysm measuring 27.1x21.6x22 millimeters with minimal collaterals was discovered by the prior digital subtraction arteriography (DSA). Antihypertensives and symptomatic medications were used for conservative treatment. An unruptured saccular- fusiform aneurysm of 17.57x6.14x5.71 millimeters was found in the left C5 ICA segment two years after the initial DSA, which is less than the size former DSA finding.

Discussion: It is incredibly rare for giant aneurysms to spontaneously heal without any medical assistance. Several consideration can be given to various forms of treatment, including surgery, antiplatelet therapy, intervention, and conservative treatment. In this instance, the patient has received conservative treatment in form of symptomatic therapy and dual anti-hypertension.

Keywords: shrinkage, giant aneurysm, internal carotid artery, thrombosis

HEMISPATIAL NEGLECT POST HEMORRHAGIC STROKE

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Introduction: Visuospatial neglect is a neuropsychological syndrome in which patients fail to perceive and orient themselves to stimuli located in the contralateral hemisphere of the lesion. Visuospatial neglect is frequently associated with stroke, especially with damage to the right hemisphere, with an incidence of up to 80%.

Case Report: Female patient, 49 years old, Balinese ethnicity, right hand, works as a nurse at Prof. Dr. I.G.N.G. Ngoerah Hospital with complaints tend to respond more with the person they are talking to or an object if they are on the patient's right side. Patients with a history of hemorrhagic stroke in January 2022, on physical examination found compos mentis awareness, left supranuclear VII nerve paresis, and grade 3 left side flaccid hemiparesis. The patient then underwent a MOCA-INA examination, Clock Drawing Test, Line Bisection Test, and Copying Drawing Test. The results show that there is neglect of the left side. On MRI and MRA of the head on August 17, 2022,

there were images of bleeding from the right Lentiform Nucleus, right anterior limb Internal Capsule, right Corona Radiata, and right lateral periventricular and chronic hemosiderin deposits accompanied by perifocal edema.

Discussion: This patient is a case with the location of the lesion in the subcortical area, namely the Internal Capsule, which is the Superior Longitudinal Fascicle II pathway through the posterior limb of the Internal Capsule. Subcortical lesions are rarely found as a cause of neglect, which is the area that most often causes neglect in the parietal lobe area, namely the inferior parietal, where this area is part of the "where" pathway or dorsal attention network.

Conclusion: In hemorrhagic stroke patients with subcortical lesions, hemispatial neglect can appear which supports the theory that there is axonal damage to the frontoparietal pathway.

Keywords: Hemispatial neglect, visuospatial disturbances, post hemorrhagic stroke, subcortical lesion

IMPROVEMENT OF CLINICAL OUTCOME IN BELL'S PALSY PATIENTS ACCOMPANIED WITH ACUTE ISCHEMIC STROKE

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Introduction: Bell's palsy and stroke are two conditions that can cause facial paralysis. Bell's palsy is facial weakness of the lower motor neurons caused by idiopathic etiology in the absence of other neurological diseases, while stroke is a disorder of the central nervous system caused by impaired blood supply to the brain. Bell's palsy is associated with an increased risk of ischemic stroke. Surveillance study of almost 44,000 diagnoses of Bell's palsy within California EDs between 2005-2011, 0.8% received an alternative diagnosis after 90-day follow-up, 30% case was found progressed to ischemic stroke.

Case Report: A man, 58 years old with facial paralysis following weakness on the left side of the body the next day. On physical examination, blood pressure was 150/90 mmHg, peripheral type N.VII paralysis, motoric strength 4 and positive left Babinsky pathological reflex. Head CT Scan examination with impression Infarction on the dextra thalamus. Corticosteroid, antiplatelet, neurotropic and physiotherapy treatments have shown clinical improvement.

Discussion: Although rare, Bell's palsy can be found together with acute ischemic stroke. Bell's Palsy usually considered an idiopathic condition, recent studies have shown a correlation between Bell's palsy and ischemic stroke. Found that Bell's palsy is associated with an increased incidence of ischemic stroke. Uncontrolled hypertension and hypercholesterolemia are risk factors for Bell's palsy and ischemic stroke which found in our patients. More intensive stroke prevention therapy and regular follow-up after the initial diagnosis are important for a better prognosis.

Keywords: bell's palsy; stroke; facial nerve palsy

RELATIONSHIP BETWEEN HYPONATREMIA WITH CLINICAL OUTCOME, LENGTH OF STAY AND BLEEDING VOLUME IN CASE OF CLOSED TRAUMATIC BRAIN INJURY AT PROF. DR. I.G.N.G NGOERAH DENPASAR IN JANUARY 2021 – MAY 2023

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Introduction: Traumatic brain injury is often associated with water balance disturbances including hyponatremia. Hyponatremia is defined when serum sodium is <135 meq/L and it is said that hyponatremia is an independent predictor factor in the occurrence of neurological deficit severity in TBI patients. TBI mortality and disability with hyponatremia will increase. Hyponatremia in the brain can cause swelling in the brain due to a decrease in osmotic pressure in the plasma which causes vasogenic edema and increased cerebrovascular permeability and secondary brain damage will occur.

Methods: This research is a case control study. Cases and controls will be divided based on the Glasgow Outcome Scale (GOS) criteria, length of stay, and volume of bleeding

Result: a significant relationship was found in the bleeding volume variable > 40 ml with a p value (0.03). In the case control test, poor clinical outcome had an odds ratio of 1.78 and p = 0.1, length of stay > 10 days had an odds ratio of 3.63 and p = 0.1, while bleeding volume > 40 ml has an odds ratio of 2.91 and p = 0.03

Conclusion: Many studies have been carried out on hyponatremia in TBI cases, especially related to clinical outcomes, length of stay, and volume of bleeding. This is one of the options for making clinical decisions about a TBI, because adverse events that occur are not only due to direct injury due to trauma, but also hyponatremia can cause swelling of the brain that accompanies post-traumatic injuries.

Keywords: Hyponatremia, Injury, Brain, Traumatic

SUCCESSFULL OF PLASMAPHERESIS THERAPY AS THE MAIN CHOICE OF MYASTHENIA CRISIS PATIENT

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Introduction: Myasthenia gravis is an autoimmune disease in the form of a disorder of the neuromuscular junction with manifestations of certain muscle weakness that improves with rest. Myasthenic crisis is a life-threatening neurological emergency. The management of these patients is quite difficult because of the fluctuating nature of the disease.

Case Report: A 13-year-old woman with complaints of weakness in all four extremities since 2 months before entering the hospital, has been getting worse since the last 1 week. Previously the patient complained of slurred speech, blurry vision accompanied by double vision. History of often feeling tired and shortness of breath when on the move. On physical examination found decreased movement in all four extremities, strength of 4 upper and 1 lower extremities, decreased tone. Watenberg test and Vocal Cord Test were positive. Examination of nerve conduction results of Mysthenia Gravis, Demyelinating motor polyneuropathy. During treatment, the patient experienced a worsening of his condition, feeling shortness of breath, tachycardia, unstable blood pressure and decreased consciousness, so he was transferred to the ICU and received plasmapheresis therapy. After plasmapheresis, clinical improvement and motor improvement

Discussion: Myasthenic crisis are caused by severe weakness of the inspiratory and expiratory muscles, thus manifesting respiratory failure in the patient. Plasmapheresis is the main therapy used to remove autoantibodies in plasma; pathogenic antibodies and cytokines, thereby improving the clinical status of the patient. Plasmapheresis was chosen as the first choice of therapy because it is effective in helping to improve respiratory muscle function. Clinical improvement can be seen after the third session, and the effect of therapy can last for several weeks. This was seen in patients with 4 cycles of therapy showing significant clinical improvement.

Keywords: Myasthenia Gravis, Myasthenic Crisis, Plasmapheresis, Autoimmune.

RELATIONSHIP BETWEEN VITAMIN D LEVELS WITH NEUROPATHY INCIDENCE IN PATIENTS WITH HEMODIALYSIS

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Introduction: Around 70 -80% of Chronic Kidney Disease (CKD) patients are a population that is prone to hypovitaminosis D. Hypovitaminosis D causes increased expression of the peptide Calcitonin Gene Associated Peptide (CGRP) in axons and causes neurotoxicity through neuroprotective dysfunction, the increase of intracellular calcium influx, oxidative stress processes, and inflammatory processes that lead to neuropathy. This study aims to assess the relationship between vitamin D levels and the incidence of neuropathy in hemodialysis patients.

Methods: This research is an observational analytic study with a cross-sectional study design conducted at the Hemodialysis Department of Dr. M. Djamil Hospital Padang, from April to October 2022. Vitamin D levels were assessed by ELISA in CKD patients who had undergone hemodialysis, and neuropathy were assessed using the Toronto Clinical Scoring System (TCSS) questionnaire. The significant test to determine the relationship between vitamin D levels and neuropathy was carried out using the Chi-Square test and Fisher's Exact test as an alternative test with a p value <0.05 which was considered significant.

Results: Patients with hypovitaminosis D experienced neuropathy by 42.9%. Patients with neuropathy underwent longer hemodialysis than patients who did not experience neuropathy, this result was significant based on statistical tests (p <0.05). There is a relationship between vitamin D levels and the incidence of neuropathy in hemodialysis patients.

Discussion: Neurotoxicity in hypovitaminosis D causes damage to the functions of neurons, glial cells and synapses. Damage to oligodendrocytes will cause demyelination which will then interfere with the process of transmitting nerve impulses. The relationship of vitamin D to the incidence of neuropathy has been linked to the regulation of neurotrophins, such as Nerve Growth Factor (NGF) and neuronal calcium homeostasis which exert a neuroprotective effect on peripheral nerves.

Keywords: vitamin D, neuropathy, hemodialysis

PROPTOSIS OCULAR SINISTRA, LOW VISION OCULI SINISTRA, AND HEMIPARESIS DEXTRA CAUSED BY CAROTID CAVERNOUS FISTULA

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Introduction: A carotid cavernous fistula (CCF) is an abnormal shunt of the carotid artery to the cavernous sinus. CCF affects important nerve structures and blood vessels in the cavernous sinus, which include cranial nerves III, IV, V1, V2, and VI. Most CCFs are not life-threatening, but prompt treatment is needed to avoid permanent damage.

Case Report: We reported the case of a 27-year-old male with protruding left eye since month ago. History of being stabbed with a knife in the left eye in 2022. The patient underwent eye surgery at Ambon Hospital but without any notocible improvement. One week after surgery, the patient complained of sudden right hemiparesis, headache, and pain on the left eye. Nervous examination revealed a dilated, anisocoric pupil, with negative light reflex, positive RAPD, visual acuity 1/∞, proptosis in the left eye, right hemiparesis, and right hemihypesthesia. A brain contrast MRI shows a left cavernous fistula. Digital subtraction angiography (DSA) examination of cerebral arteries and veins confirmed a fistula in the left internal carotid artery to the left and right cavernous sinus type A. The patient underwent coiling procedure for this fistula, and symptoms are fully resolved.

Discussion: Clinical manifestations of CCF caused by dilatation and backflow of affected veins result in proptosis, headache, chemosis, visual disturbances, ophthalmoplegia, conjunctival injection, hemiparesis, tinnitus, and epistaxis. Transarterial coiling is the treatment of choice for fistula closure because of the accurate placement of the coil thereby ensuring complete occlusion of the fistula.

Keywords: Proptosis, carotid cavernous fistula, embolization, coiling

CEREBELLAR DEVELOPMENTAL VENOUS ANOMALY WITH ASSOCIATED CAVERNOUS HEMANAGIOMA: A CASE STUDY HIGHLIGHTING ON MULTIMODAL RADILOGICAL APPROACH

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Introduction: Developmental venous anomalies (DVA) (sometimes called venous angiomas) are slow-flowing vascular malformations characterized by "caput medusa" formed by radial configuration of medullary veins separated by white matter. This lesion sometimes coexists with cavernous hemangioma which also benign tumor resulting from malformation of thin-walled vascular channels and causing compressive effect on surrounding neurovascular structures. This disease is often difficult to differentiate from other intracranial masses with similar predilection and radiological imaging.

Case Report: We report a case of 36 year-old man with progressive headache since 1 year ago. On neurological examination, there was a central type left slight parese of NVII and left hemihypesthesia. Other neurological examinations were normal. Cerebral CT-scan conduct innitialy, found that there was an intra-axial mass in the right parietotemporal lobe accompanied by intra-tumoral bleeding suspected of oligodendroglioma. After patient was referred to Wahidin Sudirohusodo Hospital, cerebral MRI examination was carried out and it showed right parietal lobe mass suggestive of cavernous hemangioma. Following this finding, Cerebral Angiography was then performed which showed characteristic appearance of 'Caput Medusa' that conclude venous angioma diagnosis.

Discussion: DVA is an angiographic finding that is often incidental and harmless, but if it occurs together with cavernous hemangioma the chances of bleeding are higher. This report discusses angiographic findings of DVA with concomitant cavernous hemangioma. Radiological imaging of CT-scan, MRI, and cerebral angiography are very important methods in diagnosis, help determine further treatment and is essential before interventional management.

Keywords: Developmental venous anomalies, Cavernous hemangioma, CT-Scan, MRI, Cerebral Angiography

DIAGNOSTIC APPROACH TO SUGGESTED POLYMYOSITIS WITH NORMAL SERUM CREATININE KINASE EXAMINATION RESULTS

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Introduction: Polymyositis (PM) is a rare disease of skeletal muscles with characteristics namely symmetrical weakness in proximal muscles, accompanied by increase the enzyme creatinine kinase (CK), myopathic changes on electromyography, and typical histopathological on muscle biopsy description is inflammatory cell infiltration. The incidence of PM is 0.1 - 1 case per 100,000, with the predominance female sex. Methylprednisolone is still the first- line therapy for the management of PM.

Case Report: A woman with history of first experiencing progressive weakness and pain in both thighs when she was 19 years old. Complaints include difficulty standing from a lying, sitting or squatting position. The patient also complains of difficulty climbing stairs. Neurological examination found decreased motor strength of the right and left quadricep femoris muscles based on the British Medical Research Scale (+3), decreased physiological reflexes in both legs (+1), and positive Gower's sign. Laboratory results with CK values within normal limits. Neurophysiological examination Axonal motor impression of bilateral peroneal neuropathy. Followed by muscle biopsy examination in the 2nd year onset of the first complaint with the impression is chronic polymyositis.

Discussion: The pathomechanism of PM involves the immune system mediated by T lymphocytes. Examination of muscle enzymes (CK) is sensitive but not specific for PM cases. The diagnosis of PM requires a muscle biopsy examination. In patients, given methylprednisolone 1gr/day/intravenously according to the guidelines, with monitoring for side effects. PM second-line treatment options include methotrexate, azathioprine, and intravenous immunoglobulin. The patient also underwent regular physiotherapy during treatment.

Keywords: Polymyositis, Creatinin Kinase, Muscle biopsy, myopathy, steroid

PARIETAL LOBE EPILEPSY MANIFESTS AS FOCAL MOTOR AUTOMATISM WITH IMPAIRED CONSCIOUSNESS WITHOUT AURA

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Introduction: Parietal lobe epilepsy is focal epilepsy with a prevalence of 5-6%. The semiology is diverse, because of rich connections with surrounding structures, allowing seizures to spread to eloquent areas of brain, most commonly the frontal and temporal lobes.

Case Report: Female, 42 years old, has had seizures for 10 years, with symptoms are blank staring eyes, mouth chewing, then movements as if covering her mouth with both hands, or tapping objects towards her mouth, with duration from seconds to minutes, frequency 1-2 times per month, after seizure patient is confused and accompanied by headache. Head MRI in 2013 showed cortical developmental malformation of the right parietal. EEG in 2013 normal. The 2019 EEG found asynchronize sharp and wave 3 Hz interictal discharge in right and left front temporal regions. EEG in 2022 found slowing ictal discharge in the right parietal region. Initial therapy in 2013 was phenytoin, then in 2017 patient was treated with oxcarbazepine, clobazam and B6. The Seizure is still continuing to this day.

Discussion: Specific anatomical location is sometimes difficult to determine when the epileptic discharge originate is from ineloquent epileptogenic region. The Symptomatogenic Zone in this case is Temporal Lobe, with the epileptic discharge is coming from the Epileptogenic Lesion in the right Parietal Lobe. Focal epilepsy first-line drugs are carbamazepine, lamotrigine, phenytoin, if not controlled valproate, topiramate, gabapentin, or oxcarbazepine can be used. Seizures continue to occur because this case is symptomatic focal epilepsy.

Keywords: Parietal Lobe Epilepsy, Symptomatogenic Zone, Focal Motor Automatism

THE CORRELATION BETWEEN CLUSTER DIFFERENTIATION 4 AND COGNITIVE FUNCTION IN HUMAN IMMUNODEFICIENCY VIRUS (HIV) PATIENTS WITH CEREBRAL TOXOPLASMOSIS

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Introduction: HAND (HIV-associated neurocognitive disorders) is neurologic complication caused by HIV. Toksoplasmosis is the most common oppurtunistic infection found in HIV with low CD4 count. Toxoplasmosis Cerebri and low level of CD4 are factors related in cognitive function. However, the correlation between CD4 and cognitve function in HIV patient with Toxoplasmosis Cerebri remains unclear.

Methods: This was an analytic cross sectional study, all participants who met the inclusion and exclusion criteria, then had Blood samples were collected for CD4 using Absolute Lymphocyte Count (ALC) calculation. MoCA-INA was used to assess the cognitive function. To determine the correlation between CD4 and cognitive function Spearman test is used.

Results: Based on the 110 subjects characteristics, the mean age is 35.09 years old, with male 93 samples (84.5%). Patient with cognitive impairment (MoCA-Ina<26) is 105 samples (95%). There is positive correlation between CD4 and cognitive function (r 0.372, p<0.001). Patient with CD4≥200 have better cognitive (MoCA-INA score = 27) compared with CD4<200 (MoCA-INA score = 19.3) (p<0.001).

Discussion: The immune system plays a modulatory role in brain function, including cognitive function. Both HIV infection and Toxoplasmosis Cerebri may cause cognitive impairment. Several factors impact the cognitive function in HIV consist of high virulence of HIV and low CD4 count. Lower CD4<200 have higher risk to have neurological complication and risk of oppurtinistic infection. The accumulation HIV in the brain will cause local infection by direct or indirect mechanism resulting in cognitive impairment.

Keywords: Cognitive function, CD4, HIV, HAND

A DEFINITIVE CASE OF NEUROCYSTICERCOSIS WITH MULTIPLE INTRAVENTRICULAR CYSTIC LESIONS

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Intro: Neurocysticercosis (NSS) is an infectious disease of the central nervous system (CNS) caused by the larval form of the tapeworm Taenia solium (T. solium). This disease is endemic in Asia, especially in China, India and Indonesia. The incidence of intraventricular NSS is around 15-30% of the total neurocysticercosis cases. Intraventricular NSS is a rare type with hydrocephalus being the most common symptom, accompanied by signs of intracranial enlargement.

Case Report: A 57-year-old Balinese woman presented with a loss of consciousness and accompanied by projectile vomiting. She had a history of chronic-progressive vascular headache that had been experienced for 2 months, patient were seizures 1.5 months ago and weakness on the left side of the body for 3 weeks. Neurological examination obtained GCS E3V4M5 with lateralization of spastic sinistra and Babinski sinistra, behavioral changes were also found. CT scan of the head without contrast and MRI of the head with contrast showed hydrocephalus and intraventricular cysts. Surgical excision of the tumor, as well as histopathology and ELISA serological examination, supported the diagnosis of cysticercosis.

Discussion: The diagnosis of neurocysticercosis can be confirmed using diagnostic criteria, epidemiology and imaging, serology, and histopathology investigations. This patient's results indicated definite intraventricular neurocysticercosis. The therapy given to the patient was adjusted according to the cyst's location, involving surgical therapy and administration of antiparasitic, anti-inflammatory, and anti-seizure treatments.

Keywords: Clinical Syndrome; Endemic; Intraventricular Neurocysticercosis

CHARACTERISTICS AND RISK FACTORS OF INTRACRANIAL ATHEROSCLEROSIS IN WAHIDIN SUDIROHUSODO HOSPITAL

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Introduction: Intracranial atherosclerosis (ICAS) is one of the causes of stroke worldwide and is associated with a high risk of stroke recurrence compared to other types of stroke. The annual recurrence rate of ischemic stroke in ICAS ranges from 10% to 50%, and the 2-year recurrence rate in the stenotic artery territory is 38.2%. Therefore, it is very important to identify the risk factors associated with the occurrence of ICAS in the stroke patient population.

Methods: The following study is a retrospective descriptive study using medical record data. The study population was all patients diagnosed with ischemic stroke at Wahidin Sudirohusodo Hospital who underwent cerebral angiography during the period of January 2021 to December 2022. The study variables studied were age, sex, risk factors, and the location of the ICAS in the intracranial vessels.

Results: There were 106 patients with ICAS in the period of january 2022-december 2022. There were more men (58.40%) than women (41.50%) with an average age of 54.7 years. The highest age range is 50-60 years (45.28%). The most common risk factor found was hypertension (70.75%), followed by dyslipidemia (46.22%), diabetes mellitus (22.64%), previous history of stroke/TIA (17.92%), comorbidity with ECAS (7.54%), and a history of heart disease (5.66%). Most locations of atherosclerotic plaques were found in MCA (57.46%).

Discussion: In this study, hypertension and dyslipidemia were the most common risk factors in ICAS patients. Therefore, it is very important to control these risk factors as primary and secondary prevention of ICAS.

Keywords: Intracranial atherosclerosis, large artery disease, ischemic stroke, risk factors

A DIAGNOSTIC APPROACH TO PROXIMAL MYOPATHY IN YOUNG ADULT MALE SUPPORTING A BECKER MUSCULAR DYSTROPHY

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Introduction: Proximal myopathy is a muscular disorder caused by various conditions, one of which is genetic disorders. Muscular dystrophy is a manifestation of gene mutation on X-chromosome leads to dystrophin production disorders. Duchenne and Becker muscular dystrophy is a progressive neuromuscular disorder caused by mutations in these genes. This condition gives a clinical symptoms of proximal muscle weakness with early onset between the ages of 5-15 years. Becker Muscular Dystrophy has milder clinical symptoms and longer life expectancy than Duchenne Muscular Dystrophy.

Case Report: A 30 year old male patient came to the hospital with the main complaint of weakness in all four extremities, since 15 years ago. Weakness is more severe proximal than distal. Complaints have gotten worse since the last 2 years, the patient needs wheelchair assistance. Laboratory examination found serum creatine kinase level of 718.50. Electromyographic examination showed a decrease in the duration of the muscle unit action potential, decreased recruitment and spontaneous activity (positive sharp waves) which supports a myopathy. The results of the muscle biopsy showed that the muscle fibers atrophy and necrosis, increased adipose tissue and connective tissue.

Discussion: Muscular dystrophy is a genetic disorder that has several variants. These conditions provide clinical manifestations that are sometimes difficult to distinguish from other variants. This patient showed clinical manifestations and investigations that support Becker Muscular Dystrophy. BMD has a young adult onset, more often in males, a slower disease course and longer life expectancy compared to DMD.

Keywords: Becker Muscular Dystrophy, Biopsy, Electromyography

LEUKOCYTOSIS IN PATIENT WITH TRAUMATIC BRAIN INJURY IN GENERALIZED HOSPITAL DR. SARDJITO YOGYAKARTA

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Introduction: Traumatic brain injury is a complex open or closed head injury and can cause brain pathological change, brain function disturbance, and death. In traumatic brain injury, there is a process that can cause brain pathological change. This process is initiated with early inflammation response to injury that involves systemic immune system so it causes leukocytosis.

Methods: This study is a descriptive observational study with cross sectional design involving 160 patients from medical records in Generalized Hospital Dr. Sardjito Yogyakarta in January 2019 until December 2021. The data is

presented in table, with median and range or mean ± deviation standard or percentage.

Results: From 160 patients with traumatic brain injury, the median age was 41,5 (15-86) years old, 116 patients are male (72.5%) and 44 patients are female (27.5%). 104 patients had epidural hemorrhage (65%), 70 patients had subdural hemorrhage (43.8%), 76 patients had subarachnoid hemorrhage (47.5%), 78 patients had intracerebral hemorrhage (48.8%), 20 patients had intraventricular hemorrhage (12,.%), and the median of leucocyte count is 15.49 (5.81-38.1).

Discussion: The data showed increased median of leucocyte count in patients with traumatic brain injury in Generalized Hospital Dr. Sardjito Yogyakarta. Leucocyte count tends to be higher in severe traumatic brain injury and its value is not associated with the bleeding volume.

Keywords: leukocytosis, traumatic brain injury, bleeding volume

IMMERSIVE VIRTUAL REALITY TECHNOLOGY IN NEURORESTORATION OF THE UPPER EXTREMITY AFTER STROKE

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Introduction: Stroke is leading cause of disability in Indonesia. Approximately 80% of stroke patients experience disabilities in their upper extremities. In recent years, immersive Virtual Reality technology has been used as a promising modality for neurorestoration. VINERA is the first gamified Virtual Reality technology pilot project in Indonesia designed to assist stroke patients with upper extremity disabilities.

Case Report: The study is a single case study on one male stroke patient, aged 21, who experienced hemorrhagic stroke 6 months ago, presenting with right hemiparesis and motor strength of 3 in the upper extremities. We report the use of VINERA for 10 sessions (over a period of 2 weeks), each lasting 20 minutes, showing clinical improvement using FMMA score. Before and after the VINERA sessions, the patient's upper extremity strength was assessed using FMMA score (range 0-66). The study results indicate that after using VINERA, the FMMA score improved from 22 to 52. There was an improvement in upper extremity ability based on the FMMA score in stroke patients.

Discussions: The study concludes that the uses of immersive virtual reality technology, namely VINERA, in stroke patients can improve upper extremity motor ability based on the FMMA score.

Keywords: VINERA, neurorestoration, stroke, FMMA

THE ROLE OF HYPERTONIC SALINE IN MANAGING MALIGNANT CEREBRAL EDEMA DUE TO LARGE VESSEL OCCLUSION STROKE

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Introduction: Malignant cerebral edema (MCE) is a complication of large vessel occlusion stroke treated by decompressive craniectomy. We report a case of administration of 3% NaCl as an alternative treatment for intracranial pressure (ICP) in an MCE patient who refuses surgery.

Case Report: A 66-year-old man was brought to the emergency unit with unconsciousness, right-sided hemiplegia, and global aphasia with no previous medical history four and a half hours before admission. His National Institutes of Health Stroke Scale (NIHSS) score was 12. The patient's brain magnetic resonance imaging (MRI) revealed a large infarction of the left frontotemporoparietal lobe which caused a subfalcine herniation 1.4 cm to the right side. He also suffered hyponatremia (115 mmol/L). The family refused decompressive craniectomy. The patient was treated with hypertonic saline (3% NaCl) with an initial 200 ml drip intravenous dose over 20 minutes every 6 hours. Subsequent administration is gradually reduced every 25 ml with a distance adjusted to the patient's condition up to 50 ml as the last dose. The patient's 90-day modified Rankin Scale (mRS) score was 4.

Discussion In elderly patients, brain atrophy can reduce increased ICP and cerebral edema by providing additional intracranial space to compensate. Administration of 3% NaCl, apart from correcting hyponatremia, can also be an alternative to reduce ICP in MCE patients who refuse surgery. Our case describes an improvement in the clinical neurological condition without any complications.

Keywords: hypertonic saline, large vessel occlusion stroke, malignant cerebral edema

HERNIATED NUCLEUS PULPOSUS LUMBOSACRAL WITH PAIN INTERVENSION PERCUTANEUS EPIDURAL NEUROPLASTY (PEN)

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Introduction: Low back pain accompanied by pain in the legs can be caused by a herniated intervertebral disc or HNP which presses on the nerve root where the most common place occurs in the spinal segments L4-L5 or L5-S1 (95%). Pain interventions such as Percutaneous Epidural Neuroplasty (PEN) are an option for minimally invasive pain management in patients with chronic low back pain due to HNP.

Case Report: A 45-year-old man complains of throbbing type of low back pain accompanied by a feeling of heat, radiating pain and numbness from both thighs to both legs which he has been experiencing for the past 3 months and the pain is getting worse. Compos mentis patient. NPS: 8, ID pain 3 (hot, numb, stabbed). Physical examination found vertebral tender points L3-L4, L4-L5, L5-S1, bilateral L3-S1 dermatomal hypoesthesia. Examination of lasereque, bragard, right and left positive sicard. Medical therapy was given and Percutaneous Epidural Neuroplasty (PEN) pain intervention was performed. Patient was treated for 1 day and went home clinically improved NPS 1-2, ID pain 0.

Discussion: Low back pain, defined as a clinical syndrome of back and leg pain that may be accompanied by neurological deficits such as sensory, reflex, or motor deficits in the distribution of nerve roots. In 1986, Gabor B Racz introduced his invention in the form of an epidural catheter specifically for delivering drugs to the lumbar sacral area and used for percutaneous neuroplasty as a tool for adhesion lysis. This technique is minimally invasive.

Keywords: Low back pain, Hernia nucleus pulposus, Percutaneus epidural neuroplasty (PEN)

GENERALIZED TETANUS CAUSED BY AN ODONTOGENIC INFECTION IN A PATIENT WITH POOR ORAL HYGIENE

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Introduction: Tetanus is an acute infectious disease that remains a worldwide problem, especially in developing countries. Tetanus is caused by the neurotoxin of the anaerobic gram-positive bacterium Clostridium tetani (C.tetani). The incidence of tetanus in the world reaches 1,000,000 cases every year. The incidence of tetanus in Indonesia reaches

0.2 per 100,000 population. Clinical manifestations are characterized by muscle spasms, rigidity, and autonomic disorders. The point of entry of C.tetani spores is through deep or dirty wounds but in 7% of cases, no history of wounds was found. Tetanus due to odontogenic infection is rare but should be an etiologic consideration in cases of tetanus without wound history.

Case Report: A 46-year-old man came to the hospital with a chief complaint of jaw stiffness and difficulty swallowing 5 days before admission. The complaint was accompanied by neck, back, and abdomen stiffness that appeared 3 days after the chief complaint. History of injury in the last three weeks was denied. The patient had a history of dental pain two weeks before admission and had a habit of using dirty objects to scrape the painful teeth. Immunization history was unknown. The patient's physical examination results were compos mentis, vital signs within normal limits, facial risus sardonicus, trismus, all teeth visible attrition, some teeth necrosis, gingival edema, stiff neck, and abdominal board.

Discussion: This case shows a patient with grade II generalized tetanus based on Pattel Joag criteria with point-of-entry odontogenic infection and poor oral hygiene. Odontogenic point of entry tetanus is rare but should still be of concern to medical personnel. Comprehensive management is required to prevent poor prognosis.

Keywords: Tetanus, Odontogenic Infections, Oral Hygiene

PROPTOSIS OCULI SINISTRA-ASSOCIATED WITH SEPTIC CAVERNOUS SINUS THROMBOSIS DUE TO ORBITAL INFECTION

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Introduction: Cavernous sinus thrombosis is an uncommon potentially fatal condition. Although it is frequently septic, cavernous sinus thrombosis can also

be aseptic. Compared to septic type, aseptic causes are less frequent. The main risk factors include periorbital infections, acute sinusitis, and face infections.

Case Report: We described the case of a 63-year-old female who had been complaining with proptosis and vision loss of her left eye following eye inflammation after a cataract surgery, that has been suffered since one month prior. The patient has a history of diabetes and hypertension. Cerebral CT scan reveals visible soft tissue edema of the left inferior palpebral region and left proptosis oculi accompanied by dilatation, turtous, and stinging of the left superior ophthalmic vein in the arterial phase. Digital Subtraction Angiography (DSA) examination, which was carried out later, confirmed a thrombotic process in the left cavernous sinus.

Discussion: Cavernous sinus thrombosis is the formation of a blood clot within cavernous sinus. Anticoagulants and antibiotics were the main treatment of choice for the patient with septic cavernous sinus thrombosis.

Keywords: Cavernous sinus thrombosis, proptosis, Digital Subtraction Angiography (DSA)

PROFILE OF HYPERGLYCEMIC STATE IN ACUTE ISCHEMIC STROKE AT DR. WAHIDIN SUDIROHUSODO GENERAL HOSPITAL, MAKASSAR

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Introduction: Stroke and diabetes mellitus (DM) are two separate conditions that have similarities and contribute to an increasing burden of cardiovascular disease and death worldwide. Hyperglycemia occurs in approximately 40% of acute ischemic stroke patients and associated with poor clinical outcomes. This study aimed to present the clinical characteristics and outcomes based on the NIHSS of patients with acute ischemic stroke with hyperglycemia in the inpatient unit of RSUP Dr. Wahidin Sudirohusodo Makassar.

Methods: Observational analysis was conducted using a cross-sectional study from January-December 2022. Sociodemographic data, imaging findings, and blood glucose levels were obtained at admission and during hospitalization. Patients were divided into two groups:hyperglycemia and normoglycemia.

Results: The number of samples is 55. The ratio of men and women is 1.39:1. The average age of the patients was 59.5□8.9years. Hyperglycemia was observed in 40 (72.7%) with a mean (□ SD) of 226.5□65.97mg/dl and 7 (12.72%) were newly diagnosed with DM while in the hospital. History of DM was closely related to hyperglycemia at admission (OR 1.946;95%CI 1.14-3.31;p=0.003).

Discussion: Hyperglycemia is common in both diabetic and non-diabetic patients with acute ischemic stroke. The frequency of DM in our study was 86.5%, and 7 patients were eventually diagnosed with DM (OR 0.929;95%CI 0.160-5.392;p=1.0), which may reflect the incidence of undiagnosed DM in the acute ischemic stroke population. There was no association between clinical outcomes and hyperglycemia at admission (n=18(72%);p=1.0). Hyperglycemia in acute ischemic stroke may be a sign of undiagnosed DM.

Keywords: Hyperglycemia, Acute ischemic stroke, Diabetes mellitus

CERVICAL DYSTONIA AS A CLINICAL MANIFESTATION IN A RARE CASE SUSPECTED JAPANESE ENCEPHALITIS

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Introduction: Japanese Encephalitis (JE) is a very rare encephalitis, with an incidence of 3.3 per 100,000 population. JE is caused by a flavivirus that is transmitted through Culex mosquito. Appropriate diagnosis and therapy has an important role in the success of JE therapy.

Case Report: A 47 year old man came with of decreased consciousness and seizures since 1 month before admissionl. The patient has a history of thymoma and has undergone thymectomy and radiotherapy. On physical examination, the patien give an impression of global aphasia, cervical dystonia and spastic hemiparesis. The patien also have rised of HSV 1 IgG titers until 87.4 U/ml. On MRI we found hyperintense lesions in bilateral frontal lobe, left temporoparietoocipital lobe, and bilateral basal ganglia which was sting with contrast and concluded as non-specific encephalitis. Patien suspected with JE and was given Methylprednisolone, Acyclovir, Levetiracetam and Clonazepam. The patient was treated for 7 days and showed improvement.

Discussion: Neurologic manifestations of JE may include changes in mental status, focal neurological deficits, movement disorders and seizures. The diagnosis of JE is confirmed by serum or cerebrospinal fluid analysis, IgM capture, ELISA and neuroimaging. Management of JE is carried out with supportive therapy, anticonvulsants, and steroids. Neurological symptomps in JE patien give it arise around 20-30% mortality. It is very important for clinicians to provide therapy as early as possible to reduce morbidity and mortality in JE.

Keywords: Cervical Dystonia, Japanese Encephalitis, Diagnosis, Therapy

THE RELATIONSHIP OF SOCIODEMOGRAPHIC FACTORS AND COGNITIVE FUNCTION SCREENING IN THE OLDER ADULT POPULATION IN NORTH SUMATERA

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Introduction: Screening of cognitive impairment in the older adult population is important due to the increasing prevalence of dementia. The performance of cognitive task can be influenced by various exposure throughout the course of life, such as level of education, ethnic differences and area of living that unequally distributed in population. The purpose of this study was to determine the association of sociodemographic factors and cognitive function in the older adult population. **Methods:** This study used secondary data from the cognitive screening program of older adult at several public hospital and primary health care facilities in North Sumatera. The association between age, education level, gender, ethnicity and area of living with the MoCA-Ina score was performed with Mann-Whitney and Kruskal-Wallis test.

Results: A total of 76 subjects was included in this study, consisted of female (59%), the mean age 12,4 ± 4,1 years, length of education 12,4 ± 4,1 years, MoCA-Ina score 20,1 ± 5,4. The results of this study showed significant differences in MoCA-Ina score based on education level ($p < 0,001$), ethnicity ($p=0,04$), and area of living ($p<0,001$). The MoCA-Ina score was lower in those with lower education, those who lives in rural area and in subject with Karo ethnicity.

Discussion: The results of cognitive screening are not certain to conclude the actual cognitive function. Low education level, cultural differences of ethnicities and rural area of living can influence individuals in interpreting the cognitive screening performance test.

Keywords: sociodemographic, cognitive function, older adult

PROFILE OF PRIMARY HEADACHE PATIENTS WITH SLEEP QUALITY IN HEALTH WORKERS AT. WAHIDIN SUDIROHUSODO HOSPITAL MAKASSAR

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Introduction: Primary headache and sleep disorders are two conditions which are often experienced by patients in daily clinical practice. The relationship between headaches and sleep disorders is bidirectional. The purpose of this study was to provide an overview of the sleep quality of health workers with primary headache at the Dr. Wahidin Sudirohusodo Hospital.

Methods: This research is a retrospective and descriptive study with a cross-sectional design at April 2022 - April 2023. The study population was health workers at Wahidin Sudirohusodo hospital who experienced primary headache. The research variables studied were the number of patients, age, gender, type of primary headache and sleep quality based on PSQI.

Results: The study showed that there were 100 health workers with primary headache. Most of the patients (66%, n=66) were women and in the age group of 26-35 years (64%, N=64). The types of primary headache observed were Tension Type Headache (TTH) with a proportion of 64%, Migraine with a proportion of 34% and Cluster Headache with a proportion of 2%. Of the total population, it was found that 99% of study population had poor sleep quality which was assessed based on the PSQI.

Discussion: The high prevalence of primary headache and sleep quality disturbances in our study shows the importance of relationship between primary headache and sleep quality. TTH and migraine are the most common types of primary headache. However, the relationship can be bidirectional. Sleep disturbances may be associated with increased intensity and frequency

of headache episodes which supports the theory that the intensity of sleep disturbances is directly proportional to the frequency of headache attacks.

Keywords: Primary Headache, Sleep Quality, PSQI

MULTIPLE CEREBRAL INFARCTION MIMICKED CEREBRAL ABSCCESS IN COMPUTER TOMOGRAPHY SCAN AND MAGNETIC RESONANCE IMAGING RADIOGRAPHIC FINDING

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Introduction: Stroke is acute central nervous system (CNS) damage and is one of the leading causes of death in developed countries.As we know,the diagnosis of acute stroke is based on clinical and radiographic features.Sometimes,acute ischemic stroke is difficult to distinguish from acute intracranial infection.

Case Report: A 37 year old male with chief complaint of speech impediment since 5 days. Patient also complained right-sided weakness accompanied by headache since 5 months ago and worsened in the past 2 weeks. Patient suffers from uncontrolled hypertension.He has no history of diabetes mellitus or heart disease.Blood pressure measurement was 150/80 mmHg on admission.His physical examination shows composmentis consciousness,Motor:decreased right limb movement with +4 strength,increased tone,and +3 physiological reflexes on the right limb.Pathologic Babinski reflex positive on the right extremity,sensory perceptions are difficult to assess.Computerized tomography scan without contrast showed suspected bilateral cerebral abscess,magnetic resonance imaging of the head without contrast showed chronic infarction in the right temporal region,and multiple subacute infarcts in the left temporoparietal region.On Digital Substraction Angiography (DSA) examination,total occlusion of the M1 segment of the left middle cerebral artery (MCA) was found. Neurobehaviour examination using e-Memory Clinic application, shows impression of Vascular Dementia. Patient was given Piracetam, Aspilet, Clopidogrel, Atorvastatin, Donepezil ,and Amlodipine therapy.

Discussion: This case illustrates that the clinical and radniographic features of patients with cerebral infarction can develop and be misinterpreted as cerebral abscess.A cerebral abscess may present with acute "stroke- like" focal symptoms and MRI may show cerebral lesion with limited diffusion and no contrast enhancement,which resembles acute infarction.

Keywords: Subacute infarction,Cerebral abscess,Radiographic Features

SEVERE CARDIOEMBOLIC STROKE IN YOUNG-ADULT WOMAN: A CASE OF ATYPICAL LEFT VENTRICULAR THROMBUS RELATED EVENT

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Introduction: Cardioembolic stroke is an infarction stroke caused by emboli from cardiac origin formed by pathologic disease or arrhythmia. Cardioembolic stroke often manifests as severe stroke, and its pathophysiology differs from other stroke type thus need a specific therapeutic approach.

Case Report: 30-year-old woman came with decreased consciousness, right-sided weakness and history of impaired communication. The patient was grade II obese with hypertension and tachypnea. She was somnolence and right-sided lateralized. Non-contrast head CT scan showed vast infarction stroke on left MCA-M1 territory, ECG showed cardiomegaly with left ventricular (LV) strain, Chest X- ray showed cardiomegaly. Transthoracic Echocardiography (TTE) provided evidence of LV thrombus. Patient was diagnosed with cardioembolic infarction stroke and managed with mannitol osmotherapy, clopidogrel that was switched to warfarin after 14 days, antihypertension with candesartan, spironolactone, and furosemide for acute decompensated heart failure (ADHF), and broad-spectrum antibiotic for pneumonia. Patient was discharged fully conscious but having sequelae of global aphasia and right-sided lateralization.

Discussion: Cardioembolic stroke often manifests as severe stroke with poorer prognosis and most commonly caused by atrial fibrillation. Cardioembolic diagnosis needs at least ECG and TTE, in some circumstances also need TEE and cardiac MRI. Anticoagulant is the mainstay therapy for secondary cardioembolic prevention. Novel oral anticoagulant efficacy and safety for LV thrombus have not been clearly described so warfarin is the drug of choice. Osmotherapy with mannitol showed good outcome in this case.

Keywords: Stroke, cardioembolic, warfarin, LV thrombus

ASSOCIATION OF TRYGLICERIDE-GLUCOSE (TYG) INDEX AND ACUTE ISCHEMIC STROKE SEVERITY IN DR. SARDJITO HOSPITAL

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Introduction: Insulin resistance, a feature of metabolic syndrome, is a significant risk factor for stroke. In recent studies, Triglyceride Glucose (TyG) Index is suggested to represent insulin resistance. However, the association between the TyG index and the severity of ischemic stroke is still unclear. This study aims to determine the association between the TyG index and ischemic stroke severity.

Methods: This study used a cross-sectional design of ischemic stroke patients at Dr. Sardjito Hospital, Yogyakarta from January 2020 to December 2022. Stroke severity was assessed using the National Institutes of Health's Stroke Scale (NIHSS) at admission. The TyG Index was calculated as ln (fasting triglycerides [mg/dL] × fasting blood glucose [mg/dL]/2) in blood samples that were examined <96 hours after a stroke diagnosis. Pearson correlation was used to determine these association.

Results: There were 509 ischemic stroke patients with risk factors for DM (37,3%), hypertension (75%), smoker (25,5%) dan dyslipidemia (46,4%), with an NIHSS mean value of 9.37±9,40 and TyGx index mean value of 9.02± 0.76. The bivariate analysis showed that the TyG index (r 0.097) had a strong correlation with the NIHSS (p 0.029). This study shows a significant correlation between the TyG index value and the severity of ischemic stroke.

Discussion: An increase in the TyG index level is associated with ischemic stroke severity. Our findings demonstrate the usefulness of the TyG index as a prognostic indicator because it has a direct correlation with the severity of ischemic stroke patients.

Keywords: TyG index, NIHSS, ischemic stroke

DRY NEEDLING NEURORESTORATION TECHNIQUE IN PARTIAL TRANSVERSE LESION OF THE SPINAL CORD ETCAUSA SPINAL CORD INJURY

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Introduction: Post-traumatic Spinal Cord Injury is a neurological disorder which has a percentage of 64.5%, with clinical symptoms of tetraparesis 64% and paraparesis 34%. Improvement of spasticity in neurological disorders can be improved with Dry Needling modality. The purpose of this case report is to study the potential effects of dry needling in reducing spasticity and increasing functionality in patients. Assessing the immediate and short-term effects of dry needling treatment on spasticity testing and Range Of Motion (ROM) in patient with incomplete spinal cord injury.

Case Report: A man, 45 years old complains of weakness in all four limbs, numbness after an accident 1 year ago. From clinical symptoms, spastic tetraparesis, hyesthesia from both toes to C5 dermatome and limited joint range of motion were found. Cervical MRI found hyperintense T1W1, hyperintense T2W1 lesions in the intramedulla as high as CV C3-C5.

Discussion: Treatment modality of the Dry Needling neurorestoration technique 4 times to improve spasticity and range of motion, Spinal Cord Independence Measure (SCIM III) from 55 increased to 80, CMCT Radicular delay 17.7 ms decreased to 12.9 ms and Quantitative (qEEG) SMR/ low Beta (left -3.45 to -1.60), (right - 4.10 to -1.69).

Keywords: Spinal Cord Injury, Spasticity, Neurorestoration Neuroengineering, qEEG, CMCT

ASEPTIC MENINGITIS WITHOUT PLEOCYTOSIS WITH NON-COMMUNICATING HYDROCEPHALUS IN PATIENTS WITH LONG VP-SHUNT

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Introduction: Meningitis is inflammation or infection of the meninges caused by bacteria, viruses, fungi, or parasites. Aseptic meningitis is the absence of

germs in the cerebrospinal fluid (CSF) and generally shows pleocytosis. Aseptic meningitis is most often caused by a virus.

Case Report: A 18-year-old woman presented with disturbed consciousness accompanied by fever, stiff body, and seizures, 7 days before she had a cold cough and severe headaches. On initial examination, she was stupor and had labored breathing, high fever, normotension, anisocoria pupil, and neck stiffness. On laboratory results we found mild leukocytosis; features of meningitis on Head CT scan with contrast, non- communicating hydrocephalus, and signs of increased ICP; thorax imaging showed pulmonary edema. Then she was treated in ICU with ventilator, Meropenem, Amikacin, corticosteroids, anticonvulsants, and neuroprotectors. She also had a VP-shunt installed since 3-year-old because of hydrocephalus. On day 4, VP-Shunt was installed and CSF was collected. On CSF examination, we found no increase in leukocytes, increased glucose, decreased protein, and no germs on the culture. After ICU treatment the patient's condition improved.

Discussion: The term aseptic meningitis is often associated with viral meningitis, but can also be caused by bacteria, fungi, or parasites. The absence of pleocytosis and germs in CSF does not immediately rule out the diagnosis of meningitis. This case did not show pleocytosis or germs in CSF so aseptic meningitis without pleocytosis was diagnosed which is a rare case. Therefore empiric antibiotic therapy was continued and the patient's condition improved.

Keywords: Meningitis, Aseptic, Non-communicating hydrocephalus

CLINICAL SYMPTOMS AND IMAGING EVALUATION OF PARENCHYMAL NEUROCYSTICERCOSIS PATIENT TREATED WITH ALBENDAZOLE

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Introduction: Neurocysticercosis (NCC) is a neglected tropical disease caused by the pork tapeworm Taenia solium. NCC occurs due to ingestion of embryonated worm eggs. The most common clinical manifestation of parenchymal NCC is seizures. The diagnosis of NCC is based on a combination of radiological, clinical, immunological, and epidemiological findings. The treatment of parenchymal NCC with albendazole and praziquantel provides the most resolution of viable cysticerci located in the brain parenchyma and also improve clinical manifestations in patients.

Case Report: A 31-year-old Balinese man visited outpatient clinic at Prof. Dr. I.G.N.G. Ngoerah Hospital, Denpasar in November 2022. The patient came with the main complaint of seizures. On neurological examination, focal to bilateral tonic- clonic seizures and mild to moderate intensity of headache were found. In head MRI with contrast, there is parenchymal NCC and the results of ELISA test were positive. Treatment was carried out by administering albendazole 1600 mg/day for one month, methylprednisolone 48 mg/day reduced dose every two weeks, phenytoin 600 mg/day and folic acid 1 mg/day. After 1 month treatment of albendazol.

Discussion: The diagnosis of parenchymal NCC based on imaging examination as the gold standard and supported by serological test. On head MRI with contrast, multiple cysticerci were found scattered randomly in the brain parenchyma. After one month of treatment there were no seizures or headache and the head MRI evaluation showed no significant changes in the cysticerci stage compared to the first MRI.

Keywords: parenchymal neurocysticercosis, albendazole, magnetic resonance imaging (MRI)

TETRAPARESE IN INTRADURAL EXTRAMEDULLARY OF SPINAL CORD TUMOR WITH HISTOPATHOLOGICAL FEATURES TRANSITIONAL MENINGIOMA

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Introduction: Spinal cord tumors are one of the rare case, representing about 5-12 % of all central nervous system tumors. Spinal cord tumors can be either primary or secondary. Meningioma is the most common primary tumor of the spinal cord in adults. This case report discusses a case of primary spinal cord tumor with good outcome.

Case Report: A 36 -year-old male patient, working as trader, came with weakness in both upper and lower extremities since 7 months ago. This symptoms worsen since 2 weeks ago. Patient also felt numbness in both shoulders through down and pain in the neck. Physical examination reveal motor weakness of the upper extremities bilaterally and paralized of the lower extremities, as well as sensory disturbances in the 5th cervical dermatome level and below. MRI cervical spine showed a mass in cervical 5-6 level in the intradural extramedullary area. Patient underwent total resection. Histopathological results found a transitional meningioma. The patient can carry out mild daily activities independently.

Disscusion: According to the World Health Organization most of transitional meningiomas are benign and considered grade 1. Based on guidelines of The National Comprehensive Cancer Network (NCCN), total tumor resection is the main therapy for solitary and symptomatic intradural extramedullary tumor. Postoperative follow-up can be done with MRI every 3-6 months for up to 5 years, then once a year thereafter, until there is worsening, new symptoms, or radiological progression, resection or radiotherapy is considered.

Keywords: Tetraparese, Spinal Cord Tumors, Transitional Meningioma

THE ASSOCIATION BETWEEN ALBERTA STROKE PROGRAM EARLY CT SCORE AND NIHSS SCORE IN ACUTE ISCHEMIC STROKE PATIENTS

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Introduction: ASPECTS score (Alberta Stroke Program Early CT Score) is a quantitative scoring system that evaluates 10 regions of the medial cerebral artery territory regarding early signs of ischemia. On the other hand, NIHSS is a score to evaluate stroke severity and may be a predictor for functional outcomes. This study was conducted to determine the association between ASPECTS and NIHSS scores in acute ischemic stroke patients.

Methods: This analytical cross-sectional study was conducted in the H. Adam Malik Medan Hospital from November 2022 – January 2023. The ASPECTS score was determined based on the detected points from the CT scan, and the NIHSS score was obtained when the patient was initially admitted. Statistical tests were conducted with the Spearman correlation test.

Results: A total of 34 subjects were included in this study. Most subjects were men (55.9%), with a mean age of 58.4±10.1 years. The median score of ASPECTS was 8, while the NIHSS was 6. The Spearman correlation test showed a strong and significant inverse association ($p<0.001$; r -0.82) between the ASPECTS and NIHSS scores.

Discussion: Our results showed a strong and significant inverse association, in which a higher ASPECTS score is associated with lower stroke severity. Stroke severity is also determined by the extent of ischemic lesions. Therefore, a larger area of ischemia, as assessed by a lower ASPECTS score, will be associated with higher stroke severity.

Keywords: Acute ischemic stroke, ASPECTS score, NIHSS score

RELATIONSHIP BETWEEN ENDOTHELIAL NITRIC OXIDE SYNTHASE (ENOS) ON DYSLIPIDEMIA AND BLOOD PRESSURE IN ISCHEMIC STROKE PATIENTS

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Introduction: Based on several studies, Nitric oxide (NO) derived from the endothelial Nitric Oxide Synthase (eNOS) isoform is beneficial in ischemic stroke. NO signaling plays an important role in relation to arterial resistance in hypertensive states. Non-HDL cholesterol contributes to decreased NO bioavailability due to increased reactive oxygen production and inhibition of eNOS activity, leading to endothelial dysfunction. Impaired endothelial function is considered a critical event in the development and progression of atherosclerosis.

Methods: In a cross-sectional design, at Haji Adam Malik General Hospital in Medan, eNOS values, lipid profiles and blood pressure were measured in acute ischemic stroke patients. Data analysis used unpaired t test and Spearman correlation test.

Results: Most of the 28 research subjects were male, with an average age of 54.5 years. Based on the independent T test, there was no difference in the mean eNOS in ischemic stroke patients with normal and abnormal HDL, LDL and triglyceride values ($p => 0.05$). There was a difference in the average eNOS value in ischemic stroke patients with normal and abnormal total

cholesterol values (p=<0.05). There is a significant correlation between eNOS values and blood pressure with a strong correlation (p=<0.05, r=0.71).

Discussion: The oxidized form of LDL in the study was mentioned to specifically impair NO-dependent arterial relaxation through various mechanisms, including decreased eNOS expression. The NO generated by eNOS under certain conditions has a vasodilating effect, and is therefore neuroprotective. eNOS causes reduced platelet aggregation and leukocyte endothelial adhesion and increased vascular dilatation and maintenance of cerebral blood flow.

Keywords: Nitric Oxide, eNOS, Lipid Profile, Ischemic Stroke

ACUTE DISSEMINATED ENCEPHALOMYELITIS (ADEM) PRESENTING WITH CEREBELLAR ATAXIA AND BILATERAL OPTIC NEURITIS

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Introduction: Acute disseminated encephalomyelitis (ADEM) is a rare immune-mediated demyelinating disease of the central nervous system that occurs in response to a preceding infection or vaccination. This disease predominantly arises in children. It is challenging to distinguish from other inflammatory demyelinating disorder, especially as in low-middle income country to perform a complete diagnostic workup.

Case Report: A 9-year-old boy was brought to emergency unit with complaint of progressive loss of vision since one day before admission. The symptom was preceded by difficulty in walking and balance for one week. There was history of fever and vomiting 10 days prior to the symptoms which was treated symptomatically. Four days before the admission, the patient had seen the neurologist, underwent brain and spine MRI which showed typical findings suggestive of ADEM, but refused treatments. On examination, the patient was afebrile, no meningeal sign, with difficulty in tandem walking, and positive bilateral Babinsky and Hoffman-Tromner reflex. Visual acuity in both eyes was 0,5/60 associated with blurred optic disc margins in funduscopy. The patient was managed with high-dose intravenous methylprednisolone and intravenous immunoglobulin (IVIg) and experienced significant clinical improvement.

Discussion: Although ADEM is a rare disease, we should be aware of the signs and symptoms of the disease. Magnetic Resonance Imaging (MRI) has good performance to aid the diagnosis of ADEM. Prompt diagnosis and treatment are necessary to prevent extension of the lesion and to result in favourable outcome.

Keywords: acute disseminated encephalomyelitis (ADEM), cerebellar ataxia, optic neuritis

RELATION BETWEEN DURATION OF PARKINSON DISEASE AND COGNITIVE IMPAIRMENT USING MONTREAL COGNITIVE ASSESMENT INDONESIA'S QUESTIONNAIRE

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Introduction: Parkinson disease is a chronic neurodegenerative disease which can be manifest as motor and non- motor symptoms. Non-motor symptoms can be occurred before the existance of motoric symptoms, until the terminal stage of the disease. Cognitive function is one of parkinson's non-motor clinical features causing disability and morbidity. The aim of this study is to find the relationship between duration of parkinson disease and the cogntive impairment.

Methods: The study used a cross-sectional design from parkinson patient of H. Adam Malik Medan Hospital and network hospital. Spearman correlation analysis test was used.This study involved 39 parkinson disease patients.

Results: The results of statistical analysis found a significant negative correlation between duration of parkinson disease and cognitive impairment with moderate correlation strength (p=0.001; r= 0.525) with the median MOCA- Ina score of the subject is 21.

Discussion: There was a significant relation between duration of parkinson disease and cognitive impairment. The result of this study proved that a greater duration of the parkinson disease is associated with cognitive impairment.

Keywords: Parkinson disease, cognitive function, Montreal Cognitive Assesment

MULTIPLE INTRACRANIAL TUBERCULOSIS: RARE CASES OF IMPROVEMENTI IN ANTI-TUBERCULOSIS THERAPY AND CRANIOTOMY OF LESION RESECTION

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Introduction: Tuberculosis (TB) affecting the central nervous system (CNS) is a severe form of infection outside the lungs, with a mortality rate of approximately 2–5% among all TB patients. Intracranial tuberculomas are a rare subtype of CNS TB, occurring in about 1% of cases. This report presents a case of multiple intracranial tuberculomas.

Case Report: A 22-year-old male patient presented with a chronic progressive headache that had persisted for 3 months. The headache was intense, pulsating throughout the head, and not relieved by rest or pain relievers. The patient also experienced vomiting and gradual weakness in the left extremities over the past month. The patient had been on anti-TB medication for four months. Neurological examination revealed left hemiparesis with a motor strength of 3 and central-type paresis of the left NVII and XII cranial nerves. HIV testing was negative. A contrast-enhanced head CT scan detected multiple tuberculomas, with the largest lesion measuring 4.3x2.7 cm and causing a leftward midline shift of 0.8 cm. The patient underwent surgical removal of the lesions, and a biopsy confirmed granulomatous reactions and Langhans giant cells within fibromyxoid tissue and necrotic areas. The patient continued anti-TB therapy and was discharged with an improved headache and motor strength of 4.

Discussion: A headache accompanied by neurological deficits is a life-threatening condition. Radiological examination and imaging are crucial for determining the underlying cause of such deficits. Proper management is essential for achieving favorable outcomes for patients.

Keywords: multiple tuberculomas, OAT therapy, lesion resection.

CLINICAL MANIFESTATIONS OF INDIRECT CAROTID CAVERNOUS FISTULA TYPE D IN PATIENTS WITH HISTORY OF HEAD TRAUMA

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Introduction: Carotid cavernous fistula (CCF) is a abnormal communication between the carotid arteries, either the internal carotid artery (ICA), external carotid artery (ECA), or its branches with the cavernous sinus. The clinical manifestations of CCF depend on the size of the fistula, location, the flow velocity and the drainage.

Case Report: Female, 67 y.o, with complaints of red, swollen and watery right eye. The patient has headache and tinitus in the right ear since 1 month. The patient also experienced double vision with ptosis of the right. The symptoms accur after she had a traffic accident 3 months ago and a collision on the right head. CT Angiography result, a picture of the carotid cavernous fistula dextra was obtained. On DSA examination, RECA results slow flow shunting from the surrounding arterial and venous branches, as well as slow flow shunting from the dural branch of the cavernous segment of RICA, the conclusion of indirect carotid cavernous fistula dextra type D.

Discussion: This is a rare case, where the patient has a history of head trauma but from the results of supporting dignostic, the patient's has indirect type is of the CCF. arterial hypertension indirectly caused by previous head trauma can be suspected as the cause. In indirect type D CCF, consider embolization using a balloon or coiling. However, during treatment, this patient has improvement in clinical condition so that conservative therapy is carried out with carotid massage method periodically.

Keywords: Carotid cavernosus fistula, Indirect CCF, DSA

CLINICAL OUTCOMES AFTER CYCLOPHOSPHAMIDE THERAPY IN MULTIPLE SCLEROSIS PATIENTS USING EXPANDED DISABILITY STATUS SCALE (EDSS)

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Introduction: Multiple sclerosis (MS) is one of the most common autoimmune diseases of the central nervous system (CNS), with its worldwide prevalence increasing since 2013. MS pathogenesis, which is the presence of

inflammation in the CNS. Some studies show that genetic, environmental, and infectious factors can influence the occurrence of MS. Management is given to patients with MS, one of which is cyclophosphamide which is said in some studies to be effective in improving clinical outcomes and reducing the recurrence rate of MS.

Case Report: This case report includes 4 patients diagnosed with MS based on McDonald's revised 2017 criteria. All patients were female, aged 20, 26, and 31 years. Classification of diagnosis in 3 patients with multiple sclerosis secondary progressive and 1 patient with multiple sclerosis relapses. The initial symptoms of the first, second, and third patients, namely weakness of the extremities, and for the fourth patient the initial symptoms of headache and blurry vision. Patients received cyclophosphamide therapy for 6 cycles and were assessed expanded disability status scale (EDSS) early and after therapy was completed. The initial expanded disability status scale (EDSS) of the first patient was 6–4, the second and third patients were 8–7, and the fourth patient was 3–2.

Discussion: MS is a chronic inflammatory disease characterized by the presence of demyelinating plaques that affect the white matter of the CNS. The EDSS was used in MS patients to determine the effectiveness of therapy. Cyclophosphamide is a therapy for MS that allows it to be used in developing countries due to limitations in administering Disease-modifying therapy (DMT).

Keywords: Multiple sclerosis, EDSS, Cyclophosphamide, DMT, Neuroimmunology

MALIGNANT CEREBRAL INFARCTION AS A MANIFESTATION OF OCCLUSION OF INTERNAL CAROTID ARTERY AND MANAGEMENT USING DEXAMETHASONE IMPROVED PATIENT OUTCOME

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Introduction: Diagnosis and management of malignant cerebral infarction with high mortality rate is remains challenging in medicine.

Case Report: A 65-year-old woman presented to the emergency room with chief complain mild left hemiparesis for 10 hours prior to the admission. On physical examination, we found GCS E4V5M6, paresis nerve VII et XII sinistra supranuclear, hemiparesis flaccid sinistra grade 1. The pre-existing medical condition were hypertension that diagnosed 2 years earlier but she did not consume the therapy regularly. On the day fourth of treatment, her consciousness decreasing become GCS E2V2M5. She underwent CT-Scan without contrast and the results showed subacute cerebral infarction at territories of right ACA and right MCA (ASPECT score was zero). She got dexamethasone 20 mg intravenous and then continued to tapering off every day. She was fully alert on the day 9th of the stroke. Digital subtraction angiography on 6th January 2023 showed there is total occlusion on right internal carotid artery with intracranial atherosclerotic disease. Patient's treatment now is clopidogrel 75 mg once daily and atorvastatin 20 mg once daily.

Discussion: In this case, we found intracranial artherosclerotic disease in right internal carotid artery is the main causes of malignant middle cerebral artery infarction. Malignant cerebral infarction usually present after the first 48 h after stroke. Although in a large meta-analysis study found no benefit of the using of corticosteroids in brain herniation but in this patient the corticosteroids offer an optimal effect where the patient outcome was become getting better.

Keywords: malignant cerebral infarction, occlusion carotid interna artery, dexamethasone, outcome

CHARACTERISTICS OF PATIENTS WITH CRANIAL DURAL ARTERIOVENOUS FISTULA UNDERGOING ANGIOGRAPHY AT WAHIDIN SUDIROHUSODO GENERAL HOSPITAL

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Introduction: The dural artery venous fistula (DAVF) is an abnormal connection between dural arteries and veins located within the duramater. DAVFs account for approximately 10% of all intracranial vascular malformations. The presence of retrograde venous drainage and cortical venous reflux makes the natural course of this lesion aggressive, with a high risk of cerebral bleeding, neurological injury, and death.

Method: Between January 2018 and April 2023, patients who underwent cerebral angiography participated in this study, which used a retrospective longitudinal design.

Results: The sample was 15 patients, with an age range of 23–70 years (mean 43.2 12.89). The most common clinical manifestations observed were proptosis, headache, and visual symptoms. The arterial feeders are usually multiple (middle meningeal artery, internal maxillary artery, accessory meningeal artery), with the most frequent drainage occurring in the cavernous sinus and superior ophthalmic vein. According to Borden's classification, the majority of cases belonged to Type II (11 patients), while Type I and Type III accounted for 2 patients each. Based on Cognard classification, the most common types were Type IIa (6 patients), Type IIb (5 patients), and Types I and III, each with 2 patients. Fourteen patients underwent endovascular coil treatment, while one patient underwent both coil treatment and surgery. Incomplete occlusion was found in 8 patients, while complete occlusion was achieved in 7 patients.

Discussion: DAVFs with venous drainage into the cavernous sinus frequently showed proptosis and conjunctival injection as symptoms. The location and direction of venous flow affect DAVF treatment. Endovascular management, surgery, and radiosurgery are combined to form the preferred therapeutic approach for this case.

Keywords: DAVF, endovascular treatment, Borden classification

CASE CONTROL STUDY OF CREATININE CLEARANCE (CRCL) AS A PREDICTOR OF CLINICAL OUTCOME IN ACUTE ISCHEMIC STROKE

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Introduction: Renal dysfunction is a recent risk factor that is thought to affect clinical outcome of acute ischemic stroke. In this case, creatinine clearance (CrCl) is used as an approach to assess the status of kidney function. This study aims to find the relationship between CrCl and clinical outcome of acute ischemic stroke.

Methods: 54 samples were obtained with exclusion criteria including patient age below 18 years, stroke onset of more than 7 days, history of recurrent stroke, history of chronic kidney disease, and history of renal replacement therapy. CrCl is calculated with Cockcroft-Gault formula. The multivariate logistic regression analysis method was used to assess the relationship between CrCl and the clinical outcome [modified Rankin Scale (mRS)] of acute ischemic stroke.

Results: The adjusted odds ratios (ORs) and confidence intervals [95%] were obtained respectively 1.53 [1.03 – 2.26], 1.06 [0.71–1.57], and 1.03 [0.66–1.58] for poor clinical outcomes (in order for the CrCl category ≤45, 45 –59, and ≥90 mL/min) compared to the CrCl category 60-89 mL/min, and 1.55 [1.03–2.33], 0.98 [0.74–1.32], and 1.49 [1.07–2.06] for good clinical outcomes.

Discussion: In this study, the low CrCl group showed a high prevalence for vascular risk factors associated with aging and atherosclerosis. In contrast, the poor clinical outcome seen in the high CrCl group may be related to renal hyperfiltration, which is associated with the cardiovascular system. The results of this study indicate that in cases of acute ischemic stroke, CrCl values are significantly related to clinical outcomes.

Keywords: Stroke, Cockcroft-Gault, Modified Rankin Scale (mRS)

HOMONYMOUS HEMIANOPSIA DEXTRA WITH MACULAR SPARING IN NON HEMORRHAGIC STROKE WITHOUT MOTOR SYMPTOMS

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Introduction: Homonymous hemianopsia is loss of visual field on the same side of both eyes. This disorder is caused by a lesion that is around the posterior from the optic chiasma to the occipital cerebral cortex. The most common cause is stroke.

Case Report: Male, 57 years old, complaining of blurred vision in both eyes since 6 months ago which has persisted to the present. History of type 2 diabetes mellitus since 2015 (HbA1c 8.7%). Neurological examination found

3mm/3mm isocoral round pupils, normal pupillary reflexes, normal motor skills, and Huprey visual field test 30-2 found hemianopsia homonym dextra with macular sparing. Magnetic resonance imaging (MRI) of the head revealed subacute cerebral infarction left occipital. Fullfield visual evoked potential (VEP) suggests left post chiasma partial functional lesion.

Discussion: Homonymous hemianopsia with macular sparing is a typical symptom of a lesion in the occipital lobe. Because of that, visual field examination is very important, but it is often overlooked. Appropriate treatment is controlling risk factors and antiplatelets. The weakness of this case is that retrochiasmatic lesions should be examined by hemifield VEP examination.

Keywords: homonymous hemianopsia, macular sparing, stroke

SLEEP QUALITY AND FACTORS ASSOCIATED WITH SLEEP PATTERN DISTURBANCE AMONG NEUROLOGY RESIDENTS

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Introduction: Medical residency programs are known to have long working hours, which can impact sleep quality. Various factors affect the sleep quality of residents. The aim of this study is to assess the pattern of sleep quality in neurology residents using the Pittsburgh Sleep Quality Index (PSQI) and its affecting factors.

Methods: A cross- sectional study of 92 neurology residents using the PSQI questionnaire to measure sleep quality (poor sleep quality defined as PSQI score >5). The study also described the components of the PSQI questionnaire to show the sleep patterns of residents, as well as bivariate analysis to assess the factors that affect the quality of sleep of residents. **Results**: 65.2% of neurology residents had poor sleep quality. The first-year residents had shorter sleep duration and lower sleep efficiency compared to the second, third, and fourth years. Based on the PSQI questionnaire, the worst average score was 8.07±2.51 for first-year residents and the best average score was 5.53±2.82 for third-year residents. Spearman's test showed a significant, weak correlation between semester level (r=-0.272; p=0.009) and work duration (r=+0.288; p=0.005) with the PSQI score.

Discussion: First-year neurology residents had the worst sleep quality in terms of sleep duration and sleep efficiency. Lower semester level and longer working durations are factors that affect poor sleep quality in residents. Sleep quality is an issue that requires special consideration, as it can impact the health, work performance, and service quality of residents.

Keywords: resident, risk factor, sleep quality

FACTORS AFFECTING THE INSIDENCE OF SLEEP DISTURBANCES IN PATIENTS WITH CHRONIC KIDNEY DISEASE IN DR. M. DJAMIL HOSPITAL PADANG

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Introduction: Chronic kidney Disease (CKD) can cause various neurological complications, including sleep disturbances. Sleep disorders can reduce the quality of life of CKD patients. The causes of sleep disturbances in CKD patients are related to various factors, and there are still few studies examining the influencing factors. This study aims to assess the factors that affect sleep disturbance in CKD patients.

Method: This research is an observational analytic study by design cross-sectional which was held at the Hemodialysis unit of the Central General Hospital Dr. M. Djamil Padang, from April to October 2022. Sleep disturbance in CKD patients was assessed using a questionnaire Pittsburgh Sleep Quality Index (PSQI), then an analysis of factors thought to be related to sleep disturbances was carried out using the Chi-Square test and an unpaired T-test with a value of $p < 0.05$ is considered significant.

Results: Out of a total of 60 CKD patients who met the inclusion criteria, 45 patients (75%) experienced sleep disturbances (PSQI> 5). Neuropathy factor (TCSS score>5) affected sleep disturbance (p=0.043, OR=7.00) while age, gender, duration of HD, and ureum level had no statistical effect (p>0.05), but high ureum level have a higher risk of occurrences sleep disturbances (OR = 3.3).

Discussion: Neuropathy is associated with sleep disturbances in CKD patients. The relationship between neuropathic pain and sleep disturbances is a two-way. Patients with neuropathic pain are more likely to experience sleep disturbances due to the occurrence of chronic pain and ultimately the painful condition that patients experience can be exacerbated by the lack and/or poor quality of sleep.

Keywords: Sleep Disturbance, CKD, Neuropathy

EARLY HIGH NEUTROPHIL LYMPHOCYTE RATIO TO PREDICT THE OUTCOME OF TRAUMATIC BRAIN INJURY

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Introduction: Closed Traumatic Brain Injury (TBI) (blunt trauma), caused by direct trauma to the head which causes acceleration, deceleration, and rotational forces. Closed TBI results in failure of ion pumps and cell membranes, increased release of glutamate, mitochondrial dysfunction, and anaerobic metabolism associated with increased inflammatory response in the body. Neutrophil Lymphocyte Ratio (NLR), is a simple blood test that can seize the inflammatory response due to extensive tissue injury.

Methode: A Case control study, with a total of 56 samples, devided as good outcome and bad outcome based on Glasgow Outcome Scale. The NLR data taken at the early onset of COT, and then compared between group.

Result: The results of the 56 samples included in the statistical analysis test, obtained a cut-off value based on the ROC curve, as 3.6 which has a sensitivity of 0.885, and a specificity of 0.667. In the case control test, an increase in NLR above or equal to 3.6 has an odds ratio of 11.5 (CI 2.6 – 46.9), and p = 0.01.

Discussion: NLR above 3 indicates mild inflammation which is associated with low survival rates in cases of cancer to trauma as is the case in this study. NLR is one of the choices in making clinical decisions about a COT.

Keywords: Traumatic Brain Injury, Neutrophil Lymphocyte Ratio, Glassgow Outcome Scale, Secondary Brain Injury

INTENSIVE CARE OF 20 YEARS OLD BOY WITH CHOKING, CARDIAC ARREST, AND SEIZURE AFTER ROSC

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Introduction: Choking is a life threatening accident within minutes. A patient with cardiac arrest after choking needs intensive care treatment to prevent sequelae and overcome complications.

Case Report: A 20 years old boy presented to the ER from a nursing home for children with special needs with cardiac arrest after choking. After successful resuscitation and return of spontaneous circulation, patient was unconscious and admitted to ICU with ventilator. Six hours after, he had acidosis, fever and status epilepticus unresponsive to midazolam, phenytoin, and phenobarbital injection. Seizure controlled on second day. Ceftriaxone was administered empirically then switched to Cefoperazone sulbactam after microbiology result acquired. Tracheostomy performed on 8th day for definitive airway and mucus drainage. Patient was discharged on 12th day with tracheostomy and bed rest dependency.

Discussion: Post-cardiac arrest brain injury (PCABI) is the main cause of death in patients resuscitated from cardiac arrest, and the main cause of long-term disability in those who survive the acute phase. PCABI pathophysiology caused by ischaemic and reperfusion injury which occur sequentially during cardiac arrest, resuscitation, and the acute post- resuscitation phase. The minimum recommended timing for assessing neurological function in PCABI is at hospital discharge or 1 month after the arrest . However, neurological outcome of resuscitated patients may further improve thereafter. Decision to continue, withhold, or withdraw the treatment should be made by family after informed with clinical condition, long-term prognosis, medical ethic and law.

Keywords: intensive care, cardiac arrest, rosc, seizure

CORRELATION BETWEEN REPETITIVE NERVE STIMULATION RESULTS AND MYASTHENIA GRAVIS SEVERITY IN HAJI ADAM MALIK GENERAL HOSPITAL MEDAN

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Background: Myasthenia gravis (MG) is an autoimmune disease characterized by fluctuating ocular weakness to general weakness. Repetitive Nerve Stimulation (RNS) has been established as a diagnostic test in MG, although its reported sensitivity varies widely and depends on the severity of the disease and the distribution of affected muscles. This study aimed to determine the relationship between RNS results and MG severity.

Methods: An analytic study using a cross-sectional design, with secondary data obtained from medical record data at H. Adam Malik General Hospital Medan, from January 2017 to December 2022. The RNS results were assessed based on the highest decrement found in the muscles examined. MG severity was assessed by the MG Composite Score.

Results: There were 133 research subjects who met the inclusion and exclusion criteria with the mean MG composite score of 9.25±6.46, and the highest decrement result from the RNS test was found in the orbicularis oculi muscle (55.6%) with the mean decrement of 29.57%. Based on the Spearman test, there was correlation between the RNS results and MG severity ($r=0.34$, $p<0.01$).

Discussion: Our study found a significant but not show a strong correlation between decrement of RNS results with MG composite score. The greater decrement of RNS results, the higher of MG Composite Score.

Keywords: Composite Score, Myasthenia Gravis, Repetitive Nerve Stimulation

KNOWLEDGE, ATTITUDE, AND PRACTICE AMONG HOSPITAL HEALTHCARE PROFESSIONALS AT DR. HASAN SADIKIN GENERAL HOSPITAL BANDUNG TOWARDS TUBERCULOUS MENINGITIS

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Introduction: Meningitis is the most severe form of tuberculosis (TB) causing disability or death (40-60%). Hospital healthcare professionals play a crucial role in the diagnosis, treatment, and prevention of Tuberculous meningitis (TBM). This study aims to examines the level of knowledge, attitude, and practice among healthcare professionals at Dr. Hasan Sadikin General Hospital Bandung towards TBM.

Methods: This crosssectional study was conducted during February 2022-April 2023 using online questionnaire by Google Forms. Descriptive analysis and Spearman correlation test were performed.

Results: Total of 231 respondent participated including 9.5% specialists, 48.1% general practitioners, and 42.4% nurses. The majority (84.4%, 96.1%, 91.8%) had good knowledge, attitude, and practice towards TBM. However, some healthcare professionals still failed to recognize that headache is the primary symptom of TBM (7.8%), still considered smoking as a risk factor (42.4%), and believed that chest X-rays, sputum examination, and tuberculin tests were the modalities for diagnosing TBM (64.9%, 71.4%, and 57.6%, respectively). Many healthcare professionals (39%) expressed concerns about being infected with TBM from their patients, 10% were unwilling to receive training for caring for TBM patients, and 34.2% felt that caring for TBM patients required higher incentives. Additionally, 8.2% and 7.4% of healthcare professionals still believed that experiencing headaches accompanied by signs such as fever, seizures, double vision, impaired consciousness, or paralysis did not require seeking medical attention. Good practice was found to be positively correlated with a good attitude (R 0.995, $p<0.05$).

Discussion: The majority of healthcare professionals at Dr. Hasan Sadikin General Hospital Bandung have good knowledge, attitude, and practice toward TBM. Regular and continuous training programs for hospital healthcare professionals should be implemented to improve the outcomes of TBM patients.

Keywords: meningitis, knowledge, behavior, attitude, tuberculosis

COMPARISON OF CLINICAL CHARACTERISTICS OF ISCHEMIC STROKE PATIENTS WITH HOSPITALIZATION < 7 DAYS AND > 7 DAYS AT DR. HASAN SADIKIN BANDUNG

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Introduction: Stroke is an economic and health burden for patients, society, and health services; one is the length of stay. Ischemic stroke patients with hospitalization <7 days indicate the quality of hospital stroke services. This study aims to compare the clinical characteristics of ischemic stroke patients with a length of stay of < 7 days and > 7 days at Dr. Hasan Sadikin Bandung.

Methods: This study is cross-sectional, with samples of all ischemic stroke patients from January to April 2023 at Dr. Hasan Sadikin Bandung Hospital. The indicators were age, onset, NIHSS, NLR, and complications obtained through medical records. Statistical analysis was calculated using the Mann-Whitney and Fisher correlation tests.

Results: 59 subjects were divided into 2 groups, the < 7 days and the > 7 days groups. Comparison of age of the two groups (mean 58 vs. 59 years), onset (mean 25 vs. 3 hours), NIHSS (mean 6 vs. 8), and NLR (mean 4.2 vs. 7.6) found no significant difference ($P>0.05$). Comparison of the complications in the <7 days group (28%) and in the >7 days group (60%) was significantly different ($P<0.05$).

Discussion: The results of this study found no differences in the clinical characteristics of ischemic stroke patients between <7 days and >7 days groups, except the complications in the > 7 days group. This can be the basis for developing strategies to increase the indicators of stroke services by reducing the ischemic stroke duration of hospitalization.

Keywords: ischaemic stroke, length of stay, 7 days

THE EFFECT OF DEEP AND SLOW BREATHING METHOD ON IMPROVING SHORT TERM MEMORY AND ATTENTION IN HEALTHY ADULTS_

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Introduction: This study aims to determine the effect of the application of the Deep and Slow Breathing (DSB) method on the attentional function of medical staff in the Specialist Doctor Education Program (MPPDS). The Deep and Slow Breathing method is a breathing method that reduces the respiratory rate and maximizes the work of the respiratory muscles. This breathing method shows the activation of the prefrontal and post-parietal cortical areas, and stimulates neurotransmitters and brain-derived neurotrophic factor (BDNF) which play an important role in cognitive function. The DSB method is carried out by regulating breathing 6-8 times/minute for 30 minutes with a 2:2:4 cycle. Measurement of attentional function with SDMT (Symbol Digit Modalities Test) and short term memory with BDS (Backward Digit Span) before and after DBS.

Method: The study design was a controlled before-and-after study in 30 healthy adults, aged 25-40 years, divided into control and intervention groups. The DSB method is carried out by regulating breathing 6-8 times/minute for 30 minutes with a 2:2:4 cycle. Measurement of attentional function with SDMT (Symbol Digit Modalities Test) and short term memory with BDS (Backward Digit Span) before and after DBS.

Results: There were significant differences in the SDMT scores in the intervention and control groups (p value <0.001 and 0.002) and the BDS scores in the intervention group (p value <0.001). The ΔSDMT and ΔBackward digit span (ΔBDS) values in the intervention group and the control group were significant (p <0.0001). The effect of the DBS intervention on the SDMT and BDS scores was also significant, with p values <0.0001 and 0.0002, respectively.

Discussion: Our research shows that the Deep and Slow Breathing (DBS) method improve short-term memory function and attention in healthy young adults.

Keywords: Deep and Slow Breathing, Memory Function and Attention, SDMT, BDS

THE USE OF ARTIFICIAL INTELLIGENCE IN NON-CONTRAST COMPUTED TOMOGRAPHY AS DETECTION OF LARGE VESSEL OCLUSION

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Introduction: Acute ischemic stroke due to large vessel occlusion requires immediate detection for endovascular thrombectomy. Delays in diagnosis and therapy can worsen clinical outcomes. Computed Tomography angiography (CTA) is the main modality for enforcing large vessel occlusion, but this examination has many obstacles due to limited resources. The use of artificial intelligence in Non-Contrast Computed Tomography (NCCT) can be a solution to speed up the detection of large vessel occlusion.

Methods: A systematic search was conducted through four databases (PubMed, Cochrane-Library, ScienceDirect, and ProQuest) using appropriate keyword combinations on articles published in 2013-2023. The review used the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guide. **Results**: Five articles were obtained involving 1,949 subjects meeting the inclusion criteria.

Discussion: Three articles used Machine Learning algorithms and two articles used Convolutional Neural Networks. The relatively high Area Under Curve (AUC) was found in three articles (0.87, 0.85, and 0.74), while two articles did not include it. Three articles had high sensitivity (83%, 86%, and 87.5%) and two articles had lower sensitivity (77% and 55%). High specificity was found in two articles (83% and 87%), while moderate to low specificity was found in three articles (71%, 65%, and 30.9%). Two articles show that the results of artificial intelligence detection have similar accuracy to neuroradiologists in detecting signs of acute ischemic stroke on NCCT. Artificial intelligence in NCCT is promising in improving the rapid detection and triage of large vessel occlusion.

Keywords: artificial intelligence, Non-Contrast Computed Tomography, rapid detection, large vessel occlusion

SUBDURAL EMPIEMA AS A COMPLICATION OF CHRONIC SUPURATIVE MEDIA OTITIS IN ADOLESCENT

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Introduction: Subdural empiema is one of the rare complications of chronic supurative otitis media (OMSK). Subdural empiema is a piogenic infection located in the severe subdural space with a mortality rate of 25–40% depending on the accuracy of diagnosis and surgery. The most common predisposing factors that cause this condition are complications of sinusitis (12%), ear infections (7%), head trauma (5%),and intracranial surgery (1%).

Case Report: A 17-year-old man experienced a decrease in consciousness 4 days before entering the hospital, accompanied by convulsions of extraction of the whole body for about 2-3 minutes with a frequency of 2 times, with a history of fever accompanied by a headache 1 week before. Patients have had a history of chronic suppurative otitis media for the last 6 months. The CT scan of the head shows a picture of the hypodensal lesions in the subdural space that pressure the brain parenchym. Patients were given ceftriaxone 2g per day and metronidazole 1500 mg per day. They subsequently underwent decompression craniectomy and found the presence of a yellow, thick empyema with a volume of 200 cc.

Discussion: A proper diagnostic approach to the case of empyema subdural with immediate care and compliance with clinical data can produce a good outward appearance.

Keywords: Empyema Subdural, Kraniektomy, Chronic Supurative Media Otitis

THE CORRELATION BETWEEN MEAN FLOW VELOCITY MEASURED BY TRANSCRANIAL DOPPLER AND MINI- MENTAL STATE EXAMINATION SCORE IN PATIENTS WITH THROMBOEMBOLIC INFARCT STROKE

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Introduction: Three out of four stroke patients experience post-stroke cognitive impairment. Non-invasive transcranial Doppler (TCD) examination provides a hemodynamic profile related to cerebral tissue perfusion and cognitive function. This study aimed to investigate the correlation between mean flow velocity (MFV) measured by TCD and the achievement of Mini-Mental State Examination (MMSE) scores in patients with thromboembolic infarct stroke admitted at Dr. Hasan Sadikin General Hospital, Bandung.

Methods: This retrospective cross-sectional study was conducted from January to May 2023. Secondary data from medical records, including MMSE scores and TCD examination results of the middle cerebral artery (MCA), were extracted and analyzed using the Spearman correlation test with a significance level of $p < 0.05$.

Results: 41 subjects with thromboembolic stroke were included, with a mean age of 58.44 ± 10.4 years. Among them, 22 (53.6%) were male, and 56% had an education level of 12 years and above. Recurrent stroke was found in 58.5% of the subjects. The prevalence of hypertension was 97.5% of subjects, dyslipidemia in 85.3%, smoking in 39%, and diabetes mellitus in 34.1%. Based on the Spearman correlation test, the MFV values were significantly and inversely correlated with MMSE scores ($r = -0.911$ and p-value < 0.001).

Discussion: The MFV measured by TCD showed a significant inverse correlation with MMSE scores in patients with thromboembolic infarct stroke. Higher MFV values were associated with lower MMSE scores.

Keywords: Mean Flow Velocity, MMSE, thromboembolic infarct stroke.

THE CORRELATION BETWEEN THE PLATELET-TO-LYMPHOCYTES RATIO WITH THE NATIONAL INSTITUTES OF HEALTH STROKE SCALE SCORE FOR ACUTE ISCHEMIC STROKE IN KALABAHI GENERAL HOSPITAL

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Introduction: Assessment of the clinical degree of ischemic stroke influences the management and prognosis of ischemic stroke. The National Institutes of Health Stroke Scale (NIHSS) is currently used to assess the clinical grade of ischemic stroke. An inexpensive and fast supporting marker is needed to assess the severity of ischemic stroke, especially in the rural areas. We examined the correlation between Platelet-to-Lymphocyte Ratio (PLR) and National Institutes of Health Stroke Scale (NIHSS) scores.

Methods: A cross-sectional design was used in this study, with participants from acute ischemic stroke patients who were treated at the Kalabahi General Hospital from January - October 2022 that met the study criteria. NIHSS and PRL were obtained at the time of admission and a correlation test was performed with the Spearman correlation test. **Results**: 61 participants who met the criteria were used in this study. The results of the analysis showed that the increase in PRL had a significant correlation with the increase in NIHSS ($r=0.350$; $p=0.000$).

Discussion: PRL can be used as an easy, routine and cheap examination parameter, so it can be used to assess the degree of severity in acute ischemic stroke patients in rural areas.

Keywords: Platelet-to-Lymphocytes Ratio, Ischemic stroke, National Institutes of Health Stroke Scale

THE RELATIONSHIP BETWEEN SMARTPHONE ADDICTION AND INSOMNIA IN STUDENTS OF THE MEDICAL PROFESSIONAL PROGRAM (MPPD) FACULTY OF MEDICINE HASANUDDIN UNIVERSITY MAKASSAR

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Introduction: Smartphones are very helpful for medical students for educational purposes. Overuse causes dependency problems. Smartphone addiction causes health problems including sleep disorder insomnia.

Methods: Analytic observational research method with a cross-sectional study, conducted in May 2023 using a questionnaire at the MPPD Faculty of Medicine, Hasanuddin University at RSUP Dr. Wahidin Sudirohusodo Makassar. Sampling used consecutive sampling method with inclusion criteria. The questionnaire consisted of demographics, the modified Smartphone Addiction Scale questionnaire in the Indonesian version (SAS), the Insomnia Severity Index (ISI) questionnaire, and informed consent. Statistical analysis was performed using the Anova test. Spearman's test was used to assess correlation.

Results: Fifty-four subjects met the inclusion criteria, 20 subjects (54.1%) with smartphone addiction with a SAS score > 55 had insomnia and 17 subjects

(45.9%) had no insomnia. In subjects who did not experience smartphone addiction, 0 subjects had insomnia (0%) and 17 subjects (100%) had no insomnia. The results showed a significant relationship between smartphone addiction and the incidence of insomnia with a moderate correlation and a positive value (p 0.000; r 0.495).

Discussion: Smartphone addiction is characterized by smartphone users sacrificing anything including sleep, causing health problems, one of which is insomnia. Insomnia occurs due to changes in sleep homeostasis and the body's circadian rhythm due to exposure to blue light from smartphone LED screens that alter melatonin secretion and sleep physiology. In this study, there is a significant relationship between smartphone addiction and insomnia. A study shows smartphone addiction has a significant relationship with insomnia where it takes up the user's time in a day, so that the portion of time for other activities is spent playing smartphones including sleeping time. Low quality and quantity of sleep due to lack of sleep causes insomnia.

Keywords: Smartphone addiction, insomnia, SAS, ISI

CRYPTOCOCCAL MENINGITIS WITH CLADOPHIALOPHORA BANTIANA CO-INFECTION IN HIV-NEGATIVE PATIENT WITH PARADOXICAL REACTION

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Introduction: Cryptococcal meningitis (CM) usually occurs in immunocompromised conditions, with estimated global incidence of 223,100 cases per year and 70% mortality rate. Worsening of a pre-existing condition after initial improvement may occur as an immunological response, despite adequate treatment. Co-infection of CM with Cladophialophora bantiana is possible but has not been previously reported. Our aim is to report a rare case of CM with paradoxical reaction and co-infection with C. bantiana.

Case Report: A 36-year-old male presented with intermittent headaches for 11 months, Numeric Rating Scale of 4-9. In July 2022, lumbar puncture (LP) was performed, the India ink staining was positive, but the cryptococcal antigen test (LFA) was negative. Since then, fluconazole 1200 mg/day was prescribed. However, the patient experienced severe headaches at the sixth week of treatment, which led to hospitalization at RSHS Bandung. Upon examination, positive nuchal rigidity, central left facial and hypoglossal nerve palsy, and left hemiparesis were observed. The second LP was performed, which showed negative results for India ink staining and LFA, but C. bantiana was found in the culture. The patient received methylprednisolone 1 gram/day (5 days) and fluconazole 1x1200 mg (consolidation phase). The patient was discharged with improvement and continued the same treatment.

Discussion: In conditions with high antigen load, LFA test may cause a false negative result, thus requiring confirmation with India ink staining. The immunocompetent status of a patient may not necessarily reflect their actual immune status, as the ability to detect immunosuppressive conditions is limited to HIV testing only. In cases of fungal meningitis with intractable headaches, the possibility of co-infection with other pathogens should still be considered through fungal culture examination. Notwithstanding, it is crucial to recognize the paradoxical manifestation of CM and co-infection with other pathogens to avoid misleading diagnoses and unwarranted management strategies.

Keywords: Cladophialophora bantiana, cryptococcus, meningitis, paradoxical reaction

ANALYSIS OF MORTALITY FEATURES IN STROKE PATIENTS TREATED AT RSUP DR. HASAN SADIKIN BANDUNG FOR THE PERIOD JANUARY - APRIL 2023

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Introduction: The high mortality rate due to stroke causes a burden on health services, so it is important to optimize stroke services. Mortality is one of the parameters in assessing stroke services. dr. Hasan Sadikin, as a stroke service support hospital, should carry out comprehensive service development, one of which is through continuous evaluation regarding the mortality rate of stroke patients being treated. This study aims to analyze the description of mortality in stroke patients at Dr. Hasan Sadikin Bandung.

Methods: The study used a retrospective analytic method for stroke patients in the Neurology ward for the period January-April 2023 and was divided into 2 groups, namely the group of patients who died and the group of patients who returned home with improvement. Data were taken from medical records in age, onset, length of stay, NIHSS, initial leukocytes, NLR, and complications. The data were then analyzed using the Mann-Whitney correlation test.

Results: From this study showed that 22 patients died, and 70 patients returned home with improvement. There were no statistically significant differences ($p>0.05$) in the variables of age, onset, and length of stay in the two groups. There were statistically significant differences ($p<0.05$) between the two groups on the NIHSS on admission, leukocyte count, NLR variables, and the presence or absence of complications.

Discussion: NIHSS scores, leukocytes count, NLR, and complications significantly affect mortality in stroke patients. This can be the basis for preventing and managing complications to reduce mortality in stroke patients and achieve better quality indicators of stroke services.

Keywords: mortality, outcome, stroke

THE RELATIONSHIP BETWEEN SERUM URIC ACID LEVELS AND IMPAIRED COGNITIVE FUNCTION IN POST- ISCHEMIC STROKE PATIENTS

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Introduction: Post-stroke cognitive impairment can be affected by increased levels of uric acid that converts its antioxidant properties into pro-oxidants via oxidative stress. Studies about the relationship between uric acid levels and cognitive function are still contradictory. This research aimed to study the relationship between uric acid levels and post- ischemic stroke cognitive impairment.

Method: This study was a cross-sectional observational analytical study, conducted at the Neurology Polyclinic at RSUP Dr. M. Djamil Padang, from January-April 2023. Inclusion criteria were post-ischemic stroke patients in RSUP Dr. M. Djamil aged 20-80 years old. The relationship between variables was analyzed using the Chi-square test and the result was significant if the p-value was below 0,05.

Result: The study was conducted using 27 post-stroke patients with a mean age of 54,93 years old. Statistical analysis showed that there were cognitive impairments in 9 patients with high uric acid levels (>7,0 mg/dl in males and >6,0 mg/dl in females). MoCa-Ina test resulted in 23 patients (85,2%) having cognitive impairments, 9 patients with high uric acid levels, and 14 patients with normal uric acid levels. There was no significant relationship between uric acid levels and post- ischemic stroke cognitive impairment (OR = 1.929, IK 95% 0.173-21.540, p = 0.589).

Discussion: This study found that there was no significant relationship between uric acid levels and post- ischemic stroke cognitive impairment. This could be caused by small samples, one-time uric acid level measurement, and limited cognitive data before the initial stroke.

Keywords: PSCI, uric acid, MoCA-Ina

CHARACTERISTICS OF RISK FACTORS, DISEASE SEVERITY, AND ONSET OF INITIAL ISCHEMIC STROKE ATTACK IN PATIENTS UNDERGOING TREATMENT AT SIWA HOSPITAL, WAJO

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Introduction: Stroke is globally acknowledged as the second most common cause of mortality and the third leading contributor to disability. Prompt and accurate initiation of therapy following the onset of the initial stroke attack can significantly decrease morbidity and mortality rates among ischemic stroke patients. This study aims to examine the risk factor characteristics, disease severity, and onset of the initial stroke attack among patients undergoing treatment at Siwa Hospital, Wajo.

Methods: This descriptive study an observational approach with a total sampling technique. The study focuses on a sample population comprising patients diagnosed with ischemic stroke and treated at Siwa Hospital between March 2022 until April 2023.

Results: This study included a sample of 47 individuals diagnosed with ischemic stroke. The majority of the patients were male (55.3%) and aged above 50 years (74.5%). The most prevalent risk factors observed in the patients were hypertension (76.6%), smoking habits (51.1%), heart disease (10.6%), diabetes mellitus (10.6%), obesity (23.4%), and a history of stroke (17.0%). Among the admitted patients, the majority had a moderate degree of

ischemic stroke (59.6%), while at discharge, most had a mild degree (51.1%). The onset of ischemic stroke occurred more than 3 hours prior in 82.9% of cases.

Discussion: The predominant risk factors identified at Siwa Hospital were hypertension and smoking. This study aims to describe the identify risk factors and contribute to the reduction of stroke incidence, thereby minimizing disability, preventing mortality, and reducing treatment duration.

Keywords: risk factors, ischemic stroke, disease severity, onset of attack

SERIAL CASE REPORT FF HEREDITARY MOTOR AND SENSORY NEUROPATHY ADULT-ONSET SUSPECTED OF CHARCOT-MARIE TOOTH TYPE 2

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Introduction: Charot-Marie Tooth (CMT) is the most common causes of hereditary peripheral neuropathy with symptoms of progressive weakness, minimal sensory disturbance, muscle atrophy and typical foot deformities (pes cavus and hammertoes). Childhood onset, similar family history, and lower extremities atrophy are the main clinical signs of CMT.

Case Report: This serial case report discussess three siblings presenting with adult-onset sensory and motor polyneuropathy, chronic disease course, similar symptoms of their biological mother, and typical foot deformities. Electroneuromyography (ENMG) examination revealed severe axonal sensory and motor polyneuropathy leading to a diagnosis of suspected CMT type 2. Unfortunately, they didn't have nerve biopsy. All patients underwent physiotherapy during hospitalization and discharged with supportive tools for their daily activity.

Discussion: Accurate diagnosis of CMT requires thorough examination in identifying hereditary neuropathy signs and supported by comprehensive examinations including ENMG examination, nerve biopsy, and genetic testing. There is currently no causal therapy available for CMT, but an accurate diagnosis is crucial for predicting the disease's progression, preventing possible complications, and enabling appropriate counseling for the patient and their family.

Keywords: hereditary, axonal, polyneuropathy, Charcot-Marie Tooth

AN ENDOVASCULAR TREATMENT APPROACH BY EMBOLIZATION IN A RARE CASE OF CEREBRAL PROLIFERATIVE ANGIOPATHY WITH CHRONIC PROGRESSIVE HEADACHE

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Introduction: Cerebral Proliferative Angiopathy (CPA) is a rare cerebral vascular malformation accounting for 3,4% of all cerebral vascular malformation. It was originally classified as Arteriovenous Malformation (AVM) but distinct by the absence of a well-defined nidus border and large size of malformation. CPA commonly occur in young adult or children and present with progressive headache, seizure or focal neurological deficit.

Case Report: Male, 19 years old, presented with chronic progressive headache for 10 years on the left side of the head. Patient also complaint of right side visual disturbance. Neurological examination revealed right facial palsy and right homonymous heminanopia. Patient underwent brain Magnetic Resonance Imaging which revealed diffuse vascular malformation on his left midbrain, thalamus, occipital lobe and predominantly on left temporal lobe. Angiography was performed revealed diffuse vascular malformation on the branches of left Middle Cerebral Artery (MCA) with "puddling" appearance, dilated cortical vein on early venous phase and confirmed transdural artery connection upon filling of Middle Meningeal Artery (MMA). Targeted endovascular embolization was performed and left MMA occlusion was achieved. After the procedure there was significant improvement of headache, from Numeric Pain Rating Scale (NRS) of 8 to 1.

Discussion: Treatment of CPA reserved for those who has intracranial bleeding or intractable symptoms. Targeted endovascular embolization of MMA may be considered in individual that has intractable headache. Reducing the cortical drain will decrease pressure to pain sensitive duramater surrounding the artery.

Keywords: Endovascular, embolization, cerebral proliferative angiography, cerebral vascular malformation

CORRELATION DEGREE OF PARKINSON'S DISEASE BASED ON HOEHN AND YAHR WITH ANXIETY LEVEL

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Introduction: Anxiety disorders are one of the non-motor symptoms of Parkinson's disease. 30% of patients with Parkinson's disease experience anxiety disorders. This condition will reduce quality of life and increase dependency in performing basic activities of daily living. Early and accurate detection of anxiety disorders is needed to provide comprehensive management.

Methods: A cross-sectional observational study in patients with Parkinson's disease who had received levodopa or dopamine agonist therapy within 1 to 9 years and were in stages 2 and 3. Levels of mild, moderate, and severe anxiety were obtained from the Generalized Anxiety Disorder-7 Indonesia questionnaire. Demographic data and questionnaire results were processed with SPSS 25, Spearman correlation test.

Results: Anxiety disorders were seen in 65% of the 40 subjects in this study with the majority aged over 65 years. There was a significant relationship between the degree of Parkinson's disease and anxiety level ($p < 0.05$) with a moderately positive correlation.

Discussion: Anxiety disorders that occur in patients with Parkinson's disease are caused by various factors, such from Parkinson's disease itself, psychosocial conditions, and derived from Parkinson's disease therapy. The progressivity of Parkinson's disease will be inversely proportional to plasma dopamine levels. The decrease in dopamine levels will be compensated with the release of dopamine from serotonin and norepinephrine (NE) neurons.

This leads to an elevation of endogenous dopamine but a decrease in serotonin and norepinephrine levels. Serotonin plays a role in inhibiting the amygdala which contributes to the anxiety process during stress. Decreased norepinephrine levels will lead to hypersensitivity of β-adrenergic receptors, which makes it more vulnerable to the occurrence of anxiety.

Keywords: Parkinson's disease, Anxiety, Serotonin, Norepinephrine, Dopamine

DEPRESSION IN PATIENTS WITH PARKINSON AT NEUROLOGY CLINIC KANDOU HOSPITAL MANADO

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Introduction: Parkinson's disease is a progressive degenerative disease that can cause motor and non-motor symptoms. Depression is the most common non-motor symptom in Parkinson's. This study describes depression in Parkinson's at the Neurology clinic of Kandou Hospital Manado.

Methods: Descriptive observational research on patients diagnosed with Parkinson's stage 1 to 3 in the neurology clinic of Kandou Hospital Manado. Depression was determined with the GDS-15 questionnaire. Demographic data and questionnaire results were then processed with SPSS version 25.

Results: A total of 59 participants filled out the questionnaire and 59% had mild depression and 17% had severe depression. Men are more prevalent than women with the highest age range > 65 years and Parkinson's stage 3 is the most common occurrence of depression.

Discussion: Parkinson's is caused by degeneration of neuronal cells in various subcortical nuclei. The buccortical nucleus is the main source of neurotransmitters, involvement of these structures results in decreased dopamine in the caudate nucleus, putamen, hypothalamus. Changes in neurotransmitters and neuropeptides cause changes in mood. Abnormalities in the neurotransmitter system will cause anhedonia, loss of motivation and apathy.The serotonergic system plays a role in emotional mood. The forebrain dopamine system plays an important role in hope. Dysfunction of all these elements is a description of the classic syndrome of depression.

Keywords: Depression, Parkinson's disease, Geriatric depression scale.

IMAGING OF PSAMMOMATOUS MENINGIOMAS ON HEAD COMPUTED TOMOGRAPHY WITH HIGH HOUNSFIELD UNITS LIKE INTRACRANIAL BONE TUMORS

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Introduction: Meningiomas are generally benign; 80–90% are grade I meningiomas. In general, the rarest type is psammomatosa (2%). Hounsfield unit (HU) is a density level of various types of networks that have 4.096 gray colors and have different density levels found on CT-scan. In the results of the study, Kobayasi found that the mean HU value of meningiomas was 43-648, and those who calcified (HU value > 60) were significantly higher in the case of psammomatosa. Solid bone density: > 250 HU. The histopathological characteristic of meningiomas is the growth of meningiothelial cells that eventually mineralize to form psammo bodies. Bone hyperostosis close to the tumor can sometimes be identified. Tumors located in this sphenoid region can cause quite meaningful hyperostosis.

Case Report: A 50-year-old female patient with headaches slowly worsened over the past 30 years. Complaints accompanied by whole-body tonic-clonic seizures that often recur after 20 years. A CT scan of the non-contrast head showed a picture of a bone density mass (1182 HU) in the sphenoidal wing dextra lobe. Management in the form of craniectomy tumor removal The results of tissue pathology appear as spindle-shaped meningothelial cells, whorl-like pattern images, and calcification (psammomatous meningioma). Clinical improvement was seen on the twelfth day of treatment, with good results.

Discussion: CT scans are effective for detecting calcified meningiomas based on HU values. Many factors influence high HU in meningiomas. Meningiomas with high HU tend to show slowing growth.

Keywords: psammomatous, meningioma, Hounsfield unit

IMPROVEMENT OF VISUAL ACUITY AFTER ENDOVASCULAR COILING OF TRAUMATIC DISSECTING INTERNAL CAROTID ARTERY ANEURYSM

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Introduction: A dissecting aneurysm is caused by the separation of the layers between the internal elastic lamina and the media of arterial wall by the circulating blood. Besides cause cerebral infarcts, subarachnoid hemorrhage (SAH) or intracranial hemorrhage, dissecting aneurysm can also cause compression to adjacent structure and cause neurologic deficit. Prevention and management can be accomplished by endovascular coiling or parent artery occlusion.

Case Report: Male, 21 years old, presented with moderate headache, slow progressive decreased of left visual acuity since two months before admission. Headache especially felt on the left side, with Visual Analog Scale (VAS) = 4-5, visual acuity OD 6/60 and OS 1/~. Patient had history of head trauma 6 months before admission. Patient underwent brain Magnetic Resonance Imaging (MRI) which revealed a proximal Internal Carotid Artery (ICA) aneurysm compressing optic chiasm. Digital Substraction Angiography was performed and revealed a dissecting aneurysm at supraclinoid of left internal carotid artery (size 7.45 mm x 5.9 mm, neck 2.22 mm). An endovascular coiling was performed and complete obliteration of aneurysm was achieved (Raymond Classification I). One day after procedure, there was a significant improvement at left visual acuity, which from 1/~ to 6/9.

Discussion: Patients with aneurysms of the supraclinoid segment of the internal carotid artery (ICA) commonly present with visual impairment. Endovascular coiling can be an option of treatment for aneurysms in the ICA supraclinoid by decreased the volume and pulsation of aneurysm.

Keywords: Endovascular, coiling, dissecting aneurysm

CARDIOEMBOLIC INFARCT STROKE IN A 68 YEARS OLD WOMAN WITH HEMIPHARASE DEXTRA, MOTORIC APHASIA AND ATRIAL FIBRILLATION

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Background: Stroke represents the main cause of disability and the second most common cause of death in the world. Approximately 20% of strokes are cardioembolic and between 14-30% are cerebral infarcts.. Cardioembolic stroke risk increases in proportion to increasing age. The risk at age 65 is calculated as 14.6% but increases to 36% in patients aged 85 years or older.

Case Report: A 68 year old woman presented to the Emergency Department having been referred from a community health clinic with a complaint of reduced consciousness and new onset persistent right sided weakness with sudden onset one hour prior immediately after eating. Neurological examination at that time revealed a somnolent conscious state, right sided hemiparesis, right sided cranial nerve seven palsy and motor aphasia. They had no past medical history or heart disease. Non-contrast CT brain displayed a hypodense infarct of the left cerebral hemisphere. Chest X-ray showed cardiomegaly. Electrocardiogram revealed atrial fibrillation with normal ventricular response (AFNVR). CHA2DS2-VASc score of 2. Echocardiography found HFmrEF (47%), moderate TR, mild AR, mild MR and mild PR. NIHSS 12.

Discussion: Atrial fibrillation is one of the main causes of cardioembolic stroke. Cerebral infarction due to cardio embolism represent a subtype of infarct stroke with high mortality. Irregular contractions of the heart lead to stasis of blood in the atria and subsequent formation of thrombus which can detach and cause a cerebral artery embolism. The CHA2DS2-VASc score is frequently used to predict the risk of stroke in patient's with atrial fibrillation and guide the decision whether to commence oral anticoagulation.

Keywords: Atrial Fibrillation, CHA2DS2-Vasc Score, Cardioembolic stroke.

CHARACTERISTIC, RISK FACTOR, AND STROKE SEVERITY: STROKE PATIENTS PROFILE AT GENERAL HOSPITAL K.H. HAYYUNG KEPULAUAN SELAYAR

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Introduction: Stroke is a condition of generalized brain damage accompanied by neuronal dysfunction. It is the second leading cause of death and disability in the US. Therefore recognizing stroke risk factors and managing them appropriately is key to designing primary prevention strategies in non-stroke populations and secondary prevention to avoid recurrent strokes.

Methods: This descriptive observational study's samples are patients with stroke in General Hospital K.H. Hayyung Kepulauan Selayar from January 2022 – December 2022. The observed profile include age, sex, marital status, educational background, clinical presentation, history of hypertension, dyslipidemia, smoking, and length of stay.

Results: Of 58 stroke patients, the highest proportion was in acute ischemic patients (55.17%) while hemorrhagic strokes (44.82%) were female (56.89%) and age range was 65-74 years (44.86%). The majority of subjects were elementary school graduates (53.44%), married (74.13%), and occupied as housewives (48.27%). Hemiparesis on the left side (48.27%) and motor aphasia (34.48%) accounted for the majority of the primary symptoms. Hypertension was the most prevalent risk factor (72.41%). The median length of stay for the participants was 5 days, and the majority of them (98.27%) were discharge in improved general condition.

Discussion: The prevalence of stroke increases with age, with the predominance of women. The characteristics of stroke patients in this research are largely consistent with those described in other studies, although these data show that stroke patients at K.H. Hayyung are lower middle class socioeconomically.

Keywords: patient profil, stroke, risk factor

COMPARISON BETWEEN THE EFFECT OF HALF SOMERSAULT MANEUVER AND BRANDT DARROF EXCERSICE IN CLINICAL DEGREE OF BPPV

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Introduction: Benign Paroxysmal Positional Vertigo (BPPV) is a clinical disorder characterized by attacks of peripheral vertigo, repeated, and associated with changes in head position. BPPV is caused by the release of the otolit from its original place in the utricle and then entering the semicircular canal. The prevalence of BPPV in the general population is between 11 and 64 per 100,000 (prevalence 2.4%). Vestibular rehabilitation exercise is one of the main options in the management of BPPV which aims to return the particles to their initial position, utricular macula. Half Somerault Maneuver and Brandt Darrof Excersice are two vestibular rehabilitation exercises that can be performed independently at home (home excersice) so that they can affect the clinical degree of BPPV and prevent recurrence.

Methods: A quantitative research with a quasi experimental two group pretest-posttest design was conducted August- September 2021 at the RSU Nurussyifa Kudus with a total sample size of 12 samples divided into 2 groups. The sample was selected using consecutive sampling. Clinical degree was measured before and after exercise with Vertigo Symtom Scale-SF contained in medical records. VSS-SF values were analyzed using paired t-test and independent t-test.

Result: There is an effect of Half Somersault Maneuver exercise on the clinical degree of BPPV ($p < 0.05$). There is an effect of Brandt Darrof Excersic exercise on the clinical degree of BPPV ($p < 0.05$). There is no significant difference between the Half Somersault Maneuver and Brandt Darrof Excersice on the clinical degree of BPPV ($p > 0.05$).

Discussion: There is no significant difference between the Half Somersault Maneuver and Brandt Darrof Excersice on the clinical degree of BPPV.

Keywords: half somersault maneuver, brandt darrof excersice, clinical degree of BPPV

PLATELET AND ASPECTS SCORES ON CLINICAL SEVERITY OF ISCHEMIC STROKE PATIENTS

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Introduction: Ischemic stroke is the most common type, accounting for 87% of all strokes. Each type of stroke is affected by the number and function of platelets. Platelets also extend the penumbra in ischemic stroke. Alberta Stroke Program Early CT Score can be used to screen stroke cases to determine thrombectomy and the National Institute Health Stroke Scale can be used to measure damage caused by stroke.

Methods: This study was a cross-sectional design, conducted during the period May 2023 with data collection in July 2022-December 2022 at Rs. Wahidin Sudirohusodo. The study variables were age, sex, platelets, ASPECT, and NIHSS. The data is then processed, presented in the form of a frequency distribution table, and accompanied by a discussion.

Results: Of 30 ischemic stroke patients, the average age was 57.13□9.02 years, with 8 women (26.7%) and 22 men (73.3%). The worst results on the ASPECT score were more than better respectively 20 (66.7%) and 10 (33.3%), majority of severe NIHSS category showed patients had platelets > 225000 and 90.9% of patients with platelets ≤ 225000 had mild NIHSS. The correlation test showed that there was a significant relationship related to platelets and ASPECT scores on patient severity, p=0.000 and p=0.000, respectively.

Discussion: Stroke is one of the main causes of disability and death in the world. High platelet levels can affect to severity of ischemic stroke. A worst ASPECT score has clinical severity, but ASPECTS only describes the extent of infarct distribution not the infarct volume.

Keywords: Ischemic stroke, Platelets, ASPECTS, NIHSS

CORRELATION BETWEEN D-DIMER AND FIRST-EVER ACUTE ISCHEMIC STROKE SEVERITY IN RSUP DR. SARDJITO

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Introduction: Acute ischemic stroke is a leading cause of morbidity and mortality worldwide. The NIHSS is a widely used clinical assessment tool to evaluate stroke severity. D-dimer, a fibrin degradation product, has been suggested as a potential biomarker for stroke severity and prognosis. The aim of this cross-sectional study was to investigate the correlation between D-dimer levels and NIHSS scores as measured by the NIHSS score in patients who had a first- ever acute ischemic stroke.

Methods: Data were taken from the Stroke Registry of RSUP Dr. Sardjito from October 2021 to December 2022. There were 83 patients met the criteria: first diagnosed ischemic stroke and administered within 48 hours of symptom onset. D-dimer levels were measured upon admission using a standardized laboratory assay. NIHSS scores were assessed within 24 hours of admission. Spearman's correlation was conducted to assess the association between d-dimer levels and NIHSS scores. The independent association of several biomarkers was evaluated using logistic regression.

Results: The mean age of the study population was 60.77□11.08 years, with a slightly higher proportion of males (54.2%) The mean NIHSS was 6.59□7 and D-dimer was 712.02□1159.2. The correlation analysis demonstrated a significant positive correlation between d-dimer levels and NIHSS scores ($r = 0.475$, $p = 0.01$). After logistic regression analysis, D-dimer remained an independent predictor of NIHSS (OR=1.001, $p = 0.026$).

Discussion: This cross-sectional study provides evidence of a significant positive correlation between d- dimer levels and NIHSS scores in patients with acute ischemic stroke. These findings suggest that elevated d-dimer levels is associated with greater stroke severity, as measured by the NIHSS.

Keywords: acute ischemic stroke, d-dimer, National Institutes of Health Stroke Scale, correlation, cross-sectional study

EVALUATION AND MANAGEMENT OF LOWER MOTOR NEURON TETRAPARESIS IN PERIODIC PARALYTIC THYROTOXICOSIS

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Introduction: Symptoms of periodic paralysis have been recognized since the 20th century with the most common causes being hypokalemia of periodic paralysis due to thyrotoxicosis. Epidemiology of thyrotoxicosis in Manado most common in Grave disesase, which higher proportion of women (89.51%) and the age group of 40-49 years (29.37%). Periodic paralytic is a disorder that occurs in the skeletal muscles, in which the patient feels hyporeflexes attacks and muscle weakness, but without sensory weakness and disturbance of consciousness.

Case Report: Male,30 years old, with complaints of weakness in all extremities since 4 days before admission. Begins with a feeling of cramps and pain in both arms and legs after the patient rides a motorcycle for a long time. Complaints like this have occurred 3 times in 1 month. The patient also complained of palpitations, moist hands accompanied by sweating, and felt that both eyes were starting to bulge out. GCS was composmentis, more weakness at the proximal both extremities, also hypotonus and hyporeflex.. Patient underwent thyroid USG which revealed of Graves' disease. Patient also got thyroid hormone checked with the increase result. Patient was given infusion therapy of KCL administration, tyrosol, and propranolol.

Discussion: Periodic paralytic thyrotoxicosis (TPP) is a complication of thyrotoxicosis which characterized by the presence of hyperthyroidism with acute hypokalemia. Thyroid hormone was thought to stimulate Na/K ATPase pump, resulting in a shift in intracellular potassium and resulting in hypokalemia without a total body potassium deficit.

Keywords: hypokalemia, thyrotoxicosis, Periodic paralytic

CHANGES IN FUNDUSCOPIC APPEARANCE AFTER MANNITOL ADMINISTRATION IN CEREBRAL EDEMA PATIENTS

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Introduction: Cerebral edema is an excess fluid accumulation in the brain parenchyma. Mannitol is opted for cerebral edema due to head injury, cerebral infarction, and intracerebral hemorrhage. There are several non-invasive methods of intracranial pressure (ICP) monitoring, one includes funduscopy to assess papilledema. This study aims to see changes in the funduscopic appearance after administration of mannitol in patients with cerebral edema.

Methods: This is a pre-experimental study with a one-group pretest-posttest design that was conducted on 32 samples from December 2022–April 2023. The funduscopic evaluation was carried out before mannitol administration and on the 5th day after mannitol administration. Funduscopic appearance is categorized as normal, early papilledema, and papilledema. To test if there were changes in the funduscopic appearance, the Wilcoxon test was used.

Results: There was an improvement in the funduscopic appearance in 19 subjects (59.4%), from early papilledema to normal in 11 subjects (34.4%), and from papilledema to normal in 8 subjects (25.0%). There was a worsening of the funduscopic appearance in 1 subject (3.1%), from early papilledema to papilledema. There were significant changes in funduscopic appearance after mannitol administration ($p<0.001$).

Discussion: When ICP increases for at least 4 hours after cerebral insults, the pressure on the optic nerve sheath (ONS) will increase, creating distention of the ONS. Increased pressure on the ONS induced static axoplasmic transport, resulting in papilledema. Funduscopy can assess the condition of the optic disc due to increased ICP and for evaluation after mannitol therapy.

Keywords: cerebral edema, funduscopy, mannitol

PAIN SCALE IN PATIENTS WITH CHRONIC LOW BACK PAIN BEFORE AND AFTER CORTICOSTEROID INJECTION IN PALAGIMATA GENERAL HOSPITAL BAUBAU

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Introduction: Chronic low back pain (CLBP) is defined as pain that continues for 12 weeks or longer, even after an initial injury or underlying cause of acute low back pain has been treated. Epidural steroid injections (ESIs) are a common treatment option for many forms of low back pain. A steroid, is usually injected as an anti-inflammatory agent. Inflammation is a common component of many low back conditions and reducing inflammation helps reduce pain.

Methods: This is a descriptive study, conducted during the period January to May 2023, obtained as many as 21 sample patients. The variables are age, gender, occupation, and pain scale. The data is then processed, presented in the form of a frequency distribution table, and accompanied by discussion.

Results: Of 21 low back pain patients, the average age of was 47,4±11,8 years with the 11 female (52,3%) and 10 men (47,7%). 33,3% patient was housewife. The median of numeric pain rating scale before and after injection steroid were 5 and 2, respectively.

Discussion: Epidural steroid injections deliver medication directly (or very near) the source of pain generation. Epidural Steroid Injection is being considered as a simple, effective and minimally invasive treatment modality for Chronic low back pain.

Keywords: Back pain, Epidural Steroid Injection, Triamcinolone

AQP4 IGG NEGATIVE NEUROMYELITIS OPTICA SPECTRUM DISORDERS (NMSOD) IN PATIENT WITH HIV

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Introduction: Neuromyelitis Optica Spectrum Disorder (NMOSD) is rare autoimmune disease with prevalence of 0.5- 4.4/100,000 population. Although about 20-30% of NMOSD patients don't have positive IgG-AQP4, HIV infection, which compromises immunity system, can lead the production of autoantibodies against AQP4 in NMOSD patients. Management NMOSD with immunosuppressants poses unique challenges in HIV patients.

Case Report: 21-year-old male presented with symptoms of NMOSD, including optic neuritis and area postrema syndrome. Cerebrospinal fluid examination showed lymphocytic pleocytosis with elevated protein levels. MRI examination showed hyperintensity in right optic nerve, corpus callosum and left dorsal pons cerebellar peduncle. Serum IgG-AQP4 test results were negative. The patient had history of high-risk sexual behaviour and diagnosed with stage III HIV with CD4 count of 38. The patient was treated with high-dose intravenous methylprednisolone and antiretroviral therapy. Immunosuppressants were planned to be administered once CD4 count reached > 200.

Discussion: The diagnosis of IgG-AQP4 negative NMOSD in HIV patients was made based on 2015 IPND diagnostic criteria, with clinical characteristics were optic neuritis and area postrema syndrome, supported by MRI findings, and negative IgG-AQP4 serum test results. Treatment with high-dose steroids for 5 days led to clinical improvement, with resolution of area postrema syndrome, although no improvement in visual acuity. Administration of immunosuppressant is crucial for reducing the frequency of attacks and alleviating NMOSD symptoms; however, in HIV patients, it may increase the risk of opportunistic infections. The patient is currently receiving ARVs and hasn't been given immunosuppressants. Administration of immunosuppressants is planned after immune system recovery.

Keywords: Neuromyelitis Optica Spectrum Disorder, NMOSD, IgG AQP4, HIV

A RARE CASE REPORT OF LIVING WITH AN EMPTY SELLA: NAVIGATING THE CHALLENGES OF EMPTY SELLA SYNDROME

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Introduction: Empty Sella Syndrome(ESS) is a rare asymptomatic disorder caused by subarachnoid space hibernation to the sella turcica causing compression of the pituitary gland. Case predilection has 5:1 female to male ratio. ESS is generally diagnosed as a result of incidental finding in imaging studies. Symptoms of ESS include chronic headache, nasal cerebrospinal fluid leakage, papillary edema, vision disturbance and hypopituitary hormonal dysfunction. ESS is classified as primary ESS which is idiopathic and secondary ESS which is caused by pituitary tumor, head trauma, infection, radiation and increased intracranial pressure. Diagnosis of ESS is confirmed through patient history and CT-scan/MRI. Therapy for ESS includes hormone therapy and surgical intervention.

Case Report: We reported a 60 year old male with cephalgia, balance disturbance and tremor. Patient has chronic left sided headache since 5 years ago, pain is intermittent and progressive. Patient has history of hypertension and diabetes mellitus. Physical examination was unremarkable and without neurological deficit. Head MRI without contrast shows Empty Sella with multiple lacunar lesions in the bilateral frontal and parietal lobe.

Discussion: ESS is a rare syndrome generally diagnosed as an incidental finding of CT-Scan/MRI. Treatment of ESS is based on its etiological classification of primary and secondary ESS. Asymptomatic primary ESS requires no treatment. However symptomatic primary ESS can be treated using hormonal therapy. Secondary ESS treatment is adjusted to its symptoms and underlying cause. Surgical intervention and radiotherapy can be done to treat secondary ESS. Empty Sella Syndrome is a differential diagnosis that should be considered in patients with chronic headache.

Keywords: Empty Sella Syndrome, Secondary Cephalgia, MRI

ULTRASOUND-GUIDED PAIN INTERVENTION FOR TREATMENT OF TRIGEMINAL NEURALGIA IN LEPROSY PATIENT

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Background: Leprosy or Morbus Hansen Disease is a chronic infectious disease caused by the bacteria acid-fast bacillus Mycobacterium leprae. Leprosy can be considered the most common cause of intreateble peripheral neuropathy included cranial nerve neuropathy. The mechanism by which the M.leprae invades the axons of neural cells and elicits an immune respons which induce inflammation and peripheral nerve damage. Any cranial nerve can be affected predominantly the 5th and the 7th. Hypesthesia could be the most often observed in maxillary division of the trigeminal nerve and manifest as a trigeminal neuralgia.

Case Report: A 62-year-old man with a past medical history of leprosy lepromatous type presented with severe pain on the right face for the last two years. The pain was intermittent and throbbing shocked when talking, chewing, or brushing teeth in nature. The man has not experienced any type of headaches in the past several years. He diagnosed as possible trigeminal neuralgia on right cranial nerve 5th branch. He took carbamazepine 200 mg three times/day, pregabalin 75 mg twice/day, and amytriptylin 25 mg at night, but the pain did not realy resolve. Initial pain intensity was 8 with Numeric Rating Scale (NRS). Initial evaluation including physical exam and neurological exam was normal. Her serum chemistry was unremarkable and other imaging was normal. The patient was diagnosed with trigeminal neuralgia and the pain became resolve after being started on ultrasound-guided injection with lidocaine 1 ml combined with dexamethasone 5 mg via pterygopalatine fossa. Pain intensity was decreased become NRS 5 after first injection. Patient got second injection two weeks later and after second injection the pain on face was resolved.

Discussion: Trigeminal neuralgia is a typical presentation of cranial nerve involvement of neurpathy leprosy due to inflammation and is rarely reported in literature. Treatment of injection steroid and analgetic using ultrasound guided can be a therapeutic breakthrough on trigeminal neuralgia with unsatisfied effect of medical treatment.

Keywords: Leprosy; Trigeminal neuralgia; Ultrasound-guided Injection

SIGNIFICANT CLINICAL IMPROVEMENT OF NORMAL PRESSURE HYDROCEPHALUS WITH VENTRICULOPERITONEAL SHUNT

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Introduction: Normal pressure hydrocephalus (NPH) is established based on clinical symptom evaluation, which consists of the classic triad, gait disturbance, cognitive impairment, and urinary incontinence. The researchers show approximately 50% of NPH patients improve after ventriculoperitoneal shunts (VPshunt).

Case Report: A 50 year old man with dizziness accompanied by nausea and vomiting with a history of head trauma 1 month ago. During observation, it was found that the patient had difficulty communicating and unable to hold back urination. Physical examination showed impaired coordination and impaired cognitive function with a Mini Mental State Examination (MMSE) score 9. CT Scan of the head shows communicating hydrocephalus. From the examination, the patient was diagnosed with NPH, then a VPshunt was performed. The patient showed clinical improvement marked by an MMSE score 26 after the procedure.

Discussion: NPH is a reversible syndrome, consists of idiopathic normal pressure hydrocephalus (iNPH) whose etiology is unknown and secondary normal pressure hydrocephalus (sNPH) which can be caused by subarachnoid hemorrhage (46.5%), head trauma (29%), intracranial tumor (6.2%) and meningoencephalitis (5%). In this case, the patient came with dizziness with a history of head trauma 1 month ago. After being diagnosed with NPH, a VPshunt was performed. The patient showed significant improvement so that the VPshunt is the treatment of choice for NPH. In NPH brain hypoperfusion occurs in consequence of ventricular dilatation. VPshunt is performed to drain excess cerebrospinal fluid in the brain thereby reducing ventricular pressure which results in increased cerebral blood flow.

Keywords: Clinical improvement, Normal pressure hydrocephalus, ventriculoperitoneal shunt

BRACHIAL PLEXUS BIRTH PALSY AND CONSERVATIVE MANAGEMENT

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Introduction: Brachial plexus birth palsy (BPBP) is defined as an injury to any nerve root of the brachial plexus (BP) during difficult delivery. It is relatively rare, with an incidence between 0.04 and 0.4% live birth. BP is formed by the anastomosis of the ventral branches of the spinal nerves from C5 to T1 that provide motor and sensory innervation to the upper extremity. The causes are probably multifactorial, but the two main risk factors are shoulders dystocia and macrosomia. Appropriate and immediate of diagnosis, initial therapy, and passive physiotherapy can promote the functional of the injured arm.

Case Report: A 2-month-old baby girl with weakness of the right upper limb since birth. The patient had history of difficult delivery which were shoulder dystocia and macrosomia (birth weight of 4,600 gr). The diagnosis of BPBP was established from the physical examination. The X-ray of the right shoulder showed dislocation of the glenohumeral joint. Cervical MRI was carried out under anesthesia, showed normal results. The patient received steroid and neurotonic therapy, and underwent passive physiotherapy. It showed clinical improvement, but physiotherapy and further observation is still need to be carried out.

Discussion: BPBP incidence are relatively rare depending on the risk of difficult delivery. BPBP can be detected from clinical jugdement. Initial treatment of medication, passive physiotherapy, and further observation can improve the function of the affected limb and reduce the risk of complications.

Keywords: Brachial Plexus Birth Palsy, Erb's Palsy, Klumpke's palsy

CLINICAL PROFILE OF HEMIFACIAL SPASM PATIENTS AT DR. CIPTO MANGUNKUSUMO HOSPITAL

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Introduction: Hemifacial spasm is characterized by involuntary movements in the form of rhythmic, intermittent tonic clonic contractions of unilateral face innervated by the facial nerve. This is not fatal but causes social problems. Women are two times more at risk than men. Hypertension is the most common comorbid. This study wanted to know the clinical profile of patients with hemifacial spasm at Cipto Mangunkusumo Hospital.

Method: Data was taken from the medical records (secondary data) of patients with hemifacial spasm who went to the neurology outpatient clinic in Cipto Mangunkusumo Hospital from January 2020 to December 2022. The data collected included age, sex, disease duration, muscle involvement, facial location, comorbidities, and past medical history, aggravating factors, blood vessel involvement based on head MRI data, and management.

Result: We included 30 subjects. All subjects (100%) are primary hemifacial spasms. Women were 76,7%. The median age of onset of hemifacial spasm was 52 (25-68) years. The symptoms were more common on the left side (60%). Hypertension is the most common comorbid (43,3%) and most subjects do not have certain factors that aggravate the symptoms (46,7%). The anterior inferior cerebellar artery is the blood vessel most frequently involved (33,3%). The most common treatment of this study is with oral medication (76,7%).

Discussion: Primary hemifacial spasm is more common than secondary. In accordance with the study of Prabrisha, primary hemifacial spasm is 10 times more frequent than secondary. It involves more women than men. This is consistent with the prevalence of hemifacial spasm worldwide, more women than men. This study found that hemifacial spasm occurred more on the left side and hypertension was most commonly found. The same result with study of Yildiz, more on the left side is involved and hypertension is a risk factor. This study shows that the characteristics of hemifacial spasm patients are not different worldwide.

Keywords: Hemifacial spasm, clinical profile, involuntary movements

OVERVIEW OF HYPONATREMIA IN MENINGITIS PATIENTS AT HERMINA PASTEUR HOSPITAL

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Introduction: Hyponatremia has frequently been described as a common complication associated with meningitis, though its frequency and clinical course are unclear. Hyponatremia in the context of infections reflects the severity of the underlying disease, and is associated with prolonged hospitalization and significant morbidity. The present study aimed to investigate the frequency, clinical characteristics, and prognosis associated with hyponatremia due to meningitis.

Methods: We performed a retrospective review of patient's with meningitis provided with standard care. Twenty two patient were included. We documented all participants'from medical record, such as symptoms and signs, laboratory and microbiological data, radiological findings, and complications that occurred during their hospital admission.

Results: we have got 22 samples and the results are: Meningitis without Hyponatremia (>135mmol/L) was seen in 5, Hyponatremia was classified as mild (130-135 mmol/L) in 1, moderate (125–129 mmol/L) in 9, and severe

(<125 mmol/L) in 7 Hyponatremia was associated with a shorter duration of symptoms before admission, higher CSF white cell counts, and a longer duration of hospitalization. Moderate and severe hyponatremia were associated with an increase in convulsions, impaired consciousness, altered CSF protein levels, and lower minimum GCS scores. Severe hyponatremia was further associated with the development of systemic complications including shock, multiple organ dysfunction syndrome, and respiratory failure requiring mechanical ventilation.

Discussion: Hyponatremia occurred in 77,2% of the assessed meningitis patients. Moderate and severe hyponatremia affected the severity of meningitis. Only severe hyponatremia affected the short-term prognosis of patients with meningitis. We recommend that patients with meningitis who exhibit convulsions and increased blood glucose levels should be checked for severe hyponatremia. Further studies are needed to evaluate the effectiveness of treatment of hyponatremia.

Keywords: hyponatremia, bacterial meningitis, prognosis, neurologic complications, systemic complications

EFFECTIVENESS OF ELECTRICAL STIMULATION TO IMPROVE RESPIRATORY FUNCTION IN ACUTE COMPLETE TRAUMATIC SPINAL CORD INJURY PATIENT WITH MECHANICAL VENTILATOR

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Introduction: Respiratory disease is the most common cause of death for acute Spinal Cord Injury (SCI) patient. Lower cervical SCI patients mostly are able to breath spontaneously, but they are at high risk for respiratory failure over the next 3 to 5 days that cause the need of mechanical ventilator (MV). Electrical Stimulation (ES) is one of the therapeutic strategies to improve respiratory function of patients with MV.

Case Description: A male patient, 39 years old with SCI AIS A NL C5 due to trauma, post cervical traction and facet joint lock release on C6-7, got ACDF procedure. The patient was treated in the ICU with MV with FiO2 70% and PEEP 10. Previously the patient only got chest physiotherapy, however we then added ES on bilateral quadriceps muscles daily for 15 minutes. After 8 days, there were improvement of FiO2 and PEEP become 40% and 7, thus the patient was extubated.

Discussion: The application of ES on quadriceps muscles as addition to chest physiotherapy may reduce FiO2 and PEEP, thus improving respiration function. ES on quadriceps muscles is reported to enhance growth factors of localized muscle, gives anabolic stimulus to the respiratory muscle through the circulation system and resulting better functional outcomes. As a result, this patient showed reduction in shortness of breath and better FiO2 and PEEP values, also assisted extubation.

Keywords: Electrical Stimulation, Mechanical Ventilator, Spinal Cord Injury

NEUROVASCULAR AND NEUROIMMUNOLOGY MANIFESTATION IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIENT

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Background: Systemic lupus erythematosus (SLE) is a systemic chronic autoimmune disease that affects various organs including the nervous system. Autoantibody pro-inflammatory cytokines circulate across the blood-brain barrier (BBB) and enter the brain can induce hypercoagulation and neurotoxicity in SLE patients. Hypercoagulability could be a risk factor for cerebral venous sinus thrombosis (CVST) and neurotoxic inflammation can lead to demyelination as occurs in multiple sclerosis (MS).

Case Report: A 25-year-old woman with a history of SLE in the treatment of 1x360mg mycophenolate sodium (MMF) and 1x12mg methylprednisolone came with complaints of chronic headaches for two months which were so severe that they did not go away with pain relievers. Complaints are accompanied by decreased vision and weakness on the right side of the body. A history of blurry vision was previously complained of one year ago and is said to be improving. There was no history of use of hormonal contraception, head trauma, and central nervous infection. Neurological examination revealed visual acuity of 20/400 ODS, paralysis right N.VII, and right hemiparesis MMT4+/4+. MRV brain imaging showed decreased contour and caliber of the left transverse sinus and right sigmoid sinus. Head MRI shows ovoid lesions in bilateral juxtacortical parietal lobes and bilateral optic neuritis suggested of demyelinating disease in SLE. Laboratory examination showed INR 1.04, PT 16.4, and APTT 34.40. The patient treated with methylprednisolone 2x500mg IV followed by prednisone 1 mg/kg/day for 11 days, warfarin 1x2mg, and MMF 3x720mg. Complaints of headache and blurry vision decreased during control after one week of treatment.

Discussion: Complex interactions between endothelial cells and lupus (LA) antibodies lead to the inhibition of C and S proteins that promote thrombosis. In addition, antibodies can attack the phospholipid surface that triggers platelet activation so that a thrombus can be formed, including in the cerebral venous flow. Demyelinating disease (MS) and SLE are autoimmune diseases with rare coexistence. Due to the rarity of these conditions, differentiating between MS and SLE poses a diagnostic challenge. Management of clinical evaluation, treatment decisions, and monitoring of drug interactions and clinical outcomes is necessary.

Keywords: SLE, CVST, Demyelinating disease

THORACIC OUTLET SYNDROME WITH BRACHIAL PAIN AND COGNITIVE SYMPTOMS

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Introduction: Despite having been introduced a long time ago, the term and meaning of thoracic outlet syndrome (TOS) is still controversial. This manuscript reviews clinical diagnosis and multidisciplinary treatments of TOS based on a case.

Case Report: A 40-year-old male came with headache, pain on the left neck, scapular region, and arm. He also reported fatigue and difficulty of speaking and concentrating. No neurological deficit was found from the examination, but there were positive signs of Morley, Eden, Adson, and Roos test. Angiography and venography showed narrowing of the left subclavian artery and vein on the left costoclavicular space. The symptoms relieved after the patient underwent steroid injection on the left anterior scalene muscle and physiotherapy, and took oral analgesic, muscle relaxant and anticonvulsant.

Discussion: The clinical pictures of TOS can vary widely, depending on the compressed structures. The compression of brachial plexus causes pain and paresthesia along the nerve pathway. Cognitive symptoms may be caused by an intracranial hypertension mechanism. Clinical examination is mainly important in diagnosing TOS. Multidisciplinary treatments are mandatory for better results.

Keywords: thoracic outlet syndrome, brachial plexus, pain management, cognitive symptoms

MASSIVE HYDROCEPHALUS IN CEREBELUM TUMOR WITH THE GLASGOW COMA SCALE 15

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Introduction: Hydrocephalus is a condition resulting from impaired production, absorption, and obstruction to the flow of cerebrospinal fluid (CSS) in the brain which causes an increase in the volume of cerebrospinal fluid in the ventricular system. Obstruction of the ventricular canal can be caused by an additional mass in the brain tissue. Impaired flow of CSF fluid can cause dilation of the lateral ventricles and compress the surrounding brain tissue, especially vital nerve centers such as conscious function.

Case Report: A 30-year-old male with a balance disorder that has been occurring slowly for 16 years before he was still in the hospital. Headache of moderate intensity, fully awake with Glasgow Coma Scale (GCS) 15 without a history of loss of consciousness. CT scan of the head shows a picture of massive hydrocephalus and a tumor in the cerebellum pressing on the III and IV ventricles. Furthermore, a VP-Shunt was performed to reduce intracranial pressure and a tumor removal procedure was planned, and a biopsy examination was carried out to determine the type of tumor.

Discussion: This case represents the ability of the brain to maintain its status and function in massive and chronic hydrocephalus. In contrast to normal pressure hydrocephalus, compensated hydrocephalus can be asymptomatic but can cause syncope attacks and sudden death. A shunting action is needed to reduce intracranial pressure as well as a biopsy to determine the type of tumor and the right choice of therapy.

Keywords: Hydrocephalus, Cerebellum Tumor, Glasgow Coma Scale, VP-shunt

CERVICAL TUBERCULOUS SPONDYLITIS IN A YOUNG WOMAN

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Introduction: Paravertebral abscess is a rare form of spinal infection with a prevalence of 2-7%. Epidemiologically, men are more likely to suffer from this condition.

Case Report: A 39-year-old woman who works as a teacher, presented with the main complaint of progressive weakness in all extremities for the last six months. The patient also complained of upper back pain radiating to the extremities. On physical examination, tetraparesis, urinary and defecation retention, increased physiological reflexes, positive pathological reflexes were found, and hypoesthesia below the level of the 3rd thoracic vertebra. Plain cervical X-ray and cervical magnetic resonance imaging examination showed gibbus deformity, paravertebral abscess, and osteodestruction in the cervical vertebrae 5-6. The patient was treated with supportive therapy and decompressive laminectomy with internal fixation as surgical management. Biopsy of the cervical vertebrae 5-6 showed suppurative granulomatous inflammation appearance. The patient's symptoms significantly improved after surgery.

Discussion: Pyogenic spinal infections most commonly spread hematogenously, affecting the lumbar vertebral region and involving the intervertebral discs. The formation of abscesses is often unilateral and frequently originates from infections in the vertebrae, gastrointestinal tract, bacteremia, or urinary tract infections. In tuberculous spondylitis, the initial symptom is usually back pain, followed by limb weakness. This finding may be attributed to compression from abscesses, inflammation, or spinal instability. Thorough clinical evaluation and early diagnosis using MRI are crucial. Spinal infections accompanied by abscesses generally require specific antibiotics, along with operative interventions and drainage. Surgical interventions for spondylitis and paravertebral abscesses yield better outcomes. The management of tuberculous spondylitis involves supportive therapy, administration of anti-tuberculosis drugs, and surgical management. Additionally, methylprednisolone injections have been reported to be effective in patients with central nervous system tuberculosis.

Keywords: Spinal Tuberculosis, Paravertebral Abscess, Tetraparesis, Neck Pain

REFRACTORY STATUS EPILEPTICUS IN STURGE WEBER SYNDROME

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Introduction: Sturge-Weber Syndrome is a neurocutaneus syndrome characterized by the presence of angioma involving face, choroid and leptomeninges caused by mosaic somatic mutation of GNAQ gene located on the long arm of chromosome 9. In Sturge-Weber Syndrome, there is disturbance of functional brain blood flow which can lead to brain ischemia and excitotoxicity thereby triggering seizures which can progress to status epilepticus. This case report discusses the incidence of refractory status epilepticus in patients with Sturge-Weber Syndrome.

Case Report: A 5 month old child, previously diagnosed with Sturge-Weber Syndrome was came to emergency room with recurrent tonic- clonic seizures and fever. On physical examination, a port-wine stain was found, patient have a global developmental delay with nutritional status considered as good. Neurological examination shown superior right spastic monoparesis. Blood laboratory examination showed anemia, thrombocytopenia and hypochloremia (Haemoglobin 9.1 g/dL, Platelets 111 thousand/mm, Chloride 96 mmol/L). Seizures recurred four times during hospitalization under anticonvulsants and antipyretics.

Discussions: Seizure is one of the most common manifestations of Sturge-Weber Syndrome, and a significant number of these patients have refractory seizures. In 75% of cases, the first seizure occurs before the age of 1 year. Fever can trigger seizures in Sturge-Weber Syndrome, as the result of increased brain metabolic demands. This case report illustrates that seizures in Sturge-Weber Syndrome can be difficult to treat and run the risk of developing refractory status epilepticus. Thorough management is needed, both with anticonvulsants and control of factors that can trigger seizures.

Keywords: Sturge-Weber Syndrome, Refractory Status Epilepticus, Port-wine stain, Leptomeningeal Angioma

A CASE SERIES OF MASSIVE INTRACEREBRAL HEMORRHAGE IN PATIENTS WITH THROMBOCYTOPENIA

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Introduction: Intracerebral hemorrhage is 10% of the 795,000 stroke cases per year in the United States. Clinical predictors of poor prognosis are the level of consciousness at admission and the size of the hematoma. Impaired platelet function is known to increase the tendency for intracerebral bleeding. In this case series, we report 2 patients with extensive intracerebral hemorrhage with thrombocytopenia.

Case Report: First case: A 59 years old male had a sudden loss of consciousness 16 hours before admission. He previously complained of headaches, vomiting 2 times, and left hemiparesis. Head CT Scan showed intracerebral bleeding in the right frontotemporoparietal region with estimated bleeding of 50 ccs and a platelet count of 23,000/mm3. Second case: A male, aged 39 years old with a sudden loss of consciousness 3 hours before entering the hospital. He previously complained of headaches, vomiting, and right hemiparesis. Head CT Scan showed intracerebral bleeding in the left frontal region with estimated bleeding of 35 ccs and a platelet count of 3,000/mm3. Both patients were consulted by the neurosurgery department with conservative therapy and suggestions for improving platelets. Both patients died after 1 day of treatment.

Discussion: The relationship between thrombocytopenia and spontaneous intracerebral hemorrhage has not yet been clearly explained. Several studies have shown that impaired platelet function leads to various complications such as hematological malignancies and autoimmune disorders. A history of anticoagulant drug consumption can increase the tendency for intracerebral hemorrhage, although the incidence rate is small. Other studies also explain that decreased platelet counts may become the result of intracerebral bleeding which may be exacerbated by other factors.

Keywords: Intracerebral Hemorrhage, Thrombocytopenia, Intracerebral Hemorrhage Prognosis

PROGNOSTIC VALUE OF NEUTROPHIL-LYMPHOCYTE RATIO (NLR) AND PLATELET-LYMPHOCYTE RATIO (PLR) IN PREDICTING STROKE OUTCOME

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Background: Neutrophil Lymphocyte Ratio (NLR) and Platelet-lymphocyte ratio (PLR) serve as inflammatory biomarkers, which are affordable and usually checked in hospitals. This study aims to assess the role of NLR and PLR in predicting stroke outcomes in Belitung Regional Hospital. **Method:** This is a retrospective cohort study, in which all stroke patients within January – May 2023 were included. Age, gender, risk factors, NLR, PLR, and Outcome. The data were analyzed using ROC curve and Chi Square to assess the prognostic value of NLR and PLR.

Result: Eighty (80) subjects were included in this study, 75% of them were ischemic stroke. Mostly the patients aged >60 years (52.5%), men (61.3%), have hypertension (80%), previous history of stroke (20%), diabetes mellitus type 2 (15%), smoking (5%), have dyslipidemia (3.8%), atrial fibrillation (2.5%), and family history of stroke (1.3%). The cutoff value of NLR is 3.04 (AUC 0.69 sensitivity 78.57%, specificity 59.1%) for ICU admission and mortality. The cutoff value of PLR is 14.46 (AUC 0.67, sensitivity 85.71%, specificity 57.58%) for ICU admission, while 17.4 (AUC 0.64, sensitivity 70%, specificity 70%) is used for mortality. Both NLR and PLR are associated with ICU admission (RR 4.053, p: 0.01; CI95% 1.222–13.439 and RR 6, p: 0.003; CI95% 1.434–25.106, respectively) and mortality in stroke patients (RR 4.421, p: 0.041; CI95% 1.000–19.539 and RR 4.333, p: 0.028; CI95% 1.214–15.463, respectively).

Discussion: Our study suggests that NLR and PLR are associated with ICU admission and mortality in ICU patients.

Keywords: Neutrophil Lymphocyte Ratio (NLR), Outcome, Platelet-lymphocyte ratio (PLR), Stroke

YOUNG ONSET PARKINSON'S DISEASE

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Introduction: Parkinsonism is a group of symptoms consisting of tremor, rigidity, bradykinesia, and postural instability. Parkinson's disease is a progressive neurodegenerative disorder characterized by parkinsonism. The prevalence of Parkinson's disease increases sharply with age, reaching 2.6% in people aged 85 to 89. However, Parkinson's disease can also attack young age, known as Young Onset Parkinson's Disease (YOPD). YOPD is a subtype of Parkinson's disease that occurs between 21 and 40 years of age, with a prevalence of 3-6% of the total Parkinson's population.

Case Report: A 27-year-old man came to the Polyclinic of Neurology RSUDZA with tremors in his left hand felt for 3 months, followed by difficulty in walking. Tremor occurs during rest without changing frequency. No family history has experienced something similar. No previous history of traumatic brain injury. In the clinical examination, the face was seen without expression with decreased eye blink rate. Tremor was visible in the left hand while resting. In the examination of the extremities we obtained 2nd grade rigidity based on Parkinson Disease Rating Scale, Part III (UPDRS-III) in the upper and lower left extremities with strength 5/5. Patella and achiless reflex were +2. During walking, the patient has difficulty to balance by turning on the left side. Patients also have difficulty in writing while the letters become smaller.

Discussion: Young Onset Parkinson's Disease is a subtype of Parkinson's disease that occurs between the ages of 21 and 40. Diagnosis is established based on clinical symptoms and the results of the examination carried out. Pharmacological and adjuvant therapies play an important role in treatment of YOPD.

Keywords: Parkinson's Disease, Young Onset Parkinson Disease, Dopamin

EXTENSIVE AND BILATERAL BRAINSTEM STROKE: CHALLENGES AND TREATMENT STRATEGIES

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Background: A brainstem stroke refers to an infraction of the occurrence of stroke in the brainstem region which is a crucial part of the central nervous system. The leading cause of infraction includes small and large artery atherosclerosis or emboli. Risk of ischemic stroke increases with age and chronic comorbid which are also present in this case, such as hypertensive heart disease, diabetes, and dyslipidemia.

Case Description: This case report presents the clinical course and management of a 62-year-old female patient diagnosed with extensive bilateral brainstem stroke. Past medical history includes hypertension, diabetes mellitus, and hypercholesterolemia. The patient's initial presentation included hemiplegia duplex, dysarthria, and dysphagia. Diagnostic workup, including neuroimaging, confirmed the presence of a pontine lesion, leading to profound motor impairment. At first, the patient's Glasgow Coma Scale was E2 M5 V2 and improved on the third day after admission. While admitted, the patient developed hospital-acquired pneumonia that significantly resolved.

Discussion: The management of this case focused on optimizing the patient's quality of life. A multidisciplinary team, including neurologists, cardiologists, pulmonologists, internists, physiatrists, and occupational therapists, collaborated to develop a rehabilitation plan. This case report underscores the complexities associated with brainstem stroke and highlights the importance of a multidisciplinary approach to optimize patient outcomes. On the 16th day, the patient's clinical condition improved, and was discharged as an outpatient.

Keywords: brainstem stroke, hemiplegia duplex, rehabilitation, multidisciplinary approach

THE MANIFESTATION OF VISUAL IMPAIRMENT ASSOCIATED WITH OCCIPITAL LOBE INFARCTION

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Introduction: The occipital lobe is the part of the brain that plays a role in the process of vision or visual discrimination. Damage to the occipital lobe or structural lesions that extend to the parietal and temporal lobes will cause various vision problems, such as difficulty recognizing an object, inability to recognize colors, and inability to recognize words.

Case Report: A 65-year-old man was brought to the Emergency Department (ED) complaining of weakness on the right side of his body accompanied by tingling that had been felt suddenly since 2 days. The patient could not recognize the names of objects, had difficulty reading, and could not recognize colors. Motor strength of the right extremity was 4 and left was 5, visus of the right eye was 5/60 and the left eye was 1/300, funduscopy was normal, the patient was unable to follow the movement of the examiner's finger, and right-sided visual field impairment. Sublime function examination revealed alexia and color agnosia. CT-Scan of the head showed a hypodense lesion of the left temporo-ocipital lobe.

Discussion: Visual acuity was found to be worse in patients with bilateral occipital lobe lesions or parietal and temporal lobe involvement compared to unilateral occipital lesions. The inability to follow the movement of an object indicates damage to the visual association cortex area, which is the area where the inferior temporal sulcus meets the anterior occipital sulcus. Visual field impairment results from lesions to the calcarina sulcus located in the occipital lobe of the brain. Damage to the occipitotemporal pathway leads to impaired visual perception. Alexia is caused by lesions in the left gyrus lingual (occipitotemporal).

Keywords: Occipital lobe infarction, Agnosia, Alexia, Visual field impairment

THE USE OF TRIPLE ANTIPLATELET THERAPY (ASPIRIN, CLOPIDOGREL, AND CILOSTAZOL) IN PATIENT WITH CEREBRAL INFARCTION

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Introduction: Cerebral infarction is a type of stroke caused by a blockage of blood vessels in the brain. Triple antiplatelet therapy (aspirin, clopidogrel, and cilostazol) is used to prevent recurrent attacks in patients with cerebral infarction, although it has the potential to cause bleeding. Reported the case of a 38-year-old man with cerebral infarction who was given triple antiplatelet and gave a good clinical outcome.

Case Report: A 38-year-old man with paralysis of the right half of the body and a sudden lisp while at rest for 14 hours before entering the hospital. Head trauma and fever were previously denied. There were no headaches, vomiting or loss of consciousness. History of hypertension, diabetes mellitus, and heart disease was denied. History of smoking 2 packs/day. Head CT scan shows infarction of the external capsule and left corona radiata. DSA examination showed occlusion of the left lenticulostriate artery, a branch of the M1 segment of the middle cerebral artery. Patients were given citicoline, mecobalamin, atorvastatin, and ranitidine as well as triple antiplatelets (aspirin, clopidogrel, and cilostazol). During the 8 days of treatment, the motor strength of the dextra superior et inferior extremities improved.

Discussion: The use of triple antiplatelet therapy for cerebral infarction is a controversial issue. Several studies have shown that triple antiplatelet therapy may be effective in preventing recurrent stroke, despite the high risk of bleeding. In this case, the use of triple antiplatelet refers to the TARDIS study.

Keywords: cerebral infarction, triple antiplatelet, bleeding

HORNER'S SYNDROME IN LUNG CARCINOMA, A COMPREHENSIVE REVIEW OF CLINICAL FEATURES AND PATHOPHYSIOLOGY BASED ON CASE REPORT

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Background: Horner's syndrome is an autonomic nerve disorder caused by damage of the sympathetic nerve pathway. Horner syndrome is a rare condition classically presenting with partial ptosis of the eyelid, miosis, and facial anhidrosis corresponding to the lesion.

Case Report: A 52-year-old male presented with incomplete opening of the right eyelid and lack of sweating on the right side of the face for the past year. The patient also experienced shortness of breath for the last one month, shoulder pain, right-sided chest pain, and cough. There was also significant weight loss of 10 kg over the past 6 months. Physical examination revealed Horner's syndrome, including ptosis of the right eyelid, anhidrosis on the right side of the face, and miosis of the right eye. Contrast-enhanced thoracic CT scan revealed fluid density in the right pleural cavity, paratracheal lymphadenopathy on the right side, and destruction of the left posterior third and fourth ribs. CT-guided transthoracic needle aspiration (TTNA) showed squamous cell carcinoma in the right lung.

Discussion: The diagnosis of Horner's syndrome based on clinical symptoms and imaging findings. The patient exhibited ipsilateral blepharoptosis, miosis, and anhidrosis upon examination and history taking. Imaging revealed a lung mass and pleural effusion in the right lung. In patients with lung tumors, this occurs due to the invasion of preganglionic neurons exiting from the ventral spinal root. The lung mass can compress or infiltrate the nerves involved in the sympathetic nerve pathway. Lung tumors located in the upper part of the lungs, especially around the hilum or the lung base, often the main cause of pressure or damage to these nerves, disrupting the flow of signals between neurons in the sympathetic pathway. In this case, Horner's syndrome is classified as second-order preganglionic Horner's syndrome. The management of Horner's syndrome in lung cancer cases aims to treat the underlying condition.

Keywords: Sindrom Horner, lung carcinoma, second order preganglionic

DUCHENE MUSCULAR DYSTROPHY IN CHILD: A CASE REPORT

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Introduction: Duchenne Muscular Dystrophy is a rare genetic disorder characterized by progressive muscle weakness and wasting. It is caused by mutations in the dystrophin gene, resulting in the absence of the dystrophin protein, which plays a key role in maintaining muscle integrity. The global prevalence is reported as 3.6 per 100,000 people and in Aceh 5 patients with Duchenne Muscular Dystrophy over 5 years. This case report describes a rare case of a boy with Duchenne Muscular Dystrophy.

Case Report: An 11-year-old boy came to the hospital with a history of lower limb weakness for more than five years, no history of muscle pain. Family history revealed that his cousin suffered from the same thing. Over the last 2 years the patient had weakness in both legs and his calves had atrophy. On physical examination, appeared thin and had difficulty standing, walking and getting up from a sitting position (Gower's sign). Status neurologis were found to be normal, thoracolumbar x-ray was normal. Axonal lesion of the right peroneal nerve, demyelinating lesion of the left tibia nerve.

Discussion: Absence of dystrophin protein resulted in progressive muscle degeneration, which impacted the child's daily activities and quality of life. Electromyographic examination showed significant muscle damage, further supporting the diagnosis. Patient was given supportive therapy, including physical and occupational therapy to help slow the progression of muscle weakness. This case report highlights the importance of prompt diagnosis and appropriate treatment to improve outcomes for patients with Duchenne Muscular Dystrophy.

Keywords: Duchene, Muscular, Dystrophy

ANALYSIS OF THE RELATIONSHIP ANXIETY DISORDER IN EPILEPSY PATIENTS WITH GENERALIZED ANXIETY DISORDER 7 (GAD-7) AT REGIONAL GENERAL HOSPITAL OF NUNUKAN

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Introduction: Anxiety disorder is a psychiatric condition that often occurs in epilepsy patients. Anticipatory anxiety of seizures is described as persistent daily fear or excessive worry about seizures.

Methods: The study was conducted at the Neurology Polyclinic at the Nunukan Regional General Hospital, North Kalimantan in May - Junes 2023. This type of research was analytic with a cross sectional design. The number of samples was 32 patients diagnosed with epilepsy and undergoing treatment at the Nunukan Hospital Neurology Polyclinic.

Results: The results of the research were processed using SPSS 25 with chi square test. This research has gone through an ethical review with letter no 445/1110/RSUD-NNK. Comparison of the proportion of answers based on gender and age. For P1, there were 15 respondents by gender, of which 9 respondents (60.0%) answered never and 6 respondents (40.0%) answered several days. While there were 17 women, the highest proportion answered several days by 8 respondents (47.1%) and the lowest proportion answered more than half the time and almost every day, each by 2 respondents (11.8%). From the statistical test results, it was obtained that the value of p (0.150) > 0.05, which means that there is no difference in the proportion of answers between men and women.

Discussion: Standardization of anxiety in epilepsy patients is one of the reasons why ILAE recommends it as a screening tool. One item belongs to the anxious and worried mood domain, two items discuss feelings of anxiety, one item discusses confulsive thoughts and the last three items fall into the category of specific reactive behavior (difficulty relaxing, restless, being irritated/irritable).

Keywords: anxiety, epilepsy

CAROTIC VESSEL ATHEROSCLEROSIS IN DIABETES MELLITUS

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Background: Atherosclerosis appears earlier in diabetics than in the general population and is the most common cause of ischemic stroke. In addition, it is wider and more often associated with plaque formation. This can be assessed with imaging modalities. This study was conducted to determine the description of atherosclerosis in diabetics at Dr. Cipto Mangunkusumo Hospital Jakarta in May 2022 to April 2023.

Method: The method used in this study is a retrospective study of 125 Diabetes Mellitus patients who underwent Carotid Doppler (CD) examinations from May 2022 to April 2023. Data were collected in the form of intima-media thickness (IMT) and plaque in the carotid arteries.

Result: This study involved 125 patients who had been diagnosed with Diabetes Mellitus with a male predominance. Atherosclerosis was found in 84 patients (67.2%), which consisted of only IMT thickening in 63 patients (50.4%), only plaque in 59 patients (47.2%), and patients with IMT thickening and plaque in 38 (30.4%).

Discussion: Patients with diabetes mellitus have a higher tendency to experience atherosclerosis, thereby increasing the risk of ischemic stroke. Based on research conducted by Zhao et al, atherosclerosis was found in 55% of patients. Based on research conducted at Dr. Cipto Mangunkusumo Hospital Jakarta found a higher number, namely 67.2% of Diabetes Mellitus patients had atherosclerosis.

Keywords: Diabetes Mellitus, Atherosclerosis, Carotid Doppler

PROFILE OF COILING PROCEDURE IN NON TRAUMATIC SUBARACHNOID HAEMORRHAGE PATIENTS AT RSUD DR. MOEWARDI IN JANUARY 2021-MAY 2023

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Introduction: Subarachnoid haemorrhage (SAH) is a life-threatening condition on neurology, where mortality occurs in 50% of cases. In patients with spontaneous SAH, 85% of cases are caused by ruptured intracranial aneurysms. The principal causes of SAH death are initial bleeding, re-bleeding, and delayed cerebral ischaemia. Endovascular coiling is one of the standard therapies to prevent re-bleeding in patients with SAH.

Methods: Researchers reviewed the medical records of patients who underwent the coiling procedure in the case of Subarachnoid Hemorrhage at Dr. Moewardi Surakarta from 1 January 2021 to 15 May 2023. Researchers collected data on demographic characteristics (age and gender), risk factors, location of the coiling procedure, length of stay, complications, Modified Rankin Scale (MRS), Hunt and Hess score, and NIHSS score (before and after the coiling procedure) in all patients. Researcher use SPSS for the data entry.

Result: The study was conducted on 47 patients undergoing endovascular coiling procedures for non-traumatic SAH cases at RSUD Dr. Moewardi Surakarta showed that the incidence of SAH was dominated by the age group of 40-60 years (51%) and female (76.6%). Most of the length of stay in patients undergoing coiling procedure was less than 14 days (87.2%). Post-coiling complications found in this study were pneumonia (23.4%) and seizures (8.5%). There were 19 patients with severe disabilities (MRS score 4 and 5) and 2 patients died (MRS score 6). In 24 patients (51%), Hunt and Hess scores were obtained on a scale of 2. The most common location for the coiling procedure was the internal carotid artery/ICA (44.7%).

Conclusion: SAH cases undergoing coiling procedures at RSUD Dr. Moewardi Surakarta is dominated by women in the age group of 40-60 years with the main risk factor is hypertension. There was clinical improvement after the coiling procedure, although 15 patients who underwent coiling experienced postoperative complications.

Keywords: subarachnoid haemorrhage, aneurysm, coiling

DECREASE OF VISUS IN CAROTID CAVERNOUS FISTULA DUE TO COMPLICATION OF FACIAL TRAUMA

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Introduction: Carotid-Cavernous Fistula (CCF) is an abnormal communication between the carotid artery and cavernous sinus. CCF can be spontaneous or traumatic. The clinical manifestations are proptosis, chemosis, conjunctival injection, ophthalmoplegia and vision loss. The rare incidence and the clinical manifestations can be delayed causing delays in establish the diagnosis and result in disabilities such as blindness. CCF management are conservative or intervention.

Case Report: A 24-year-old woman complain of vision loss accompanied by swollen eye on the right. Another complaint is the limited movement of the right eyeball. The complaint arose after the patient had an accident due to facial trauma one month ago. Physical examination found consciousness level is compos mentis, vital signs within normal limits. Examination of the right eye found proptosis, chemosis, conjunctival and ciliary injection. Digital palpation tonometry OD N+2. Anisochoric round pupil of OD 6 mm, OS 3 mm, fixed. Direct and consensual light reflex of OD are negative. Visus of OD 1/infinite, while OS 6/6. There are parese N.III, IV, and VI. Cerebral CT scan show enlarge cavernous sinus and right ophthalmic vein. Cerebral DSA examination revealed a direct high flow right carotid-cavernous sinus fistula. The treatment for the patient is the installation of coiling.

Discussion: The manifestations that arise in CCF result from high pressure in the cavernous sinus and affect important structures in it. The coiling therapy that was carried out only partially closed because it was suspected that there was a large and more than one fistula. There was clinical improvement after one month of therapy, but the patient's vision did not improve.

Keywords: CCF, coiling, loss of vision

THE CORRELATION BETWEEN D-DIMER LEVELS AND CLINICAL OUTCOME OF INFARCE STROKE PATIENTS IN STROKE UNIT AND ICU OF KARIADI GENERAL HOSPITAL FOR THE PERIOD OF JANUARY 2022 – DECEMBER 2022

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Introduction: D-Dimer levels reflect the level of intravascular fibrin turnover, confirming the formation of plasmin and thrombin. An abnormally elevated D-Dimer indicates intravascular clotting, whereas a low level helps rule out thromboembolic events such as pulmonary embolism and deep vein thrombosis (DVT). Several studies have reported that higher baseline d-dimer levels are significantly associated with stroke risk. This study was conducted by comparing D-dimer levels with the NIHSS of Stroke Infarction patients.

Methods: This study was conducted retrospectively by looking at the medical records of patients in the Stroke Unit and ICU Dr. Kariadi for the period January 2022 – December 2022. The study was conducted on patients with acute stroke infarction with an onset of 0 – 7 days. D-dimer levels were assessed on admission. Patient studies included age, gender, BMI, co-morbidities and smoking habits. The NIHSS score was assessed at the time the patient was admitted and the patient was discharged from the Stroke Unit and ICU or died.

Results: Severe stroke was found in 74 patients (31.4%) of a total of 236 patients. With the most age > 60 years (44.1%) and the most gender is male (65.3%). High D-Dimer levels are associated with high NIHSS scores (p = < 0.001).

Discussion: Increased levels of D-dimer on admission significantly make neurological deficits in stroke infarction patients worse as assessed by NIHSS score. The role of D-dimer can be used as a clinical outcome marker in patients with acute stroke infarction.

Keywords: Stroke Infarction, D-dimer, NIHSS

SEPTIC CAVERNOUS SINUS THROMBOSIS WITH SEVERE COMPLICATION CAUSED BY NASAL FURUNCLE

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Introduction: Septic cavernous sinus thrombosis is a rare but serious complication. The cause of thrombosis can come from infection of the paranasal sinuses, face, pharynx, ears and teeth. Symptoms vary widely and can worsen suddenly, making diagnosis difficult and potentially causing permanent disability.

Case Report: We report a 29-year-old male patient who came with complaints of swelling and pain in the left eye accompanied by blurred vision with a history of bursting a boil on the nasal mucosa 1 week previously. On the first day of treatment, the patient experienced a loss of consciousness accompanied by signs of meningitis, right limb weakness and left eye proptosis. There was leukocytosis and increased D-dimer level. The patient was given antibiotic and anticoagulant therapy, showing improvement. However, on the fifth day of treatment the patient experienced seizures followed by a loss of consciousness again until finally he was declared brain stem dead on the ninth day of treatment.

Discussion: Septic cavernous sinus thrombosis is a very rare case and has a high mortality and disability rate. Through this case, we describe how a nasal furuncle developed into septic cavernous sinus thrombosis and showed fluctuating neurologic deficits until the patient died on treatment.

Keywords: Cavernous sinus thrombosis, nasal furuncle, orbital cellulitis

COMPARISON OF SERUM INTERLEUKIN 6 LEVELS IN MYASTHENIA GRAVIS PATIENTS WITH NORMAL CONTROL PATIENTS

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Introduction: Myasthenia gravis (MG) is a disorder of the neuromuscular junction caused by an autoantibody reaction. Interleukin-6 (IL-6) is a pleiotropic cytokine that has a wide range of biological activities. IL-6 plays an important role in the production of T helper 17 (Th17) cells, T follicular

helper (Tfh) and B cell activity. Elevated IL- 6 levels are associated with the severity of MG and response to therapy.

Methods: This research is a case control study with consecutive sampling method. There were 16 patients diagnosed with anti-AChR antibody-positive and 16 normal control patients. The total sample is 32 respondents. The inclusion criteria for case patients were patients diagnosed with MG at the neurologist polyclinic at RSUP Dr. Kariadi, on regular treatment, diagnosed with MG for more than 1 year, agreed to be the subject of the study and filled out a complete questionnaire. Blood was taken from 16 case patients and 16 control patients and then IL-6 levels were checked.

Results: In this study, 16 cases were obtained, 5 cases were males and 11 were females. For 16 control patients 5 males and 11 females. The average age of the research sample 40.54 years. In bivariate analysis, there was a significant increase in IL-6 levels in MG patients compared to patients who were not diagnosed with MG.

Discussion: Increased serum IL-6 levels occur in anti-AChR antibody-positive MG patients and are directly involved in the pathogenesis of MG and can be a target of therapy in MG.

Keywords: Anti-acetylcholine receptor antibody; Interleukin-6; Myasthenia gravis

RELATIONSHIP BETWEEN ACHR ANTIBODY LEVELS AND QUALITY OF LIFE OF PEOPLE WITH MYASTHENIA GRAVIS IN THE MYASTHENIA GRAVIS COMMUNITY

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Introduction: Myasthenia gravis (MG) is a chronic, neuromuscular and autoimmune disease. Acetylcholine receptor (AChR) is one of the targets of MG autoantibodies, AChR antibodies are often used to confirm the diagnosis. Although still inconsistent, several studies have shown that the concentration of AChR antibodies in serum is related to the severity of MG. This study tried to analyze the relationship between AChR antibody levels and the quality of life (QoL) of people with MG in the MG community.

Method: This research is an analytic study with a cross-sectional design involving 39 respondents who have agreed to informed consent and whose data is in RSUP dr. Kariadi. The MGQOL- questionnaire is used to measure the quality of life of MG patients who are collected with the Google Form. AChR antibodies were measured by ELISA method according to the protocol from elabscience. Data analysis using SPSS 22.0 ver. The relationship between AChR antibody and MGQoL-15 score was analyzed by Spearman's correlation test.

Research Result: In this study obtained 39 subjects. There is a significant relationship between antibodiesAChR with 7 questions from the MGQOL-15 patient quality of life questionnaire (p= 0.001/0.031/0.035/0.012/0.024/0.010/0.027)

Conclusion: Higher AChR antibodies indicate a decrease in the quality of life of MG patients in aspectsdifficulty using eyes, difficulty socializing, limiting hobbies, having to plan and take into account conditions, work skills and employment status negatively affected, difficulty walking around in public places, overwhelmed by body condition.

Keywords: Quality of life, Myasthenia Gravis, MGQOL-15, AChR Antibodies

A 51-YEAR OLD MALE WITH BRACHIAL PLEXOPPATHY IN CASE OF PANCOAST TUMOR

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Introduction: Brachial Plexus Lesion is an injury to the peripheral nerve cords in the neck (cervical) and shoulder areas which results in paralysis of the muscles of the shoulders, elbows, wrists and fingers. The peripheral nerve cords of the Cervical region, which are formed by the cervical 5th, 6th, 7th, 8th, and 1st Thoracal nerve roots, can be damaged by overstretching, compressing, or being hit by sharp objects and resulting in severing or even tearing.

Case Report: A 51-year-old man was admitted to the Neurology Department with complaints of pain in his right hand that had been felt since 3 months ago. The pain is felt continuously and radiates from the inside of the arm to the middle finger to the little finger. According to the patient's weight loss for 3 months. The patient also said that there was a lump on the right side of the neck the size of a quail egg. Clinical neurological examination showed right ptosis, miosis, and anhidrosis. Chest CT scan with contrast shows a superior mediastinal mass that extends to the right lung superior apical segment lobe and extends superiorly out of the thoracic cavity, infiltrating the brachial plexus, the size of the mass in the coronal section of 6.6 x 6.8 cm supports the picture of Pancoast tumor.

Discussion: Chronic complaints and unexplained weight loss are "red flags" which may indicate the initiation of a malignancy. The prognosis of patients with Pancoast tumors is related to several clinical factors. Factors associated with a poor prognosis in most include tumor extension to the base of the neck, involvement of mediastinal lymph nodes, spinal or great vessels, as well as the presence of Horner's syndrome and a longer duration of symptoms. The prognosis for these cases is poor due to the presence of metastases and brachial plexus lesions and the presence of Horner's syndrome.

Keywords: Plexopathy, Hormer's Syndrome, Pancoast Tumor

THE UNCOMMON RELATION BETWEEN COMMON BILE DUCT STONES AND SUBDURAL HAEMATOMA

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Introduction: Common bile duct stones and subdural haematoma are two medical conditions that appear to be unrelated. However, recent studies have shown an interesting link between the two diseases. Although the relation may not be immediately apparent, a deeper understanding of the causes and risk factors for each condition will reveal the complex relation between the two. This case report discusses the causes of relation common bile duct stones and subdural haematoma.

Case illustration: A 52 year old female came with abdominal pain in the right upper quadrant, jaundice all over the body with liver enzyme levels, direct bilirubin high and gradually experiencing coagulation dysfunction, the patient was suspected choledocholithiasis, then the patient complained of severe headaches accompanied by neurological deficit. Abdominal CT Scan shows dilated choledochal duct with common bile duct stones. Head CT Scan shows a biconcave hyperdense area on the left temporoparietaloccipital. The patient has undergone craniotomy and exploratory laparotomy.

Discussion: The relationship between common bile duct stones and subdural haematoma bleeding cannot be explained certainty. Several studies have shown that stones in the common bile duct can cause obstruction. If the blockage remains untreated for a long period of time, it can cause liver dysfunction which can be life-threatening. The liver plays an important role in haemostasis. Impaired liver function can cause pathophysiological changes that appear as coagulation imbalances that can cause spontaneous bleeding, such as subdural haematoma. It is important for medical professionals to be aware of this association and take appropriate measures to minimize the risk of bleeding in patients with common bile duct stones.

Keywords: subdural, haematoma, common bile duct

EPIDEMIOLOGY OF GLIOMA UNDERGOING SURGERY AT DR. KARIADI HOSPITAL, SEMARANG

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Introduction: Glioma is a type of brain tumor that originates from glial cells, which are supporting cells in the central nervous system. This study aims to present an overview of the epidemiology of glioma in RSUP dr. Kariadi Semarang.

Method: We conducted a retrospective analysis of data on glioma patients undergoing surgery at dr. Kariadi Semarang Hospital during the period 2021 - 2022. Data collected included demographic characteristics, types of gliomas, surgical techniques, locations, PA results and patients who died during treatment.

Results: From the data collected, there were 74 patients who had glioma at dr. Kariadi Semarang. Analysis showed that gliomas are more common in the adult population, with a peak incidence in the 40-60 year olds. Gliomas in men tend to be more common than women. Based on the results of Anatomical Pathology, it was found that 47 patients had gliomas, the most common

locations being in the frontal lobe by 34% (n=16), temporal lobe 17% (n=8) and parietal lobe 10.6% (n=5). From the study, it was found that 3 patients died during treatment with tumor locations in the frontoparietal, intraventricular and diencephalon.

Conclusion: Epidemiology of glioma in Kariadi General Hospital Semarang reflects a pattern similar to previous findings in the general population. This study provides further understanding of the characteristics of glioma patients undergoing neurosurgery at dr. Kariadi Semarang, which can be used for better treatment planning and disease management in the future.

Keywords: Glioma, Surgery, Kariadi General Hospital, Semarang

PROFILE OF PRIMARY HEADACHE PATIENTS WITH SLEEP QUALITY IN HEALTH WORKERS AT. WAHIDIN SUDIROHUSODO HOSPITAL MAKASSAR

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Introduction: Primary headache and sleep disorders are two conditions which are often experienced by patients in daily clinical practice. The relationship between headaches and sleep disorders is bidirectional. The purpose of this study was to provide an overview of the sleep quality of health workers with primary headache at the Dr. Wahidin Sudirohusodo Hospital.

Methods: This research is a retrospective and descriptive study with a cross-sectional design at April 2022 - April 2023. The study population was health workers at Wahidin Sudirohusodo hospital who experienced primary headache. The research variables studied were the number of patients, age, gender, type of primary headache and sleep quality based on PSQI.

Results: The study showed that there were 100 health workers with primary headache. Most of the patients (66%, n=66) were women and in the age group of 26-35 years (64%, N=64). The types of primary headache observed were Tension Type Headache (TTH) with a proportion of 64%, Migraine with a proportion of 34% and Cluster Headache with a proportion of 2%. Of the total population, it was found that 99% of study population had poor sleep quality which was assessed based on the PSQI.

Discussion: The high prevalence of primary headache and sleep quality disturbances in our study shows the importance of relationship between primary headache and sleep quality. TTH and migraine are the most common types of primary headache. However, the relationship can be bidirectional. Sleep disturbances may be associated with increased intensity and frequency of headache episodes which supports the theory that the intensity of sleep disturbances is directly proportional to the frequency of headache attacks.

Conclusion: The majority of primary headache in health workers at Wahidin Sudirohusodo hospital are woman and in the age group of 26-35 years. TTH is the most type of primary headache in health workers of Wahidin Sudirohusodo hospital. It was found that 99% of study population had poor sleep quality which was assessed based on the PSQI.

Keywords: Primary Headache , Sleep Quality, PSQI

SUDDEN HEMARTHROSIS WITH NO INJURY

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Background: Hemarthrosis is a disorder in which the joint cavity experiences articular haemorrhage. It is classified into three categories, postoperative, non-traumatic, and traumatic. Hemophiliac patients have non-traumatic hemarthrosis more frequently, although the precise prevalence is unknown. Hemarthrosis will strike 50% of hemophiliac patients at some point.

Case Report: We report a 50-year-old Asian male complaining about pain and a lump in his right elbow for a month. The lump is firm, flexible, and steadily expanding. Sometimes the mass takes on a reddish hue. Trauma history was denied. Additionally denied were complaints of ongoing bleeding or nosebleeds. The patient has taken painkillers, but nothing has changed. Neurologic examination was normal. Cranial nerve, motoric and sensory examination within normal range.

Discussion: Hemophilia or bleeding disorder should be suspected if hemarthrosis develops spontaneously or after minor damage. The most typical musculoskeletal hemophilia symptom is hemarthrosis. Even if the patient is not tested for hemophilia, they may still have the condition. Following arthrocentesis and blood collection, the patient showed improvement. It is crucial to perform thorough tests when handling patients with hemarthrosis. With prompt treatment, including arthrocentesis where necessary, the acute swelling and pain can be considerably reduced over several weeks before totally disappearing. Any underlying causes should be effectively managed to avoid persistent or recurrent hemarthrosis.

Keywords: Case report, Hemarthrosis, Spontaneous Hemarthrosis

THE RELATIONSHIP BETWEEN LEVELS OF ANXIETY AND INTENSITY OF TENSION TYPE HEADCHE IN MEDICAL STAFFS AT SIWA HOSPITAL, WAJO DISTRICT

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Introduction: One of the primary headaches that has a high prevalence is tension-type headache. Empirical experience in the clinic illustrates that patients who experience tension-type headaches tend to have anxiety disorders.

Methods: This research is an observational analytic study with a cross-sectional approach with 33 samples to assess the relationship between the levels of anxiety and tension-type headaches. The level of anxiety was measured using the Hamilton Rating Scale for Anxiety (HARS) and the intensity of headache was measured using the Numeric Pain Rating Scale (NPRS). The data is then processed and presented in the form of tables and figures accompanied by discussion.

Result: There were 33 research samples with the majority being female, namely 25 people (75.8%) with an average age of 27.79 (±4.8) years. The results of the analysis showed that patients with more severe anxiety had a higher average NPRS score than those with mild anxiety. Average NPRS Mild anxiety Vs. Moderate anxiety Vs. Severe anxiety (3.22 (±1.9) Vs. 4.84 (±2.1) Vs. 7.00 (±1.2), P = 0.001). The analysis shows that there is a positive relationship with a strong correlation ((ρ): 0.633, P= <0.001).

Discussion: Anxiety is positively correlated with tension-type headache intensity. The neurotransmitter serotonin helps control pain, anxiety and dilates constricting blood vessels. Fluctuations in serotonin levels are closely related to chronic tension which stimulates the sensory cranial nerves to release a number of chemicals and cause inflammation. From this study it was concluded that the higher the levels of a person's anxiety, the more severe the headache felt.

Keywords: Anxiety, Tension Type Headache, Hamilton Rating Scale for Anxiety (HARS), Numeric Pain Rating Scale (NPRS)

PENGARUH PAPARAN GELOMBANG ELEKTROMAGNETIK TELEPON SELULER TERHADAP GAMBARAN HISTOPATOLOGI SEL PIRAMIDAL HIPOKAMPUS TIKUS WISTAR

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Background: Cell phones are electronic devices that have become an important part of human life and their use is increasing. The effect of electromagnetic wave radiation from cell phones can increase oxidative stress due to an increase in free radicals, causing changes in the histopathological structure of the rat hippocampus.

Methods: Experimental research with randomized posttest method with control group design. Samples were 28 white rats which were divided into 4 groups. The control group (K) was only given food and drink, the treatment group 1 (A) was exposed to cell phone electromagnetic waves for 15 days, treatment group 2 (B) was exposed to cell phone electromagnetic waves for 30 days, and treatment group 3 (C) was exposed to electromagnetic waves. electromagnetic cell phone for 45 days. Exposure is given for 2 hours/ day. After that, decapitation was carried out, taking rat brain and making histopathological preparations for the rat hippocampus. Damage to the pyramidal cells of the rat hippocampus was assessed from the total score with the provisions of normal hippocampal cells (numberx0), hydropic degeneration (sumx1) and necrosis (sumx2).

Results: There was a mean difference in the hippocampal pyramidal cell damage in Wistar rats in all groups with a significant value, p 0.000.

Conclusion: There are differences in the histopathological picture of the hippocampal pyramidal cells of Wistar rats that were not exposed to those exposed to electromagnetic waves from cell phones for 15 days, 30 days, and 45 days.

Keywords: Cell phone, Electromagnetic, Histopathology, Hippocampus

THE RELATIONSHIP BETWEEN BLOOD TRANSFUSION AND OUTCOME IN PRIMARY BRAIN TUMOUR PATIENTS AFTER CRANIOTOMY AT INTENSIVE CARE UNIT OF KARIADI GENERAL HOSPITAL SEMARANG

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Introduction: Red blood cell (RBC) transfusion is commonly indicated in brain tumor surgery due to risk of blood loss. Blood loss that happened in cranial surgery (craniotomy) depends on the size of the tumour, and the duration of the surgery. There are many factors that can be associated with the amount of blood transfusion given after craniotomy procedure, and it also correlated with the outcome of the patients, whether clinically improved or get worsen until death.

Methods: There were 40 primary brain tumour patients that undergo craniotomy and given blood transfusion afterwards, were included in analytic retrospective, where data were taken from medical records of subjects with a diagnosis of primary brain tumour who undergo craniotomy at dr. Kariadi General Hospital Semarang. The data collected includes age, gender, blood loss during craniotomy procedure, Hb levels before and after procedure.

Results: In this study, we obtained 40 subjects, 25 subjects (60%) were male and 15 female patients (40%). Age ranges from 28.32 ± 58.21 years old of age. Other variables that shown a significant role in patient outcome were blood loss (p= 0.005), and Hb levels before and after surgery (p=0.001).

Discussion: In this study we found a significant relationship between blood transfusion and patient outcome after craniotomy procedure.

Keywords: Blood transfusion, Primary brain tumour, Craniotomy

PROFILE OF HYPOKALEMIC PERIODIC PARALYSIS PATIENTS AT KARTIKA HUSADA HOSPITAL

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Introduction: Hypokalemic Periodic Paralysis (HKPP) is a rare neuromuscular disorder in the form of episodic muscle weakness caused by decreased potassium level in the blood. The prevalence of occurance is 1: 100,000 cases. Weakness varies from mild symptoms such as lower extremity weakness to cardiac arrhythmia and respiratory failure.

Metode: This research is a retrospective descriptive study from medical records data of inpatient at Kartika Husada Hospital during period July 2021-March 2023.

Results: During this period, 22 HKPP patients were found consisting of 14 female (68.2%) and 7 male (31.8%), age range 16-25 years (40.91%), with symptoms of tetraparesis (68.2%) and inferior paraparesis (31.8%), predominant sever hypokalemia (59%) and blood potassium levels vary from 1.04-3.2 mmol/L.

Discussion: The characteristics of HKPP patients are quite varied, many are found in the age range of the first and second decades. Symptoms of muscle weakness caused by hypokalemia can result from a primary (familial or idiopathic) or secondary (acquired) cause. Thyrotoxicosis, strenuous physical activity, a high-carbohydrate diet, emotional stress and some drugs can precipitate attacks

Keywords: Periodic paralysis, hypokalemia

THE EFFICACY OF PULSE DOSE HIGH-DOSE STEROID PLUS DMARD IN TOLOSA HUNT SYNDROME ET CAUSA AUTOIMMUNE ORBITAL INFLAMMATORY MYOPATHY

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Introduction: Tolosa Hunt Syndrome (THS) is a rare condition characterized by painful ophthalmoplegia. This report presents a case of THS in a 17-year-old female patient who initially had unilateral ptosis.

Case Report: A 17-year- old female presented to the neurology polyclinic with ptosis in her right eye, accompanied by pain, discomfort during eye movements, diplopia, and headache. Neurological examination of the right eye revealed restricted eye movement, and funduscopy showed a normal papil appearance. MRI confirmed inflammation in the medial rectus muscles. Antinuclear antibody showed a positive result. The patient had been treated with 1 mg/kg oral steroid for a year. However, the patient showed a slight improvement in the symptoms, and stretchmarks and discomfort in the upper abdomen were observed. In this current treatment, the patient was treated with a pulse dose high-dose of intravenous methylprednisolone and azathioprine, resulting in immediate symptom improvement and minimal adverse effects.

Discussion: THS is highly uncommon in children and adolescents. Steroid therapy is the primary treatment approach, although specific guidelines for drug selection, formulations, administration routes, and dosage are lacking. Our report showed an improvement with a pulse dose high-dose intravenous steroid with minimal complications compared to when treated with an oral steroid. These findings were aligned with previous studies that showed symptom resolution after high-dose intravenous steroid treatments. Previous studies have also shown that initiating high-dose intravenous steroids reduces the risk of recurrence. DMARDs such as azathioprine and methotrexate can be used as second-line treatments, although their clinical usefulness in children needs further research.

Keywords: painful ophthalmoplegia, ptosis, steroid, Tolosa Hunt Syndrome

INTRA-ARTERIAL THROMBOLYSIS WITH TISSUE PLASMINOGEN ACTIVATOR TREATMENT FOR PATIENT WITH ACUTE MIDDLE CEREBRAL ARTERY OCCLUSION BEYOND THE 6-HOUR TIME WINDOW

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Introduction: Ischemic stroke occurs due to blockage of blood flow to the brain. The goal of stroke therapy is to increase blood perfusion to the brain and protect brain tissue that is still active. One of the acute ischemic stroke therapy is intra-arterial thrombolysis with rt-PA. IA-rtPA can overcome the disadvantages of intravenous thrombolysis. The advantages of IA-rtPA are to assess thrombus, occlusion site and collateral circulation, and increase the concentration of thrombolytic agents at the occlusion site with an onset of 6 hours.

Case Report: Reported 3 male and female acute ischemic stroke patients aged 5-6 decades. All three presented with sudden limb weakness. IA-rtPA onset in all three patients: 6 hours 45 minutes, 9 hours and 9 hours 30 minutes. The first patient, DSA results found occlusion on the right M3-MCA. The second patient found occlusions on the right M2-M3-MCA. The third patient found occlusion on the left M3-MCA. NIHSS score 24 hours after IA-rtPA improved.

Discussion: IA rtPA is an effective therapy for MCA occlusion with a 6-hour treatment window. However, the clinical outcome of IA-rtPA with a therapeutic window of more than 6 hours is unknown. We report 3 cases of patients with acute MCA occlusion with an onset of more than 6 hours who received successful small-dose IA-rtPA. NIHSS all three patients in ED 7, 6, and 8. After IA-rtPA at a dose of 10 mg in each patient, the occlusion was canalized. NIHSS 24 hours post DSA 5, 3, and 6. mRS after hospitalization: 3. Our report concludes that low-dose IA rt-PA can be considered as therapy for acute MCA occlusion with onset of more than 6 hours.

Keywords: ischemic stroke, MCA, IA-rtPA

RECURRENT HEMARTHROSIS AFTER MINOR INJURY

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Introduction: Hemarthrosis is a disorder in which the joint cavity experiences articular hemorrhage. These are classified as postoperative, non-traumatic, and traumatic. This can occur after an injury or in bleeding disorders such as hemophilia. Joint trauma increases the chance of developing hemarthrosis. The knee is the most affected joint in young individuals who are either healthy or have hemophilia.

Case Report: We report a 20-year-old Asian male complaining about a lump in his left elbow after falling. The lump is firm, flexible, and steadily expanding. He went to a Neurologist and got arthrocentesis. A month later, he fell again; the same complaint occurs to his right knee. He got arthrocentesis again. He often had nosebleeds and bleeding gums suddenly. Neurologic examination was normal. Cranial nerve, motoric, and sensory examination within normal range.

Discussion: The resulting injury may lead to a bloody effusion or hemarthrosis. The acute management can have long-lasting implications and may result in early onset of osteoarthritis in this population. The presence of blood in a joint following injury can precipitate these effects and accelerate the degenerative changes in the joint. The existence of recurrent events at successive times raises suspicion of hemophilic condition, which causes hemarthrosis to occur easily. Following arthrocentesis and blood collection, the patient showed improvement. It is crucial to perform thorough tests. With prompt treatment, including arthrocentesis where necessary, the acute swelling and pain can be reduced over several weeks. Any underlying causes should be effectively managed wherever possible to avoid persistent or recurrent hemarthrosis.

Keywords: Case Report, Hemarthrosis, Recurrent Hemarthrosis

FAHR'S SYNDROME AND NEUROLOGICAL MANIFESTATIONS IN HYPOPARATHYROID PATIENTS

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Introduction: Fahr's syndrome is a rare (prevalence < 1/1.000.000) neurological disorder characterized by abnormal calcified deposits in the basal ganglia, nucleus dentatus, and cerebral cortex which can lead to various neurological disorders. Fahr's syndrome differs from Fahr's disease regarding the etiology, location of lesions, prognosis, and therapy. Currently, no specific treatment has been found for Fahr's disease, whereas for Fahr's syndrome, specific treatment is given according to the etiology.

Case Report: Female patients, 35 years old with recurrent tonic clonic seizures followed by decrease of consciousness came to emergency department. History thyroidectomy surgery 7 years before, behavioral disturbances, hallucinations since 1 week, and cataracts in both eyes were found in the patient. Laboratory examination found calcium levels (4 mg/dl) which can provoke seizures and low PTH levels indicate hypoparathyroid. Head CT scan without contrast showed extensive bilateral calcification especially in basal ganglia. After the patient was stable, an EEG recording found diffuse encephalopathy. The patient received seizure management and maintenance medication calcium with vitamin D. After treatment the patient has never had relapse within 3 months of follow-up.

Discussion: Intracranial calcifications are often physiological, but should be suspected pathology in certain symptoms and calcification patterns. Features of multiple intracranial calcifications, especially in the basal ganglia, indicates Fahr's disease or Fahr's syndrome, which can cause various neurological manifestations. One of the etiologies that need to be suspected as the cause of Fahr's syndrome is hypoparathyroid. Management of etiology is the key in preventing progression of Fahr's syndrome.

Keywords: Fahr syndrome, hypoparathyroid, intracranial calcifications, hypocalcemia

THE CORRELATION BETWEEN REGULATORY T-CELLS WITH QUALITY OF LIFE IN MYASTHENIA GRAVIS PATIENTS

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Introduction: Myasthenia Gravis (MG) is an autoimmune disease caused by postsynaptic acetylcholine receptor antibodies, resulting in muscle weakness that can interfere with the patient's quality of life. MG patients with positive AChR had higher Treg levels after receiving immunosuppressants than before receiving immunosuppressants. This shows the association of Treg in MG pathology. This study aims to see the correlation of Treg to the quality of life of MG patients.

Methods: A cross-sectional study of 81 outpatient MG patients at Dr. Kariadi Central General Hospital, 21 patients who met the inclusion criteria, namely patients diagnosed with MG for more than 1 year, did not consume immunosuppressants, took regular medication, agreed to be research subjects and filled out a complete questionnaire. We collected MG quality of life data with the MGQOL-15 questionnaire. Measurement of Treg count by flow cytometry. Statistical analysis used the Spearman correlation test.

Results: In this study, a sample of 21 subjects was obtained. There was a significant relationship between the number of Treg cells and 4 questions from the MGQOL-15 patient quality of life questionnaire, namely P.4, P.7, P.11, P.13, and P.14 (p=0.008/ 0.039/0.013/0.003/0.004).

Conclusion: Higher Treg cells indicate an increase in the quality of life of MG patients in the areas of environmental socialization, decision making, and the patient's level of depression.

Keywords: Regulatory T-Cells , MGQOL-15, Myasthenia gravis, Quality of life

LOSS OF CONCIOUSNESS IN CASE HEMORRHAGIC TRANSFORMATION WITH CONFIRM STATUS OF COVID 19

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Introduction: Ischemic stroke is a serious complication that occurs due to blockage of brain blood vessels, resulting in damage to brain tissue. Some evidence suggests a link between COVID-19 infection and ischemic stroke. Hemorrhagic transformation is a condition in which there is bleeding in the brain area that previously experienced ischemia due to acute ischemic stroke. This case report aims to report a case of hemorrhagic transformation in COVID-19 patients.

Case Report: A 49-year-old woman experienced a sudden loss of consciousness after waking up for the past 2 days. The patient had previously experienced body weakness on the left side for 6 days. Patients did not report any headache, nausea, or vomiting. The patient is also known to be positive for COVID-19 with symptoms of cough, shortness of breath, muscle pain, and lossing of appetite. The patient's medical history includes hypertension for 2 years, a history of transient ischemic attacks (TIAs) about 2 years ago, and no history of diabetes mellitus. Neurological examination shows impaired movement and strength on the left side of the body. CT scan of the head showed extensive infarction of the dextra cerebri accompanied by hemorrhagic transformation. D-Dimer examination shows a result of 2.55 (normal value <0.5) Supporting examinations show indications of hemorrhagic transformation.

Discussion: Some hypothesized mechanisms related to the association between COVID-19 and ischemic stroke include hypotension and inadequate cerebral perfusion, relative hypertension causing posterior reversible encephalopathy syndrome, hyperinflammatory states, and septic embolization with additional bacterial infections. Several cases of hemorrhagic transformation from stroke infarction have been reported in COVID-19 patients.In this case, hemorrhagic transformation occurs due to large vessel disease and possible endothelial damage associated with COVID-19 infection. Patients are given therapy in accordance with the management of acute ischemic stroke. The patient's clinical condition improved significantly and subsequent PCR tests showed negative results.

Keywords: hemorrhagic transformation, ischemic stroke, COVID-19.

DESCRIPTION OF MOTHER'S KNOWLEDGE LEVEL WITH EFFORTS TO TREATMENT FEVER SEQUELS IN TONS OF CHILDREN IN THE WORK AREA OF MAYUNG HEALTH CENTER, CIREBON REGENCY IN 2022

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Introduction: Febrile seizures are seizures that occur due to an increase in temperature due to the process. Febrile seizures often occur in children aged 0-5 years, because at this age the child's brain is very susceptible to increased body temperature and complications that will occur are brain cell damage, decreased IQ in seizures. fever that lasts more than 15 minutes and is unilateral, Paralysis. Data for febrile seizures obtained from the Mayung Health Center in 2021, the number of children with febrile seizures was 61 children in Mayung Village in the Mayung Health Center Work Area. Data obtained from the Annual Report (Puskesmas) Mayung, 2021). The purpose of this study was to determine the level of knowledge of mothers regarding febrile seizures in children under five in the working area of the Mayung Health Center, Gunung Jati sub-district, Cirebon Regency in 2022.

Method: The research method used is descriptive qualitative and the sampling technique uses accidental sampling. The number of samples used in this study were 38 people from 61 mothers at the Mayung Health Center, Cirebon Regency whose children had experienced a febrile seizure. The data used is primary data, the data analysis uses Univariate analysis.

Result: The results of the study using a univariate analysis of maternal knowledge regarding Fever Seizures in Toddlers in the Working Area of the Mayung Health Center, Cirebon Regency in 2022. Based on maternal age, most of the 44.7% mothers were aged 20 years. high school, based on the mother's occupation most 52.6% of mothers are not working, based on the number of children owned, most 76.3% of mothers have children 2, and based on the description of mother's knowledge regarding febrile seizures in children under five, the results are sufficient (50, 0%).

Conclusion: Mother's Knowledge of Knowledge Description of Fever Seizures in Toddlers in the working area of the Mayung Public Health Center with Enough Category. It is hoped that this research can increase mother's knowledge about the factors that cause febrile seizures in toddlers for midwives and other health workers to be able to overcome the problem of Fever Seizures quickly and accurately.

Keywords: Knowledge, febrile seizures, efforts to treat seizures

48 YEARS OLD WOMAN WITH SACROCOCCYGEAL CHORDOMA

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Introduction: Chordoma is a malignant neoplasm from notochord, commonly affected area in the sacrum. The symptoms are pain in low back or lower extremity. Intestinal and urinary disturbances may also occur. Sometimes we found mass on palpation and rectal toucher examination. MSCT will appear more hypodense when compared to bone and when using MRI, it will appear hyperintensity on the T2 section and hypointensity on the T1 section.

Case Report: A woman, 48 years old. 1 year ago, the patient complained of low back pain. 2 months ago, she felt hard to pee. Then She was referred to RSUP Dr. Kariadi. On physical examination, it was found her GCS E4M6V5, blood pressure 115/87 mmHg, pulse 92 bpm. Urinary and alvi incontinence were also found. A lumbosacral MRI with contrast was performed and the result was a heterogeneous solid mass in the presacral region which destroyed the corpus vertebrae S3, S4, and S5 to the Os Coccygeus extending into the spinal canal. This patient was diagnosed with tumor of the sacrococcygeal region ec Chordoma. From the results of anatomical pathology examination, conventional Chordoma results were found in the Sacrococcygeal region. Prognosis of this chordoma is bad, so removal of the tumor must be followed by radiotherapy.

Discussion: Chordoma is a rare malignant neoplasm encountered in clinical practice. Often not recognized because asymptomatic and non-specific symptoms. Anamnesis, good physical examination, and supported by other examinations can establish the diagnosis. Treatment of surgery and radiotherapy can provide a good prognosis.

Keywords: spinal tumor, sacroccygeal tumor, chordoma

DIAGNOSING ADRENOLEUKODYSTROPHY IN LIMITED SETTING

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Introduction: Adrenoleukodystrophy (ALD) is a rare X-linked disorder of peroxisomal oxidation due to mutations in the ABCD1 gene According to the U.S. National Library of Medicine, the prevalence of ALD is 1 in 20,000 to 50,000 individuals worldwide. Cerebral ALD affects one-third of boys under the age of 12 and progresses to total disability and death without treatment. To our knowledge, the information about prevalence of ALD in Indonesia is unknown due to limited diagnostic modalities avalaible spreadly in our country.

Case: Hereby we present a case of 8-year old boy who had been well until the age of 7 when he was noted to present with weakness starting from the left leg progressing to the whole extremities and seizure. The patients also became disturbed, lost speech, loss the ability to walk and remains vegetative. The diagnosis was made based on clinical sign and the MRI findings that suggestive of X-ALD.

Discussion: This case report aims to improve awareness among healthcare practitioners, that even in conditions of limited diagnostic support, we can still have suspicion of ALD by looking at the clinical sign and progression, as well as the particular pattern shows on MRI.

Keywords: Adrenoleukodystrophy, Cerebral adrenoleukodystrophy, X-linked disorder, Peroxisomal disorders

DIALYSIS DISEQUILIBRIUM SYNDROME IN HEMORRHAGIC STROKE PATIENTS WITH CHRONIC KIDNEY DISEASE

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Introduction: Dialysis disequilibrium syndrome (DDS) is a neurological manifestation seen during or after dialysis. Symptoms may include headache, nausea or blurred vision caused by cerebral edema and increased intracranial pressure which can cause death in severe cases. Patients with chronic kidney disease have a 3-5 times greater risk of stroke, especially those undergoing dialysis, where coagulopathic abnormalities and platelet dysfunction and the use of heparin in patients undergoing dialysis are factors in the occurrence of intracranial bleeding.

Case Report: We report a 40-year-old woman who came to the emergency room with a sudden loss of consciousness that occurred 6 hours after hemodialysis. During hemodialysis, patients complain of headache and nausea and vomiting. Non-contrast head CT scan showed left-sided basal ganglia bleeding with an estimated 80 cc of bleeding.

Discussion: Chronic kidney disease (CKD) is a disease that can increase the risk of hemorrhagic stroke and adversely affects the patient's prognosis. The use of heparin during dialysis, the high prevalence of hypertension, protein malnutrition, hypoalbuminemia in CKD patients which directly affect erythrocyte deformability and endothelial dysfunction are factors that cause hemorrhagic stroke. Patients with CKD with DDS are at risk for hemorrhagic stroke experience can increase mortality in patients.

Keywords: Dialysis disequilibrium syndrome, chronic kidney disease, hemorrhagic stroke

WEBER SYNDROME MIMICKING MYASTHENIA GRAVIS, A COINCIDENCE?

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Introduction: Weber syndrome is group of symptoms that caused by disruption in posterior circulation of brain, mainly that vascularize midbrain. Clinical manifestation that can occurs are parese nervus oculomotor ipsilateral dan hemiparese contralateral. Most frequent etiology is disruption at paramedian branch posterior cerebri artery or artery vertebralis branch. Weber syndrome has very low incidence, which is 0.7% of the total stroke in posterior circulation.

Case Report: A 79-years-old woman came with chief complaints difficulty to open eyes since 2 weeks before admission. Patient also complained double vision, disfagia and disfonia, the symptoms worsened over time. She has uncontrollable hypertension and diabetes. On physical examination, we found parese nervus oculomotor dextra and hemiparese sinistra with bilateral ptosis

that worsened over time. Head Computed Tomography Scan showed hypodense lesion at midbrain. The patient was diagnosed with weber syndrome with myasthenia gravis.

Discussion: The clinical manifestation of weber syndrome are parese nervus oculomotor ipsilateral and hemiparese contralateral. In this case, we found that with ptosis bilateral and the fluctuation of symptoms. Diagnostic modality with Head Computed Tomography Scan show infark in midbrain. We cant exclude myasthenia gravis from differential diagnosis because there is most likely coincidence case.

Keywords: Weber syndrome, Myasthenia gravis, Brainstem stroke

EPILEPTICUS STATUS IN ACUTE MENINGITIS WITH A HISTORY OF FEBRILE SEIZURES

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Introduction: Meningitis is an infection of the central nervous system which is one of the main causes of seizures and epilepsy. Appropriate diagnosis and management of infection in the central nervous system can produce good outcomes without sequelae and prevent disability.

Case Report: A 17-year-old male was brought to the emergency room because he complained of headache accompanied by nausea and vomiting for 4 days. Complaints followed by convulsions for +-2 minutes. History of previous trauma was denied. The patient has a history of febrile seizures at the age of 1-2 years. During treatment on the ward, the patient had experienced fever, recurrent seizures within <24 hours. Patient contact was assessed as inadequate. Seizures did not improve with diazepam, midazolam and phenytoin. The results of the physical examination were within normal limits except for neck stiffness (+) and lab results showed mild hyponatremia. EEG results showed abnormal wave III. CSF examination showed an impression towards viral infection. Other examination results showed within normal limits.

Discussion: Viral and bacterial meningitis have the same characteristics, namely fever, headache, photophobia, neck stiffness, sometimes followed by nausea and vomiting. Impaired mental status or seizures may result from meningitis progressing to meningoencephalitis. Neurotropic viruses cause inflammation and trigger the emergence of oxidative stress thereby changing synapse transmission, triggering neuronal hyperexcitability and excitotoxicity thereby triggering seizures. Lumbar puncture and cerebrospinal fluid analysis are very important in determining the etiology of meningitis. Viral meningitis does not require the use of antibiotics, can reduce the length of treatment time so as to prevent further spread of infection and has a better prognosis.

Keywords: Meningitis, Seizure, Epilepsy

OVERVIEW OF THE SLEEP QUALITY OF EPILEPSY PATIENTS IN THE NEUROLOGY POLYCLINIC OF DR MOHAMMAD HOESIN HOSPITAL PALEMBANG

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Background: Epilepsy is a chronic disease that has an impact on epilepsy patients. Epileptic patients are reported to have poor sleep quality compared to people who do not have epilepsy, which is around 42.7% - 72%. The prevalence and factors associated with the sleep quality of epilepsy patients in Indonesia, especially Palembang, are not yet known. This study aims to describe the prevalence and factors that affect the sleep quality of epilepsy patients at dr. Mohammad Hoesin Palembang in 2022.

Methods: This study was an observational study with a cross-sectional approach conducted by the Neurology Polyclinic at RSUP Dr. Mohamad Hoesin Palembang from March to August 2022. Sixty one epilepsy patients aged ≥ 18 years were selected consecutively and then data were recorded on sociodemographic characteristics (gender, age and level of education), clinical characteristics (type of seizures, seizure frequency and duration of epilepsy) and treatment characteristics (amount and type of medication). Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) questionnaire. Data were analyzed using the chi square test and independent t test.

Results: As many as 47.5% of study subjects had poor sleep quality. Poor sleep quality was significantly more common in subjects with seizure frequency >1x/month and receiving polytherapy treatment (p<0.05). Poor sleep quality was more common in epileptic patients who were female, had primary school education, type of focal seizures, had epilepsy longer and used valproic acid, but not statistically significant (p> 0.05).

Conclusion: The frequency of seizures and the number of OAE given affect the sleep quality of epilepsy patients.

19 YEARS OLD WOMAN WITH WILSON DISEASE

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Introduction: Wilson Disease (WD) is a rare autosomal recessive disorder caused by abnormal copper accumulation in the body, involving the brain, liver, and cornea. The incidence of Wilson Disease is reported to be 1 in 50,000- 100,000.

Case Report: A 19-year-old woman with stiffness in her jaw and all four limbs for the past 5 years. The jaw is difficult to close, making it hard for the patient to eat. The patient complains of weakness and fatigue. Physical examination: appears pale, body mass index below normal, slow skin turgor recovery, subconjunctival bleeding in the left eye, and petechiae. Neurological examination: jaw dystonia, rigidity, and disuse atrophy in all four limbs. Psychiatric status: visual hallucinations and depressive affect. Laboratory findings: pancytopenia, decreased blood ceruloplasmin levels, increased copper levels in a 24-hour urine collection, and plain head MRI showing a "face of giant panda sign." The patient is diagnosed with Wilson Disease and is receiving chelation therapy, rehydration, antipsychotics, blood transfusion, albumin, and physiotherapy.

Discussion: In WD, the ATP7B gene mutation result in low level of the seruloplasmin protein, leading to impaired copper excretion. Copper accumulation in the liver spreads to various organs. The buildup of copper in the basal ganglia causes parkinsonism and neuropsychiatric symptoms. Long-term rigidity and dystonia result in contractures in all four limbs. Jaw dystonia leads to inadequate nutrient intake, causing dehydration and malnutrition. Hematological complications manifest as pancytopenia with bleeding manifestations. Chelation therapy must be given continuously with regular monitoring of copper levels. Physiotherapy and nutritional monitoring also play a crucial role to prevent prolonged bedridden status and malnutrition.

Keywords: Wilson Disease, copper, parkinsonism

INTERHEMISPHERIC SUBDURAL HEMATOMA AT FALK CEREBRI POST TRAUMATIC BRAIN INJURY WITHOUT NEUROLOGICAL DEFICIT

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Introduction: Interhemispheric subdural hematoma (ISDH) represents one of the rarest forms of posttraumatic intra- cranial hemorrhage. Subdural hematoma usually occurs over the convexity of a hemisphere, it occurs occasionally in the interhemispheric fissure. The clinical picture of ISH often comprises a falx syndrome characterized by monoparesis of the lower extremity, or hemiparesis in which the leg is weaker than the arm.

Case Report: A 91 year old man came to the emergency room with chief complaint of severe headache with severe intensity after having a traffic accident since 1 hour before admission. The patient vomited twice. There was no loss of consciousness, weakness of the limbs, seizure, complaint of slurred speech and drooping of the mouth, bleeding from the mouth, nose and ears. On physical examination there was no neurological deficit. Head CT scan showed SDH ar frontotemporoparietal dextra et falk cerebri et tentorium cerebelli, traumatic SAH ar occipital lobe dextra et sinistra, cerebral edema, and left frontal depression fracture.

Discussion: ISDH commonly develops in front of the posterior half of the falx cerebri. The ISDH located in the interhemispheric space adjacent to the central sulcus produced contralateral hemiparesis, which was more severe in the lower than in the upper limb, and sensory disturbances. The mass effect of the ISDH located in the interhemispheric space adjacent to the occipital lobe produced homonymous hemianopsia. However, the ISH of this patient did not show neurological deficit.

Keywords: Interhemispheric Subdural Hematoma (ISDH), falk cerebri, post traumatic brain injury

SPONTANEOUS SUBARACHNOID HEMORRAGE IN YOUNG ADULT AFTER CARDIAC CATHERIZATION DUE TO INFERIOR STEMI

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Introduction: Subarachnoid haemorrhage (SAH) may arise spontaneously or as a result of trauma. Spontaneous SAH accounts for about 5% of all strokes. Ruptured aneurysms are the cause of 85% of spontaneous SAH. The most characteristic clinical feature is sudden-onset severe headache. Other features include vomiting, photophobia, and focal neurological deficit or seizures, or both.

Case Report: A case report of 18-year-old man experienced a sudden unconsciousness in 15 minutes during the cardiac catheterization in the cath room. It indicated the problem of the chest pain since three days ago and the ECG showed inferior stemi result. He also suddenly gained severe headache and vomit spray without nausea after Heparin 5000 iu was given during the cardiac catheterization action. Physical examination: the blood pressure was 300/180 mmHg (no history of hypertension), the pulse was 180 x/mt and GCS score was 3. Afterwards, endotracheal intubation and consciousness check (E1M1B1R1) were performed immediately. It showed that, 1mm/4mm anisokor round pupil and Babinski pathological reflex bilaterally positive. The head CT scan showed hyperdense lesions in the subarachnoid and ventricle-III space. Treatment was carried out to the ICCU room to maintain the airway by giving nimodipine 2.5 cc/ 24 hours. It prevented the cerebral vasospasm and rebleeding. Protamine sulfate was not given due to the PT and APTT examination results were normal.

Discussion: Subarachnoid haemorrhage (SAH) in young adult is mostly caused by aneurysms, cause from this patient is a emergency hypertension. It is crucial to do a careful management to keep and protect for cerebral vasospasme and rebleeding.

Keywords: Subarachnoid hemorrhage, aneurysm, post-catheterization, stemi, hypertension

AGE DURATION OF DIABETIC ASSOCIATED WITH THE INCIDENCE OF POLYNEUROPATHY

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Background: The prevalence of polyneuropathy is around 30% and is related to the duration of DM. Polyneuropathy is a complication of diabetes that often occurs and plays an important role in morbidity and disability in diabetic patients.

Methods: This study uses an analytic study with a case-control design. The subjects were type 2 DM patients with polyneuropathy and without polyneuropathy on outpatient treatment at Tugurejo Hospital, Semarang, since they were first diagnosed. This study uses secondary data in the form of medical records. The sampling technique is simple random sampling. Statistical test using the chi square test.

Results: The number of respondents was 94 samples. The majority of type 2 DM patients were women, with 53.2% having polyneuropathy and 57.4% without polyneuropathy. The largest age group is 60-69 years (42.6%). Long suffered from type 2 DM for at most >5 years. The result of the chi square test analysis was 0.044 ($p<0.05$).

Discussion: Polyneuropathy is associated with long-term suffering from type 2 DM. Chronic hyperglycemia in type 2 DM can cause changes in the cellular biochemical balance that affect small nerve fibers, and the longer the disease is affected, the more damaged nerve fibers and decreased nerve conduction will occur.

Keywords: DM type 2, Polyneuropathy, duration of DM

RELATIONSHIP ORGAN DAMAGE LEVEL WITH CLINICAL OUTCOME OF MENINGITIS PATIENTS IN INTESIVE CARE UNIT (ICU) CENTER GENERAL HOSPITAL DR. KARIADI SEMARANG

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Introduction: Meningitis is a severe infection that affects the membranes surrounding the brain and spinal cord. It poses a significant risk to public health globally, with a high mortality rate. Meningitis-related deaths can occur due to complications affecting the central nervous system or other organ systems. The Sequential Organ Failure Assessment (SOFA) score is a tool used to assess organ system dysfunction based on clinical and laboratory data and has been employed to predict mortality.

Methods: This study is a retrospective cross-sectional analysis involving patients aged 18 years or older who were admitted to the intensive care unit (ICU) with a Glasgow Coma Scale (GCS) score higher than three. The minimum length of stay in the ICU was three days. The patients were assessed for respiratory dysfunction, coagulation function, liver function, cardiovascular function, central nervous system function, and kidney function using the SOFA score. The SOFA score was calculated and compared between the first and third days of ICU admission, and the patients' clinical outcomes were recorded. Data was collected from medical records covering the period from January 2020 to December 2022. Demographic data, clinical outcomes, and statistical analyses were performed using SPSS.

Results: The study included 25 patients, comprising 11 men and 14 women. The majority of patients belonged to the 20-29 age group (36%), and the most common nutritional status was a BMI below 18.5, accounting for 56% of the cases. Bacterial meningitis was the most prevalent type of meningitis, accounting for 56% of the cases. Out of the total patients, 19 (76%) survived, while 6 (24%) died, including 4 women and 2 men. The SOFA score increased from the first day to the third day in patients who did not survive. The assessment of the SOFA score on both days 1 and 3 revealed the severity of respiratory, cardiovascular, and central nervous system dysfunction in relation to the patients' clinical outcome. The SOFA score on third day in ICU is related to the patient's outcome. The SPSS analysis demonstrated a significant association between the SOFA score on the third day of ICU care and the clinical outcome ($p < 0.05$).

Discussion: The third day of SOFA score is useful in seeing the level of organ damage and predicting death.

Keywords: SOFA, clinical outcome, meningitis

DEVELOPED A NEW ICH SCORE (NICH) AND SURGICAL EVACUATION OF ICH (ICH-SE) TO PREDICT 30- DAY MORTALITY IN SPONTANEOUS INTRACEREBRAL BLEEDING PATIENTS

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Introduction: The Original Intracerebral Hemorrhage (oICH) score has been widely used as a clinical assessment scale that is consistent and reliable for predicting patient mortality. However, the ICH score is sometimes complicated, does not contain an acute complication component of stroke, and is not developed to predict the mortality of patients undergoing surgery.

Methods: We conducted a retrospective cohort study, involving all spontaneous ICH patients admitted to Prof Ngoerah General Hospital Denpasar between July 2020 and July 2022. The final model was converted into a scoring system to determine mortality predictive value, optimal cut-off point, sensitivity value and specificity value.

Results: A total of 265 patients met the requirements and 83 patients underwent evacuation surgery. Independent factors associated with ICH patient mortality were high NIHSS on admission, volume of bleeding, and age >65 years. Independent factors for a good outcome were pneumonia, sepsis, respiratory failure and the presence or absence of mass effect. Overall, the nICH score was better than the oICH score (AUC 0.864 vs. 0.760).

Taking a cut-off value of 2, the nICH score has a sensitivity of 75% and a specificity of 81.4%. Independent factors associated with the mortality of ICH patients who underwent surgery were pneumonia, midline shift >8mm, and IVH. By taking a cut-off value of 1, the ICH-SE score has a sensitivity of 71.7% and a specificity of 78.4%.

Conclusion: The nICH score proved to be more effective than the oICH score in predicting patient mortality within 30 days of spontaneous ICH. The ICH-SE score can also be used to predict mortality within 30 days of spontaneous intracerebral hemorrhage patients who are about to undergo surgery.

Keywords: spontaneous intracerebral hemorrhage, ICH surgical evacuation score, new ICH score, ICH score, stroke score.

DYSKINESIA DUE TO INFLAMATION PROCESS POST VIRAL ENCEPHALITIS WITH DIFFERENTIAL DIAGNOSE TARDIVE DYSKINESIA

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Introduction: Encephalitis is one of the manifestations of viral infection in the CNS. Symptoms are characterized by fever, leptomeningeal irritation, headache, fever, nuchal rigidity, neurological deficits, seizures, and decreased consciousness. Viral encephalitis also causes behavioral and language disorders, but movement disorders are rare.

Case Report: A 19-year-old male, previously with decreased consciousness, fever, and nuchal rigidity, was later diagnosed with viral encephalitis. The patient received acyclovir then symptoms improved. On the 15th day of admission, we found involuntary movements of the lips, head, neck, hands, and feet. Movements such as twisting, sometimes like dancing or jerking, and movements on the lips like 'lip smacking'. IgG Anti-HSV-1 was positive. Head CT with contrast when diagnosed viral encephalitis showed meningeal enhanced bilateral frontotemporoparietoccipital lobes suggesting meningoencephalitis. Head MRI with contrast when movement disorders appeared showed no meningeal enhancement. Patient with a history of organic mental disorders routinely takes risperidone. Initially, we suspected tardive dyskinesia, but it did not improve with tardive management. The patient was diagnosed with dyskinesia due to inflammation post viral encephalitis dd tardive dyskinesia. The patient was given plasmapheresis therapy then movement disorders improved.

Discussion: Movement disorders are suspected due to inflammation caused by autoimmune encephalitis as a secondary process of viral encephalitis. In the case of autoimmune encephalitis, one of the most common related pathogens is herpes simplex virus which causes viral encephalitis. Recurrence of autoimmune is usually an anti-NMDAR syndrome and can manifest movement disorders. This case describes that patients with viral encephalitis may develop autoimmune encephalitis.

Keywords: Dyskinesia, Viral Encephalitis, Autoimmune Encephalitis, movement disorders, plasmapheresis

PYOGENIC SPONDYLITIS METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS (MRSA)

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Introduction: Methicillin-Resistant Staphylococcus aureus (MRSA) is a Staphylococcus aureus bacterium that has become resistant to methicillin-type antibiotics, which has become a global burden. Pyogenic spondylitis is an infectious disease caused by pathogenic bacteria that attack the vertebrae. Bacterial culture examination is required to establish a microbiological diagnosis. Spondylitis caused by MRSA infection requires integrated management to provide the best outcome for the patient.

Case Report: A 52-year-old woman who works as a retailer, experienced lower back pain radiating to her legs since 8 weeks before admission hospital. The pain was so intense that the patient cannot move at all. The patient also complained of weakness in the lower extremity, a feeling of numbness, especially on the outer side of the left leg, and difficulty defecating and urinating. On physical examination, flaccid inferior paraparesis, lasegue sign (+/+) and hypesthesia according to bilateral L5-S1 dermatomes were found. The MRI.

Results: showed destruction of the 5th Lumbar Vertebrae corpus, accompanied by enhanced rim lesions on the L.5-S.1 intervertebral disc. The patient underwent surgery, continued with sample culture and obtained MRSA germ.

Discussion: MRSA infection in the spine can lead to pyogenic spondylitis with different clinical features according to the location of the lesion. As many as 37% of cases of pyogenic spondylitis occur spontaneously with no known source of infection before. A history of excessive use of antibiotics may be a risk factor for MRSA infection. Without adequate treatment, the disease is progressive, causing permanent spinal damage and nerve compression

Keywords: Methicillin-Resistant Staphylococcus aureus, Spondylitis pyogenic, Low Back Pain

CLINICAL OUTCOME OF PLASMAPHERESIS THERAPY IN MILLER FISHER SYNDROME

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Background: Miller Fisher Syndrome (MFS) is known as one of the rarest form of Guillain Barre Syndrome (GBS). The incidence rate is around 1-2 cases per 1,000,000 population. MFS has a triad of ophthalmoplegia, ataxia and areflexia. Treatment for MFS either Intravenous Immunoglobulin (IVIG) or plasmapheresis therapy (TPE). According to the 2019 American Society of Aphaeresis (ASFA) guidelines, TPE in GBS is an indication of category I ASFA (recommendation level 1A). It is recommended to exchange 1-1.5 plasma volumes per session, 5-6 times over 10-14 days. Based on existing research, TPE and IVIG have the same effectiveness as therapy for MFS.

Case Report: There were 3 MFS patients in this case report, supported by clinical symptoms of MFS accompanied by supportive cerebrospinal fluid (CSF) analysis

Results: Case 1 female 22 years, came with symptoms ophtamoplegi, ataxia, areflexia onset 4 days. Case 2, a 30-year-old man came with symptoms ophtamoplegia, ataxia, and areflexia onset 7 days. Case 3, a 44 year old man with symptoms ophtamoplegi, ataxia, areflexia onset 14 days. Laboratory Results: of the three patients showed cytoalbumin dissociation. All of patients received TPE 4 times and gained clinical improvement.

Conclusion: TPE has been used as a treatment modality in many autoimmune diseases, including neurological diseases such as GBS including MFS. Several studies have reported that TPE is more effective in improving outcomes than IVIG.

Keywords: Miller Fisher Syndrome, Plasmapharesis, Guillain Barre Syndrome

QUALITY OF LIFE FOR PATIENTS WITH PARKINSON'S DISEASE AT PROF. DR. R.D KANDOU HOSPITAL MANADO

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Introduction: Parkinson's disease is a progressive neurodegenerative movement disorder. Quality of life is related to health and specifically focuses on the impact of treatment in terms of patients' perception of health status, subjective well-being, or life satisfaction. This study aims to determine the relationship between quality of life using the PDQ- 39 questionnaire in Parkinson's patients.

Method: This is an analytical observational study using a cross-sectional design conducted on Parkinson's patients using pramipexole medication at the neurology outpatient clinic of RSUP Prof Dr. R.D Kandou Manado from January to December 2023. Bivariate analysis was performed using correlation methods to determine the relationship between variables using the Spearman's test.

Results: Quality of life measurements were conducted on 30 study subjects using the PDQ-39 questionnaire. The majority of participants were male (56.7%), with a treatment duration of less than 5 years (60%), and Hoehn and Yahr (H&Y) grading of stages 3 and 4 (46.7%). The analysis showed that variables independently correlated with quality of life included gender with a moderate positive correlation coefficient (r=0.466), age with a low positive correlation (r=0.376), treatment duration with a low positive correlation (r=0.348), and disease grading with a low positive correlation coefficient (r=0.305).

Discussion: The average age of the Parkinson's patients in the study was 66.13±9.33. The research findings indicated a low correlation between quality of life and treatment. It was also reported by Lukas in 2015 that there is a positive correlation between disease severity and total PDQ-39 scores. Based on the research, it can be concluded that the quality of life of Parkinson's patients is associated with gender, age, treatment duration, and disease grading.

Keywords: Quality of life, Parkinson

NON-TRAUMATIC SUBDURAL HEMATOM WITH CHRONIC KIDNEY DISEASE ON HEMODIALYSIS

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Introduction: Along with the increasing proportion of kidney failure patients receiving hemodialysis (HD) treatment, death caused by neurological complications will also increase. Non-traumatic subdural hematoma is a possible complication of this procedure. This case report reports a woman with a subdural hematoma (SDH) after hemodialysis.

Case Report: A 65-year-old woman brought by her family to the hospital with a loss of consciousness. Previously, the patient complained of headache. There is no history of previous falls. After the administration of dexamethasone, the patient's consciousness gradually improved. The patient has a history of stage V chronic kidney disease and received hemodialysis four days ago. Neurologic examination showed weakness of the right cranial nerve VII central type and weakness of the right side of the extremities. Positive pathological reflex on the right side. The CT scan.

Results: showed a chronic subdural hematoma in the left parietofrontotemporooccipital region and there were signs of intracranial elevation. The patient was given medical therapy and a craniotomy was performed.

Discussion: Patients with chronic kidney disease on hemodialysis are at high risk of experiencing SDH later in life and have a risk of death from SDH. Monitoring and evaluation of appropriate care for HD patients is necessary to prevent SDH complications.

Keywords: subdural hematoma; hemodialysis; chronic kidney disease

TRANSFORAMINAL EPIDURAL STEROID INJECTIONS COMBINED WITH PULSED RADIO FREQUENCY IN A PATIENT WITH DEGENERATIVE LUMBAR SCOLIOTIC STENOSIS

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Background: Degenerative lumbar scoliosis is a complex cause of severe low back pain and the incidence varied from 1.5% to 29.4%. It involved asymmetric degeneration of the disks, multi-levels of facet joint disorders, and spinal canal alteration. Transforaminal epidural steroid injection (TFESI) showed effective for reducing inflammation but might need more effort to perform in scoliosis and severe foraminal stenosis.

Case Description: A 65-year-old woman suffered from both sides of radicular LBP accompanied by numbness. It was gradually worse for the last 1 year with the difficulty of walking and standing, the pain was getting worse when the patient walks and stands for a long time and feels slightly better when the patient rests. The patient had a history of intermittent LBP and fell before entering the hospital. On examination, the Numeric Rating Scale (NRS) scale 5-6, Achilles reflex decreased, hypesthesia confirmed to L4-L5 dermatomes, and Laseque test positive bilateral. MRI showed lumbar right-sided scoliosis, degenerated and herniated disc L1-2, L2-3, L3-4, L4-5, and L5-S1 accompanied by neuroforamen narrowed spinal canal stenosis at the level L5-S1. The patient was initially treated conservatively, but the pain improved slightly. Then the patient underwent Fluoroscopically guided TFESI (sub-pedicular approach) combined with pulsed radiofrequency at L3-4, L4-5, and L5-S1 bilaterally. After the procedure, the patient showed significant improvement with NRS was 1-2 and without any neurological complications.

Discussion: The sub-pedicular approach of TFESI might be a risky procedure with the potential of nerve roots being pricked or vessel penetration, especially on the scoliotic spine. It needs a proper and skillful injection proceed. The local inflamed roots, venous congestion, or circulation after injection improved pain reduction.

Conclusion: The TFESI procedure through a sub-pedicular approach might bring benefits for the scoliotic degenerative lumbar spine that are accompanied by spinal stenosis.

Keywords: Degenerative lumbar scoliosis, fluoroscopy, transforaminal epidural steroid injections, pulsed radiofrequency.

THE EFFECT OF ALBUMIN ON THE INCIDENCE OF SEPSIS IN BRAIN TUMOR PATIENTS POST CRANIOTOMY IN ICU DR. KARIADI 2019-2023

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Background: The incidence of primary malignant brain tumors is 3.7 per 100,000 for males and 2.6 per 100,000 for females. In developed countries, the rates appear higher (males, 5.8, and females, 4.1 per 100,000) than in less developed countries (males 3.0, and females 2.1 per 100,000). Brain tumors are divided into primary and secondary, with secondary tumors occurring five times more frequently than primary ones.

Method: This study is a descriptive analytical retrospective cross-sectional study using secondary data on cases diagnosed with Brain Tumors from January 2021 to December 2022 at the General Hospital (RSUP) dr. Kariadi Semarang. Inclusion criteria include patients over 18 years old, diagnosed with post-craniotomy brain tumors, and treated in the ICU at RS Dr. Kariadi. Chi-Square tests were then conducted on subjects meeting the criteria.

Results: There were 36 subjects in this study with a distribution of 21 females and 15 males. Of the total subjects, 15 experienced sepsis, and 12 subjects did not. There were 21 subjects with hypoalbuminemia and 15 subjects with normal albumin levels. Chi-Square test showed a significant relationship between hypoalbuminemia with clinical outcomes and sepsis incidents.

Conclusion: There is a significant association between hypoalbuminemia and clinical outcomes as well as sepsis incidents in post-craniotomy brain tumor patients.

Keywords: Brain tumor, albumin, craniotomy, intensive care unit

COGNITIVE IMPROVEMENT IN PATIENT WITH POSTTROKE COGNITIVE IMPAIRMENT THROUGH NEUROFEEDBACK THERAPY WITH SENSORY MOTOR RHYTHM (SMR) PROTOCOL

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Introduction: Cognitive impairment is a common problem in patient suffered from stroke. Conventional rehabilitation methods have not widely reported their benefits in the treatment of post-stroke cognitive impairment. Neurofeedback as a form of non-invasive therapy that aims to regulate brain wave activity, has showned potential benefit as an alternative approach in improving cognitive function.

Case Report: A 49-year-old man complained of cognitive impairment including attention, concentration, and memory disturbances occurred 5 months after an ischemic stroke in the bilateral frontoparietal region. The patient underwent neurofeedback therapy for 10 sessions over a period of 2 weeks. SMR protocol was used to increase the activity of SMR waves (12-15 Hz) in the sensorimotor cortex. The patient was trained to regulate his brain wave activity through visual feedback presented via a neurofeedback device. After neurofeedback therapy, patient reported clinically significant improvement in cognitive function which are supported by increasing the MOCA-Ina score and beta waves as evaluated by qEEG.

Discussion: Neurofeedback aims to enhance the brain's ability to regulate disrupted brain wave activity and synchronization, as well as stimulate neuroplasticity. SMR protocol, in particular, has demonstrated improvements of cognitive function in various neurological conditions. Through targeted exercises and visual feedback, the patient can regulate his brain wave activity to reach the target. This case report supports previous research indicating that neurofeedback therapy with SMR protocol can be an effective approach to manage post-stroke cognitive impairment and can be used as part of post-stroke cognitive rehabilitation.

Keywords: Post-stroke cognitive impairment, Neurofeedback

CLINICAL IMPROVEMENT AFTER COMBINATION OF PYRIMETHAMINE AND CLINDAMYCIN FOR NEUROTOXOPLASMOSIS WITH SUBFALCINE HERNIATION IN IMMUNOCOMPROMISED PATIENT

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Introduction: Neurotoxoplasmosis caused by Toxoplasma gondii, a life-threatening condition that is often associated with immunocompromised patients. Study reported from Indonesia in 2021, 158 patients HIV/AIDS tested for neurotoxoplasmosis, 63.9% patients were positive. The effective treatment must be implemented for reduce morbidity and mortality.

Case Report: A-45 year-old woman presented loss of consciousness and left-sided weakness for 6 hours to Hermina Jatinegara, East Jakarta. Patient was diagnosed for HIV/AIDS from 2009 then followed by antiretroviral therapy but discontinued since 2017. CT brain contrast showed irregular ring enhancing lesion with finger-like edema and subfalcine herniation. IgG antibodies of T. gondii was reactive. The treatment for patient is 200 mg initial dose of pyrimethamine and continue with 75 mg each day, clindamycin with 600 mg doses, three times a day, folic acid and dexamethasone with tapering dose. In three days, patient showed the response with eyes open spontaneously. After 7 days of treatment, she is able to obey simple commands. Patient has CT brain contrast evaluation after 6 months in ambulatory state, showed decrease of ring-enhancing lesion and there is no subfalcine herniation. Patient has adequate response and improved neurologic deficit.

Discussion: Several drug combination were used for neurotoxoplasmosis, the first drug recommendation is pyrimethamine with sulfadiazine. Clindamycin was used because sulfadiazine was not available. Pyrimethamine-clindamycin has fewer side effects than Pyrimethamine- sulfadiazine. Pyrimethamine-clindamycin as an alternative drugs has good outcome for clinical improvement. This regimen can be used if sulfadiazine not available as first line combination.

Keywords: neurotoxoplasmosis, pyrimethamine, clindamycin

PONTINE HEMORRHAGE PRESENTING AS FOVILLE SYNDROME IN YOUNG MAN

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Introduction: Foville syndrome is one of the rare inferior medial pontine stroke syndromes. Isolated pontine stroke is only 3% of cases. Important nerve nuclei in the region of the pons include the trigeminal nerve sensory and motor nuclei, abducens nucleus, facial nerve nucleus, vestibulocochlear nuclei, paramedian pontine reticular formation (PPRF) and medial longitudinal fasciculus.

Case Report: A young man 22 years old patient with no other past medical history presented with abrupt onset of weakness and numbness on his left side two days before admission. That weakness was preceded by acute headaches and vertigo with vomiting. No known systemic comorbidity for the patient. A neurological examination revealed left hemiplegic, left hemiparesthesia, left side ataxia, lagophthalmos, and right ipsilateral facial palsy. CT head without contrast revealed indeterminate hyperdense areas in the inferior pons spontaneous hemorrhage, with identified 1.8 x 2 x 2.5 cm estimated volume of 4.68 cc.

Results: MRA patient obtained an aneurysm from the right pontine artery measuring 2.4 cm x 2.4 cm. The patient was admitted and received supportive treatment and physiotherapy. The patient showed signs of clinical improvement.

Discussion: Foville syndrome is caused lesion in the lower pontine tegmentum. It usually is caused by an aneurysm of the basilar artery. Our patient has right facial palsy, horizontal gaze palsy, left hemiplegia, and left hemiparesthesia. We reported a rare case of Foville syndrome due to spontaneous pontine hemorrhage. The clinical manifestations were well correlated with anatomical involvement.

Keywords: Foville syndrome, Pontine hemorrhage, Aneurysms

FOCAL SEIZURES AS A NEUROLOGICAL SYMPTOM OF NONKETOTIC HYPEROSMOLAR HYPERGLYCAEMIA IN PATIENTS WITH UNCONTROLLED DIABETES

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Introduction: According to 2019 data from the International Diabetes Federation (IDF), it is estimated that at least 463 million people aged 20-79 years suffer from diabetes, with the Southeast Asian region where Indonesia is ranked 3rd with a prevalence of 11.3%. One of the life-threatening complications of type 2 diabetes mellitus (DMT2) is hyperglycaemic hyperosmolar non-ketotic syndrome (HHNK) in which this condition has various neurological manifestations, the most common among them is decreased consciousness, but focal seizures are still rare, the pathomechanism are poorly understood and reports number are still lacking.

Case Report: A 58-year-old adult man came to the Bhakti Dharma Husada Hospital in Surabaya with chief complaint of general weakness, afterwards patient experienced a decrease of consciousness, and focal seizures was shown on left leg and right side of face, patient has a history of uncontrolled diabetes for more than 10 years. The patient underwent laboratory examination with blood sugar level was 1530 mg/dL, osmolality was 336 mOsm/L, no ketones were found on urinalysis, and no abnormalities findings on CT Scan. Anti-seizure therapy was given as well as blood sugar correction, focal seizures improved after the blood sugar target was reached.

Discussion: HHNK could present with a variety of neurological symptoms such as altered mental status, movement disorders, and seizures. The pathogenesis of seizures caused by HHNK is still unclear. However, several studies have shown that acute ischemic cortical lesions due to decreased blood flow during hyperglycaemia and decreased Gamma-Aminobutyric Acid (GABA) due to hyperosmolarity can cause seizures in HHNK patients. Thus, treatment of metabolic disorders in HHNK could resolve focal seizure symptom.

Keywords: Focal Seizures, Hyperglycaemia Hyperosmolar Non-Ketotic, Diabetes Mellitus

PONTINE BLEEDING AS FOVILLE SYNDROME IN YOUNG BOYS

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Introduction: Foville syndrome is a rare medial inferior pontine stroke syndrome. Pontine stroke occurs in 3% of cases. The most important nerve nuclei in the pons region are the sensory nucleus of the trigeminal nerve and the motor nucleus, the abducens nucleus, the facial nerve nucleus, the vestibulocochlear nucleus, the paramedian pontine reticular formation (PPRF) and the medial longitudinal fasciculus.

Case Report: A 22 year old male patient with no previous medical history came with complaints of sudden limb weakness and numbness on the left side of his body two days before admission. Weakness accompanied by headache and dizziness accompanied by vomiting. There were no systemic comorbidities in the patient. Neurological examination revealed left hemiplegia, left hemiparesthesia, left- sided ataxia, lagophthalmos, and right ipsilateral facial paralysis. On head CT without contrast the patient showed a hyperdense area in the form of an inferior pons bleeding, with a size of 1.8 x 2 x 2.5 cm with an estimated volume of 4.68 cc. MRA

Results: of the patient found an aneurysm in the right pontine artery measuring 2.4cm x 2.4cm. The patient received supportive care and physiotherapy. The patient showed signs of clinical improvement during treatment.

Discussion: Foville syndrome is caused by a lesion in the pontine tegmentum. Usually caused by a basilar artery aneurysm. In the patient, there was right facial paralysis, horizontal visual paralysis, left hemiplegia, and left hemiparesthesia. We report a rare case of Foville syndrome due to spontaneous pontine haemorrhage. Clinical manifestations found in patients related to anatomy.

Keywords: Foville syndrome, Pontine hemorrhage, Aneurysm

TRAUMATIC POSTERIOR FOSSA EPIDURAL HEMATOMAS IN CHILDREN: A CASE REPORT

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Introduction: Epidural hematomas occur in 2% of all head injuries and up to 15% of all fatal head injuries. The posterior fossa is a rare location for epidural hematomas. Clinical progress is slow, but worsening can be sudden and rapid.

Case Report: A 14-year-old girl with decreased consciousness since day-1 after falling from a motorbike. Initially, the patient rode a motorcycle and then fell with his head hitting the asphalt. During the incident, the patient was unconscious for 20 minutes, then regained consciousness. 1 hour later the patient looks sleepy and has difficulty communicating. Previously the patient experienced headaches with severe intensity accompanied by spraying vomiting 4 times. There is swelling on the back of the head, and a torn wound on the back of the head. CT scan of the head shows a hyperdense lesion in the form of a biconvex a/r occipital left. Treatment was in the form of empirical antibiotics and emergency EDH evacuation craniotomy. Clinical improvement was seen on the sixth day of treatment with awareness of compost mentis and improvement in motor strength.

Discussion: These patients experience a decrease in consciousness as a result of ruptured blood vessels so that they can accumulate in the intracranial space so that the rapid addition of hematoma volume in these lesions can cause pressure on the brain which can result in decreased consciousness, disability both reversible and irreversible and even death. An appropriate diagnostic approach to posterior fossa EDH cases and prompt management under clinical data can result in a good prognosis.

Keywords: posterior fossa, EDH, craniotomy

ALLODINIA IN PATIENTS WITH CHRONIC UROSEPSIS

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Background: Chronic and repeated microorganism infections cause stimulation of pain receptors in nerves which will cause peripheral and central sensitization manifested as allodynia. Allodynia is estimated to affect 15% to 20% of neuropathic pain.

Case Report: A 50 years old woman with complaints of severe pain NPRS 9/10 pain that is felt continuously like stabbing all over the body, especially in the upper and lower back with mild to moderate intensity. Physical examination are vital signs within normal limits but body temperature increased 38.9' C. In addition, sensory disturbances were found in the form of allodynia on both sides of the body, to be precise in the area of the bilateral knee region, bilateral gluteal, lateral epicondyle, lower cervical, nape and ribs. Assessment of pain Pain Detect, result score 35 (neuropathic pain). Laboratory examinations are leukocytosis (33,890), thrombocytosis (756,000) and hypercoagulation (Fibrinogen 1097 and D-dimer 4.54). After several days, she get improvement of pain, she get therapy such as heparin 2x5000 SC, Ceftriaxone 2x1 gram, Gabapentin 1x300 mg, Diclofenac sodium 2x50 mg, amitriptyline 1x12.5 mg.

Discussion: This case is a rare condition. Where the mechanism of allodynia in urosepsis is not known with certainty, but it is possible that urinary tract infections, which are only known at this time, involve the peripheral nervous system in the central nervous system through sensitivity, causing excessive pain in sufferers (allodynia). The on going infection in this case which became urosepsis could exacerbate the pre-existing allodynia.

Keywords: Allodynia, Urosepsis, Pain, Hypercoagulation, Thrombocytosis

GERSTMANN SYNDROME AS MENIFESTATION OF HEMORRHAGE STROKE: A RARE CLINICAL CONDITION WITH A TETRAD OF SYMPTOMS

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Introduction: Gerstmann's syndrome is a neurological condition with a tetrad of symptoms comprising agraphia, acalculia, right-left disorientation and finger agnosia suggesting a lesion in the angular gyrus of the inferior parietal lobule in the dominant hemisphere.

Case Report: We present a 53-year-old man with sudden dizzy spells when he is active, headache and blurred vision when looking to the right and leads to central vertigo suspected to be due to a stroke. There are also complaints in the form of confusion, Left and right disorientasi, finger agnosia, akalkuli and agrafia without alexia to Gerstmann syndrome. Hypertension is a patient risk factor.

Results: of a CT scan of the head, there was left Intracerebri Bleeding in the Left Occipital Parietal Lobe with an estimated bleeding of around

23.8 cc. While being treated, the patient was treated with 20% mannitol, 5 mg flunarizine, 500 mg citicoline, 500 mg paracetamol and 10 mg amlodipine. outpatients with clinical improvement.

Discussion: In present case, all four features described by Gerstmann were present. In the following decades, a strong relationship between lesions in the dominant hemisphere and Gerstmann syndrome was confirmed, more specifically in the angular gyrus of the parietal lobe.The lesions in this gyrus are associated predominantly with the symptoms of agraphia and acalculia.

Keywords: Gerstmann syndrome, agraphia, acalculia, finger agnosia, left-right disorientation

MULTIPLE ARTERIOVEONUS MALFORMATION IN PATIENT WITH HISTORY OF CHRONIC HEADACHE POST RECURRENT HEAD INJURY

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Background: Multiple Arteriovenous Malformation (AVM) is a rare developmental anomalies when arteries are directly connected to the venous drainage system without a restrictive capillary system. The incidence of Multiple AVM is 0.3-9%. AVM risk bleeding from abnormal blood vessels that can cause brain damage.

Case illustration: A 43-year-old male patient came to the emergency room with throbbing headache, worsening in the past 3 months, vas 9-10 aggravated by activity. There were no seizures, slurred speech, vomiting, impaired memory,weakness,or numbness. A reccurent head injury confirmed. Brain CT Scan showed an amorphous hyperdense mass of the left frontal lobe accompanied by multiple intra-lesional calcifications, diameter lk 1.8 cm DD oligodendroglioma. MRI of the head with contrast showed AVM lesions in the left anterior superior sagittal suture (largest 1.8 x 2.5 x 1.9 cm), right temporal lobe (1.3 cm) and right occipital 1.3 cm. GCS E4M6V5 and pupil isochor 3 mm without neurological. The patient got injections of dexamethasone 3x1 gr, ketorolac 3x30 mg and Paracetamol 3x500 mg. The patient was referred to neurosurgery and advised to have another head MR angiography. The patient does not need surgery or non-invasive procedures for this time. Symptoms improved after 6 months with conservative treatment.

Discussion: The symptoms of AVM is depends on the location, number, head injury and size of the lesions. The treatment of avm consist of conservative, neuro intervention, or surgery. Symptoms of chronic headache can be clinical manifestations of intracranial disorders that require further investigation.

Keywords: AVM, multiple, headache

CLINICAL OUTCOMES IN ISCHEMIC STROKE PATIENTS AFTER INTRAVENOUS THROMBOLYSIS AT RSUD DR. MOEWARDI SURAKARTA

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Introduction: Management of acute ischemic stroke with intravenous (IV) thrombolysis has shown benefit in reducing mortality and disability. Death, neurological deficite, and decreased cognitive function can occur in stroke, where the incidence is lower with IV thrombolysis.

Methods: This research is an analytic observational study with a retrospective cohort approach which was conducted at RSUD Dr. Moewardi Surakarta. Data were taken from the patient's medical records when they first came to the emergency room and control to the polyclinic as well as examining cognitive function using the Telephone MoCA (T-MoCA).

Results: This study was conducted from June 2022 to May 2023, followed by 36 research samples (12 samples of the thrombolysis group and 24 control samples). Thrombolysis subjects were taken by total sampling and compared with controls with equivalent characteristics. Subjects were divided based on gender (p=0.700), age (p=1.000), education level (p=0.504), risk factors

hypertension, diabetes mellitus, and cardiovascular disease (p=0.105, p=0.219, p=0.317), and onset (p=0.844). The Results: obtained were the patient's status alive or dead (p=1,000), NIHSS delta (p=0.034), and MoCA-Ina score (p=0.410).

Discussion: In this study there was a statistically significant difference in the NIHSS delta between the thrombolysis group and the control group. Meanwhile, based on patient status, the thrombolysis group had a higher percentage of surviving patients and a higher MoCA-Ina score than the controls, although not statistically significant. It was concluded that the NIHSS delta was better in ischemic stroke patients who were given intravenous thrombolytic therapy.

Keywords: Ischemic stroke, intravenous thrombolysis, NIHSS delta, cognitive function

CEREBRAL SINUS VENOUS THROMBOSIS AS A RARE COMPLICATION OF BACTERIAL MENINGOENCEPHALITIS

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Introduction: Cerebral Sinus Venous Thrombosis (CSVT) in cases of bacterial meningoencephalitis is a rare complication with an incidence of only 12.3%, but it can be potentially fatal if not detected early.

Case Report: We report a case of a 50-year-old male who presented with decreased consciousness, recurrent seizures, fever, and pneumonia. The initial head CT scan did not reveal any cerebral infarction. Cerebrospinal fluid analysis showed an increased number of cells, a predominance of polymorphonuclear cells, and decreased cerebrospinal fluid serum- glucose ratio, supporting the diagnosis of bacterial meningoencephalitis. Steroid therapy and empirical antibiotics did not show significant improvement. Head CT scan evaluation revealed infarction in the left occipital lobes, right occipital lobes, and right parietal lobe, and was suggestive of cortical laminar necrosis, indicating a venous stroke. MRV examination showed thrombosis in the right transverse sinus, with a smaller caliber of the left internal jugular vein, left sigmoid sinus, and left transverse sinus. The addition of anticoagulant therapy alongside antibiotics and antiepileptic drugs resulted in significant improvement of symptoms.

Discussion: The pathogenesis of CSVT in bacterial meningoencephalitis involves a complex interplay between infection, inflammation, and thrombosis. Bacterial toxins and inflammatory mediators can activate the coagulation cascade and endothelial cells, leading to the formation of thrombi within the cerebral venous sinuses. In addition, direct invasion of the cerebral veins by bacteria can also contribute to thrombosis and subsequent CSVT. Management of CSVT includes treatment of underlying conditions, prevention, and management of complications.

Keywords: CSVT, meningoencephalitis

DIFFUSE AXONAL INJURY WOTH INTERHEMISPHERIC SUBARAHNOID HAEMORRHAGE

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Introduction: Diffuse axonal injury (DAI) is significant cause of morbidity in head injury. DAI is difficult to diagnose because 50-80% cases show normal head CT scan. Interhemispheric subarachnoid haemorrhage (ISH) can become marker of severe DAI. DAI with ISH is rare with incidence rate 10 % and often carries poor prognosis.

Case Report: A 48 year old man with loss of consciousness after accident, GCS E1M2Vett, spastic quadriparese and meningeal sign. Head CT scan revealed small hyperdense lesions in left frontal lobe, left temporal lobe, pons and hyperdense lesions in anterior interhemispheric fissure. He was treated with supportive therapy for 20 days but he didn't improve even though evaluation with head CT scan showed improvement. He died because of sepsis.

Discussion: Unconsciousness after head injury with a GCS < 8 during > 6 hours and head CT scan shows multiple small focal lesion including in dorsolateral pons confirms the diagnosis of DAI grade 3. Head CT scan also shows ISH. ISH occurs because of strong friction which tears blood vessels around interhemispheric fissure during accelerated- deceleration of head rotation. It is the same shearing mechanism that underlies severe DAI. It shows association between ISH and DAI. A study revealed that ISH on head CT scans can become marker of severe DAI and predictor of poor prognosis. This case corroborates that finding where patient with ISH and head CT scan according to DAI grade 3 showed a poor outcome.

CRYPTOCOCCAL MENINGOENCEPHALITIS IN PREGNANT PATIENT WITH IMMUNOCOMPETENT

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Introduction: Meningitis is an inflammation of the meninges that can be caused by infectious and non-infectious processes. Cryptococcus is one of the invasive organisms that can cause meningitis and is found in many immunosuppressive individuals. Pregnant women are prone to several infectious diseases due to unique 'immunological' conditions caused by pregnancy. There is no evidence that pregnancy is a predisposing factor to cryptococcosis. Cryptococcus ME in a pregnancy is a rare case. In this case report, we discuss more about cryptococcal ME in the condition of 2nd trimester pregnant patients.

Case Report: 24-year-old woman with headache accompanied by vomiting and blurred vision 3 weeks before admission. Physical examination found vital signs within normal limits, visus decline, papilledema, light reflex lowered in both eyes and nuchal rigidity. On LCS examination, pleocytosis, increase in mononucleus, glucose reduction >40%. Anti-HIV non reactive. CT scan of the head without contrast found no hydrocephalus, infarction, hemorrhage, or SOL.

Results: of Indian ink obtained cryptococcus. Microbiological cultures obtained Cryptococcus gattii. The patient receives a fluconazole and serial LP for lowering the ICP.

Discussion: Cryptococcal meningitis is an immunocompromised disease that often occurs in HIV-AIDS, with about 6% of patients with AIDS having cryptococcus infection, and patients with a cryptococcus diagnosis 85% having AIDS. In this case, the patient is given fluconazole. First-line therapy in cryptococcal ME with amphotericin B or fluconazole as induction phase therapy for 2 weeks, followed by fluconazole consolidation phase 8-10 weeks continue fluconazole 6-12 months and serial LP. The patient shows significant improvement.

Keywords: meningitis, cryptococcus, immunocompetent, pregnant

NEUROPSYCHIATRIC SYSTEMIC LUPUS ERYTHEMATOSUS: CORELATION BETWEEN NEUROIMAGING AND NEUROPSYCHIATRIC MANIFESTATION AT DR. KARIADI HOSPITAL FROM 2020-2022

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Introduction: Neuropsychiatric systemic lupus erythematous (NPSLE) is characterised by a wide range of clinical manifestations and remains a diagnostic challenge for clinicians. MRI is the gold standard neuroimaging technique for identifying structural abnormalities related to NPSLE. The aims of this work was to investigate the possible correlation between neuroimaging findings and the clinical characteristic of these patients.

Methods: This is a cross sectional study on NPSLE patients at Dr. Kariadi Hospital from Januari 2020-December 2022. Data was taken from the medical record, that include demography, length of stay, NPSLE manifestations, SLE Disease Activity Index (SLEDAI) score, outcome, and imaging result. The analysis using SPSS with Chi-Square.

Results: There are 30 NPSLE patients, consists of 6 male (20%) and 24 female (80%), the average age is 28 year old./. There are 8 NPSLE manifestations in this study, which consists of headache, cerebrovascular disease, seizure, cognitive disfunction, anxiety disorder, mood disorder, psychosis, and acute confusional state, headache is the most frequent finding (43%). 22 patients (73.3%) have abnormality in their Head MRI/CT, being cerebral infarction become the most frequent finding (36,7%). The most frequent SLEDAI Score is high activity (93.3%). 8 patients was dead (27%) during hospitalized. There is no correlation between imaging result with SLEDAI score and the outcome (p > 0,05). There is a correlation between infarct with headache and cognitive disfunction (p = 0,040). There is a correlation between normal brain imaging finding with cerebrovascular disease (p=0,022). There is a correlation between intracerebral hemorrhage with cerebrovascular disease (p = 0,030).

Discussion: The result of brain imaging on NPSLE patient has a correlation with the clinical manifestation.

Keywords: Neuropsychiatric systemic lupus erythematosus, Magnetic resonance, Computed tomography

RECURRENT HYPOGLYCEMIA IN EPILEPTIC PATIENTS TREATED WITH PHENYTOIN AND VALPROIC ACID.

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Introduction: The relationship between hypoglycemia and seizures is very complex and little discussed. Recurrent hypoglycemia may predispose to an epileptogenic focus. Valproic acid can induce hypoglycemia in the range of 0.1% to 1.7%.

Case Report: A 23-year-old man had general tonic-clonic seizures accompanied by foaming at the mouth for 10 minutes, the frequency was once, and, when he was in the emergency room, he found a GDA of 38 mg/dl, the patient woke up immediately after getting a bolus of 40% dextrose, previously he often had seizures, especially when he woke up and awakened by being given sugar water by the patient's family. Treatment history, the patient took 100 mg of phenytoin in the morning and 200 mg at night; valproic acid 500 mg twice daily. Previously, the patient's blood sugar was around 50-70 mg/dl during control at the hospital. History of seizures for the first time at the age of 8 years which was thought to have been due to fever and not receiving anti-epileptic drugs. History of epilepsy diagnosed at the age of 10 years and routine consumption of valproic acid 500 mg/day with similar seizure models. History of diabetes was denied. On Electroencephalography (EEG) examination at the age of 10 years was normal, MRI of the head at the age of 13 years did not find hippocampal atrophy, only a mild decrease in NAA, and mild diffuse abnormal EEG in the frontotemporal area. Symptoms improved by discontinuing valproic acid and increasing the dose of phenytoin.

Discussion: there are several suspected mechanisms of valproic acid inducing hypoglycemia, including; insulin release, decreased clearance, and interference with glucose metabolism.

Keywords: hypoglycemia, epilepsy, valproic acid, phenytoin

CLINICAL IMPROVEMENT IN SPINOCEREBELLAR ATAXIA PATIENT FOLLOWING REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION TREATMENT

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Introduction: Spinocerebellar ataxia (SCA) is a group of genetic diseases characterized by progressive degeneration of the cerebellum. SCA is a rare condition with a global prevalence estimated between 1 and 6 per 100,000 people. SCA can cause movement coordination and balance problems, manifesting as cerebellar ataxia and tremor. Currently, there is no definitive therapy for SCA, and treatment is only symptomatic with limited clinical improvement. This report aims to describe the clinical improvement observed in a patient with SCA after underwent repetitive transcranial magnetic stimulation (rTMS) therapy.

Case Report: A 21-year-old female presented with chief complaints of difficulty walking, balance disturbance, and tremor. Physical examination revealed abnormality in tandem gait and kinetic tremor supporting the diagnosis of SCA. The patient received 10 sessions rTMS therapy with stimulation targeted at the cerebellum. After underwent rTMS therapy, the patient reported significant improvement in walking ability, balance and hand tremor that supported by decrement of SARA score and better Archimedean spiral drawing.

Discussion: The clinical improvement observed in this patient after rTMS therapy suggests that rTMS has potential benefit as an effective therapeutic approach in managing SCA symptoms. rTMS can induce neuroplasticity and influence brain activity in various neurological conditions. It has also been reported that rTMS applied to the cerebellum can modulate cerebellar excitability through the activation of Purkinje cells, which have inhibitory effects on the dentato-thalamo-cortical pathway, thereby indirectly inhibiting the M1 hyperconnectivity underlying cerebellar ataxia symptom.

Keywords: Spinocerebellar Ataxia, repetitive Transcranial Magnetic Stimulation

DEGREE OF STENOSIS IN ISCHAEMIC STROKE PATIENT WITH DIGITAL SUBSTRACTION ANGIOGRAPHY AT KARIADI HOSPITAL

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Background: Stroke is a collection of symptoms due to acute disturbance of brain function (neurological deficit) both focal and global that suddenly lasts more than 24 hours, caused by reduced or lost blood flow. In Central Java stroke is a non-communicable disease which ranks third with a prevalence of 3.8%. The diagnosis of stroke is one of them with Digital Substraction Angiography (DSA) which will find stenosis in the blood vessels of the brain.

Methods: The research method used was descriptive qualitative, as many as 364 stroke infarction patients at Dr. Kariadi Semarang in 2021 to 2022, a total of 224 patients underwent DSA. From the angiography, the degree of stenosis was assessed into 3 degrees, namely mild, moderate and severe.

Results: Among 224 eligible imaging study patients, 126 (mean age, 73.8 [SD 9.5 years]; 57.4% male) patients met the selection criteria among the 140 never-received patients. intervention. The mean follow-up in this cohort was 4.1 years (SD 3.6 years). Before any intervention, there were 133 ipsilateral strokes with a mean annual stroke rate of 0.9% (95% confidence interval [CI], 0.7%-1.2%). There were 52 patients with mild stenosis, 41 patients with moderate stenosis and 68 patients with severe stenosis.

Conclusions: The prevalence of internal carotid artery stenosis appears to be lower in patients with a transient ischemic attack or recent ischemic stroke than suggested in previous studies. We found that higher age, male sex, white ethnicity, retinal ischemia and current smoking were important risk factors for symptomatic internal carotid artery stenosis.

Keywords: Digital substraction angiography, carotid stenosis, ischemic stroke

ACUTE SYMPTOMATIC SEIZURE IN STROKE PATIENTS: A DESCRIPTIVE STUDY IN SARDJITO HOSPITAL, YOGYAKARTA, INDONESIA

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Introduction: Seizure is one of the common manifestations of acute stroke. Stroke patients who are presented with seizure need a through investigations to search for the seizure etiology. The incidence of seizure in either ischemic or hemorrhagic patients in Yogyakarta has not been studied. The purpose of this study is presenting the incidence of seizure among stroke patients in Sardjito Hospital within the last five years.

Methods: The subjects of this cross- sectional study were all stroke cases with seizure as the first symptomatic manifestations during acute phase treatment in Stroke Unit, Sardjito General Hospital, Yogyakarta, Indonesia. The data were recorded from e-medical records between January 2015 to January 2020. Patients were classified into acute cerebral infaction, intracerebral hemorrhage, and subarachnoid hemorrhage. The seizure characteristic was described between groups.

Results: There are 318 stroke patients with acute symptomatic seizure were included as the subjects of the study. The highest incidence of acute symptomatic seizure was cerebral infarction, followed by intracerebral hemorrhage and sub arachnoid hemorrhage accounted for 199, 94 and 25 patients respectively. In population of cerebral infarction patient, status epilepticus occurred in 14% population, this number is relatively lower than ICH and SAH which showed 27 and 20 percent respectively. The highest mortality rate was in SAH patient with status epilepticus, among five patients only 1 survive during hospitalization. Average length of stay was 11 days overall. Interestingly there was 36 children among total 94 patient with cerebral hemorrhage, with mean age 60 months.

Conclusion: The number of stroke complication with seizure was more prevalent in cerebral infarction, although it may less likely to develop status epilepticus in comparison to ICH dan SAH groups. Nevertheless, paediatric population with ICH may become a risk of developing status epilepticus.

CERVICAL TUBERCULOSIS SPONDYLITIS

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Background: Cervical tuberculous spondylitis is a disease that is quite rare, The prevalence is about 2-3% of all cases of tuberculous spondylitis. The clinical picture is highly variable, ranging from mild and nonspecific symptoms to severe neurologic complications.

Case Report: A 62-year-old man came with complaints of weakness in all four limbs which had gotten worse in the last 10 days, preceded by neck pain that radiated to the shoulders and arms since the previous 3 months. The pain was initially felt as a limitation of neck movement when turning left and right and lowering the head. The pain gets worse with movement and decreases with rest. The patient has lost weight in the last 1 month. There was no history of cough or chest pain. Neurologic examination showed tetraparesis of the UMN type, Hoffman Tromner in both upper extremities, and positive Babinski's sign in both lower extremities. The cervical radiograph shows destruction at C2, C3, and C4 levels. Cervical MRI shows destruction of bodies C3, C4, and C5 with compression fractures of C3-4 accompanied by a paravertebral mass/abscess with posterior compression. Laboratory

Results: found an increase in the ESR and chest X-ray within normal limits.
Discussion: Tuberculous spondylitis is the most common form of bone tuberculosis. Spinal involvement is usually the result of hematogenous spread of extraspinal lesions. The diagnosis is based on the history, clinical picture, and radiological picture. Treatment consists of administering a 4-drug antituberculosis drug regimen usually including INH, rifampin, pyrazinamide, and ethambutol for 2 weeks before surgical therapy.

Keywords: TB spondylitis, cervical, spinal tuberculosis

IMPENDING RUPTURE ABDOMINAL AORTIC ANEURYSM WITH HAEMORRHAGIC STROKE

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Introduction: The most common cause of haemorrhagic stroke is hypertension. Hypertension is also risk factor for many other comorbid diseases, one of which is abdominal aortic aneurysm (AAA).

Case Report: A 68-year-old man, was referred from previous hospital with acute haemorrhagic stroke and AAA. The patient previously complained of left-sided headache and pulsating mass on left abdomen with tenderness. On physical examination, there is a palpable pulsatile mass on left lower quadrant to umbilicus with size 8x3 cm, motoric aphasia, right central facial and hypoglossal nerve palsy, and right hemiplegia. Head CT scan showed 35 cc of left temporoparietal lobe hemorrhage, edema and 8 mm subfalcine herniation. Abdominal CT scan with contrast showed impending rupture of infrarenal AAA, diameter 8 cm. Open surgery was performed after acute phase of stroke, with the use of heparin intraoperative 10,000 units maximum, and clopidogrel 75 mg postoperatively. Patient was discharged with controlled hypertension and improvement of neurological deficit.

Discussion: AAA repair surgery in haemorrhagic stroke patients requires consideration and collaboration between multidiscipline, neurology, vascular surgery and anesthesiology. If possible, operation should be done after acute phase of stroke, with close observation to avoid triggering factors and signs of AAA rupture. Operation is performed by open surgery which requires collaboration between the operator and anesthesiologist to regulate blood pressure and ensure adequate tissue perfusion, especially to the brain. Postoperative management also considered the benefit of antiplatelet for graft thrombosis prevention and risk of recurrent intracranial bleeding.

Keywords: Acute haemorrhagic stroke, abdominal aortic aneurysm, hypertension

THE RELATIONSHIP BETWEEN SERUM ALBUMIN LEVELS AND LENGHT OF HOSPITAL STAY IN ISCHEMIC STROKE PATIENTS AT DR. SARDJITO, YOGYAKARTA

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Introduction: Deterioration of functional status and morbidity in patients with acute ischemic stroke is associated with low serum albumin levels. This has consequences for the patient's length of stay in the hospital. This study aims to determine the relationship between albumin and length of stay in acute ischemic stroke patients.

Methods: This study used an analytic study with a cross-sectional design. The research subjects were acute ischemic stroke patients who were treated at the Stroke Unit of RSUP dr. Sardjito, Yogyakarta from 1 January 2022 to 31 December 2022 with an onset of less than 24 hours which met the inclusion criteria. Serum albumin levels were measured within the first 24 hours of hospitalization. Serum albumin levels, complications, risk factors, and the degree of stroke are the variables analyzed by the patient's length of stay. The relationship between variables was tested using the Chi-square test. result are statistically significant if the p value <0.05.

Results: In the 159 subjects evaluated, the mean age was 61 years (61 ± 12.1), and the mean serum albumin level was 4.1 mg/dL (4.1 ± .2.80). There was a significant relationship between serum albumin level and length of stay p=0.013 (p<0.05, OR=0.36). Other variables that significantly affected length of stay were history of heart disease, smoking, stroke (p<0.05, OR=3.25), degree of stroke (P<0.05, OR=1.97), and complications (pneumonia and decubitus ulcer) (p<0.05, OR=3.88). Multivariate analysis which proved to have an independent effect on length of stay were albumin, smoking and stroke (p <0.05).

Discussion: This study shows a significant relationship between serum albumin levels, risk factors, stroke severity and complications on patient length of stay. Low serum albumin levels can increase the length of stay of ischemic stroke patients.

Keywords: Serum albumin, stroke infarction, length of stay

SUSPECT CEREBRAL SINOUS VENOUS THROMBOSIS IN A MALE PATIENT

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Introduction: Cerebral sinous venous thrombosis is thrombosis vein of the brain and dural sinuses and is a rare case of stroke, but has a high mortality rate.

Case Report: A 67 years old man was referred to the ER with symptom of weakness in the right upper and lower extremity, slurred speech, once seizure at home and headache. The motor strenght of the dextra limb was 4/3 while the left limb was 5/5. At 5 years ago, the patient had an infarct stroke. History of hypertension and smoking was recognized by the patient. From the Unenhanced CT of the brain, there was to be a slight hyperdense lesion in the dextra transverse sinous with the impression of Cerebral Venous Thrombosis in the Dextra Transverse Sinous. Prior to being reffered, the patient received therapy with mannitol, heparin, mecobalamin, citicoline, phenytoin, candesartan, atorvastatin, glaucon, and warfarin. While on the ward, the patient was suplemented with oral anticoagulants.

Discussion: Symptoms that appear in cerebral sinous venous thrombosis resemble strokes in general so that underdiagnosis can occur. The exact mechanism is uncertain, but there are two mechanisms associated with cerebral venous sinus thrombosis. Administration of anticoagulants in the acute phase provides a significant effect.

Keywords: Cerebral sinous venous thrombosis, stroke, anticoagulant

RELATIONSHIP BETWEEN DISSEMINATED INTRAVASCULAR COAGULATION (DIC) SCORING SYSTEM TO OUTCOME OF MENINGITIS PATIENTS IN ICU DR. KARIADI HOSPITAL

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Introduction: Meningitis is an inflammation of the protective membranes that cover the brain and spinal cord. One of the complications of meningitis is disseminated intravascular coagulation (DIC). The inflammatory response promotes the formation and deposition of fibrin through several mechanisms that work simultaneously which include regulation of procoagulant and anticoagulant pathways, suppression of fibrinolysis which can lead to impaired tissue malcirculation and subsequent organ dysfunction.

Methods: This research is a descriptive analytic study with a retrospective cross-sectional design. Intake of research subjects was carried out at Dr.

Kariadi Hospital, Semarang consecutively. Subjects consisted of 25 meningitis patients. The DIC score data was obtained from scoring the patient's laboratory.

Results: The relationship between DIC scores and patient output was analyzed using the Fisher's exact test. The mean age of meningitis patients was 35 years. From this study concluded that there was a significant relationship between DIC scores and patient mortality (p value 0.0055; Fisher's Exact Test). Patient with a DIC prediction score ≥ 5 has higher mortality rate compared to patients with a DIC prediction score <5. The mean age of meningitis patients was 36 years. Patients who had a DIC score of more than equal to 5 had 0.048 times greater chance of dying than patients with DIC score <5 (p valur 0,0055; Fisher's Exact Test).

Discussion: Poor laboratory may be related to the involvement of inflammatory factors that can cause coagulation, this is directly related to clinical. A higher DIC score indicates a worse reduction in patient outcome.

Keywords: Meningitis, dissaminated intravascular coagulation, sepsis

PILOT STUDY: FACTORS AFFECTING THE QUALITY OF SLEEP IN EPILEPSY PATIENTS

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Introduction: Sleep disorders was common in epilepsy patient. This study aims to describe the quality of sleep in epilepsy patient.

Methods: A descriptive observational study was conducted on 20 epilepsy patients aged >18 years who could communicate effectively, not using sleep medication, and no history of lung or heart diseases in the neurology clinic of RSUP Prof Kandou Manado. Sociodemographic characteristics, clinical status, PSQI, GAD-7, and NDDI-E scores were obtained from questionnaire. Data from questionnaire was processed using SPSS.

Results: The proportion of subjects with poor sleep quality was 45%. The majority of subjects were male (78%), with a mean BMI of 23.7 kg/m. Almost all subjects (77%) took naps, 55% consume caffein ,nocturnal seizure in 33% and monotherapy in 100% subjects. GAD-7 score ≥ 5 (33%), NDDI-E score ≥ 11 (33%). The majority of subjects (67%) were taking phenytoin.

Discussion: Almost half of the subject having low quality of sleep. The quality of sleep is affected by both internal and external factors. The internal factors include epilepsy, anxiety, depression, body mass index, while the external factor include caffein, medication, naps. Further study is needed to determine the predictor of low quality of sleep in epilepsy patients.

Keywords: Sleep Disorders, Epilepsy, PSQI

THE OVERVIEW OF SLEEP QUALITY IN PATIENT WITH EPILEPSY AT NEUROLOGY POLYCLINIC OF DR MOHAMMAD HOESIN HOSPITAL PALEMBANG

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Backgroud: Epilepsy is a chronic disease that has an impact on patient with epilepsi (PWE). Around 42.7% - 72% PWE was reported having poor sleep quality. The overview included prevalence and factors related to sleep quality of PWE in Indonesia especially in Palembang was unkown.

Method: We perfomed a cross sectional study of PWE, recruited consecutively from March until August 2022. Sosiodemographic characteristic (sex, age and educational level), clinical characteristic (type and frequency of seizure), antiseizure medication (ASM) characteristic (amount and type of ASM) and sleep quality was recorded. Sleep quality was assessed by using Pittsburgh Sleep Quality Index (PSQI). Data was analyzed using chi square and independent T test.

Result: Twentynine (47.5%) participant were found to have poor sleep quality. Poor sleep quality was more common in women, aged > 45 years old, low educational level (elementary school), focal seizure, seizure frequency > 1x/month, having polytheraphy ASM, using valproic acid (monotherapy and combined theraphy). Seizure frequency > 1x/month and polytheraphy ASM have significant relationship to sleep quality of patient with epilepsy statistically (p< 0.005).

Discussion: Almost of half PWE had poor sleep quality. Seizure frequency > 1x/ months and ASM polytheraphy related to sleep quality of PWE. Frequent seizure showed epileptiform discharge in brain that caused sleep fragmentation. More than one type of ASM maked effect of each drug became higher for brain that disrupted sleep.

Keywords: sleep quality, PSQI, epilepsy

REHABILITATION OF A 39-YEAR-OLD FEMALE WITH STROKE NON HEMORAGIC HEART VALVE ANOMALY USING RTMS (REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION)

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Background: Stroke is the second most common cause of death and the third most common cause of disability in the world. Acute brain ischemia resulting from stroke leads to changes in several neural networks and associated cortico-subcortical excitability. Modulation of this process through modern noninvasive brain stimulation techniques, namely repetitive transcranial magnetic stimulation (rTMS), has been proposed as a feasible intervention that can accelerate post-stroke clinical recovery and functional independence.

Case Report: A 39-year-old woman has been reported with complaints of weakness in the left half of the body accompanied by numbness 9 months ago. The patient has a history of cardiomegaly and was diagnosed with SNH. Physical examination obtained modifeid Rankin Score 4 and could not walk without assistance. The

Results: of the CT scan showed old cerebral infarction in the dextra internal capsule to the dextra corona radiata. Transesophageal echocardiography shows pulmonary stenosis infundibular, mild mitral regurgitation, and mild Tricuspid regurgitation. The patient received Acetylsalicylic Acid 1x80 mg, bisoprolol 1x2.5 mg, and mecobalamin 2x500mcg. The rTMS therapy was performed with the HB510B stimulation device machine, 14 times with high frequency. After undergoing 14x therapy the patient was able to walk independently with the help of a tripod and complaints of numbness began to decrease. An increase in the MRS scale was obtained from 4 to 3 within 17 days.

Discusion: Transcranial magnetic stimulation (TMS) is a non-invasive tool that has been used to investigate changes in brain plasticity resulting from stroke and as a therapeutic modality to safely improve motor function. TMS can be used to create magnetic field pulses, which in turn can induce electrical activity in focal areas of the brain. The TMS of the primary motor cortex (M1) activates corticospinal neurons transsynaptically, eliciting bursts of neuronal output in the form of motor evoked potentials (MEP).

Keywords: rTMS (repetitive Transcranial Magnetic Stimulation), Stroke

CHRONIC INSOMNIA IN POST AUTOIMMUNE ENCEPHALITIS PATIENT

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Background: Sleep disorder in autoimmune encephalitis, is a new category of disease in nerve cell auto-antibody disease demonstrating a widely varied spectrum of neurological deficits. Sleep disturbances are still under-reported in autoimmune encephalitis patients. We reported a case of insomnia in post autoimmune encephalitis patient.

Case Report: An 18-year-old female, with chronic onset sleep latency disorder, woke up early and felt unfit. The patient had a history of seizures and autoimmune encephalitis a years ago with sequelae of speech disturbance, facial palsy and behavioral disorders. Sleep disturbance (PSQI 12, ESS 2, ISI 13) and cognitive impairment (MocaINA 15) were found on examination. Volumetric brain MRI showed cerebral atrophy with a brain volume of 909 cc. The patient was hospitalized for 3 days and given counseling therapy, cognitive stimulation, memantine, donepezil, piracetam, clobazam, antipsychotic aripiprazole and along with immunotherapy imuran. Complaints of sleep disturbance improved (PSQI 8, ESS 2, ISI 6).

Discussion: Insomnia in autoimmune encephalitis patients is often undetected with considerable negative effects on the patient's quality of life. NMDAR antagonists can inhibit sleep latency resulting in memory impairment, behavioral disorders, behavioral psychosis and lowering seizure thresholds. Proper diagnosis and therapy can improve a patient's quality of life.

Keywords: Autoimmune, Case report, Encephalitis, Insomnia

SPONTANEOUS RUPTURED BRAIN ARTERIOVENOUS MALFORMATION IN ADOLESCENT PATIENT

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Introduction: Brain arteriovenous malformations (bAVMs) are one of the most common causes of intracranial hemorrhage in the adolescent. AVMs are relatively rare as congenital intracranial abnormalities but these lesions are becoming frequently reported. AVMs generally has no any symptoms and only recognized after intracranial or subarachnoid hemorrhage occurs. This disease usually gives symptoms of headaches and seizures without cause. However, along with the development of medical technology, arteriovenous malformation lesions are common.

Case Report: This 24 year old woman in unconscious with right hemiparesis and atypical chronic progressive headache with vas 8-9, without aura. Previously the patient had a seizure with a duration of 5 minutes, rigid all over body. The patient had no prior history of trauma, infection, hypertension, diabetes or stroke. GCS E2M5Vaphasia with motoric aphasia, motoric and sensory deficits in the form of right hemiparesis, paresis of N. VII, increased physiological reflexes, and positive Babinsky reflex. CT-Scan Angiography imaging of the head showed intraparenchymal bleeding in the left temporoparietal lobe with perifocal edema, AVM in the left temporalis region with a nidus with a feeding artery from the left MCA and a draining vein from the left transverse sinus. The patient was referred for further vascular intervention.

Discussion: AVMs was previously considered a congenital malformation with risk of bleeding in anomalous tissue or nidus occurring within the brain parenchyma. Rupture of the artery and discharge into the subarachnoid space causes a sudden increase in ICP, cerebral vascular vasospasm resulting in global and focal brain dysfunction. In addition, with the increasing use of non-invasive intracranial imaging, AVMs can be detected directly.

Keywords: brain; arteriovenous malformation (AVM); adolescent; spontaneous

AN EFFECT OF YOUNG COCONUT WATER ON HBA1C AND IL-6 LEVELS IN METABOLIC SYNDROME RATS; RISK OF STROKE AND CEREBROVASCULAR DISEASE

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Metabolic syndrome (MS) is about three times more common in diabetes, the global prevalence can be estimated at about a quarter of the world's population affected by the metabolic syndrome. MS is a collection of symptoms of obesity, dyslipidemia, hypertension and hyperglycemia. MS increase the risk of cerebrovascular disease and strokes; non-hemorrhagic strokes and hemorrhagic strokes. MS can be associated with inflammation which is characterized by abnormal production of proinflammatory cytokines, associated with oxidative stress, decreased antioxidants and increased ROS. The purpose of this study was to prove that young coconut water can affect HbA1C and IL-6 levels in MS rats. The research design used was an experimental design with a posttest control group design. Twenty-four male Wistar rats used in this study were randomly divided into 4 groups, namely group K1 (control); K2 (MS); K3 (MS+ young coconut water 8mL/200grBB); K4 (MS+metformin 45mg/KgBB). Induction of MS rats were given food high in fat and fructose, folic acid for 14 days and Streptozotocin (STZ) 65 mg/kg BW and Nicotinamide 230 mg/kg BW for 3 days. Data on IL-6 levels were analyzed using the One Way Anova test while HbA1C levels were analyzed using Kruskal Wallis. The Results: showed the average levels of HbA1C and IL-6 K2 increased when compared to K1, in K3 it decreased compared to K2 as well as in K4. The Results: of the analysis obtained p: 0.000 <0.05. Young coconut water has been shown to have an effect on HbA1C and IL-6 levels in MS rats.

Keywords: Coconut water, metabolic syndrome, HbA1C levels; IL-6 levels

EFFECTIVENESS OF PULSED RADIOFREQUENCY AND STEROID INJECTION ON CHRONIC CERVICAL RADICULOPATHY PATIENT BY ULTRASOUND-GUIDED

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Introduction: Cervical radiculopathy (CR) is characterized by neurological dysfunction due to compression and inflammation of the spinal nerves or nerve roots. Thus clinically presented neck and/or arm pain, numbness, weakness, also physiological reflexes reduction.

Conservative management brings improvement among 43 % of patients in a few months, 29 % suffered mild symptoms, and 27 % worse pain. Surgical treatment might reach 80-90 % clinical improvement, even though the epidural steroid injection might reach 75 % of improvement. Both need careful consideration according to neuroaxial penetration. The Pulsed Radiofrequency (PRF) might be more effective than conservatively, and safe under ultrasound (US) guidance. Several studies have reported the effectiveness of PRF on the dorsal root ganglion (DRG) in alleviating refractory cervical radicular pain.

Case Report: A female patient, 57 y.o, who suffered chronic cervical radicular pain on the right for more than 3 months was given gabapentin 300 mg and paracetamol 600 mg/twice, also neurotrophic B1, B6, B12 once daily. The physiotherapy and bilateral dry needling on bilateral trapezius muscles was done with the Visual Analogue Scale (VAS) was 5/10. Patient's symptoms are arm and palm pain on the right side, she also felt fingers numbness. On physical examination there are C6.7 reduction of physiology reflex, positive Lhermitte sign, and trapezius muscles pain on palpation. Magnetic Resonance Imaging (MRI) observed retrospondylolisthesis C5, protrusion at C5-6, C6-7 causing canal stenosis and C5-6 bilateral foraminal stenosis. On Electromyogram (EMG) examination showed C6 acute denervation accompanied by radiculopathy. Patient refused surgery. The Pulsed Radiofrequency (PRF) procedure was done using Cosman G4 by ultrasound guidance, in which a 22 G curve-tip cannula was inserted extraforaminal between the spinal nerve and posterior tubercle of right C6.7. The sensory stimulation test provoke the dysesthesia or pain sensation at 0.4 Volts, then performed PRF with the temperature at 42 ˚C for 360 seconds followed by administration of 2 ml of a mixture of 5 mg dexamethason and 1 % lidocain. The Visual Analogue Scale (VAS) and pain/numbness spread was assessed before and 8 weeks posttreatment with improvement VAS 4/10, and pain/numbness reduction on the right.

Discussion: PRF treatment accompanied by steroid injection for chronic CR patients can reduce symptoms and increase patients's quality of life. One study have reported 63.3 % pain relief (pain relief of ≥ 50 %) 6 months after PRF. Further studies is needed to analyzing myofascial and canal stenosis involvement.

Keywords: cervical, radiculopathy, dorsal root ganglion, pulsed radiofrequency, steroid injection, chronic pain

RECURRENT STROKE MANIFESTATION IN YOUNG AGE RELATED TO HEMODYNAMIC STROKE CASES

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Introduction: Hemodynamic stroke is widely associated with the incidence of ischemic stroke caused by hypoperfusion. However, the gold standard to diagnose hemodynamic stroke is still debated. Many factors contribute to the hemodynamic causes of stroke, including changes in cerebropetal arteries and other systemic abnormalities. One of the causes is stenosis or occlusion of the main arteries of the head and neck which causes hemodynamic disturbances in the distal cerebral circulation.

Case Report: A 34-year-old man presented with recurrent left-sided weakness. Complaints of left-sided weakness were felt suddenly and improved less than 24 hours by itself 4 times a few days apart. Head MRI examination without contrast showed multiple lacunar infarcts in the subcortical right frontoparietal lobe with signs of right internal carotid artery occlusion on MRA. DSA (Digital Subtraction Angiography) examination supported tight stenosis of the right internal carotid artery terminus.

Transcranial Doppler examination revealed stenosis of the left middle cerebral artery and right siphon artery. Medicamentous management in this patient was given antiplatelet therapy and control of vascular risk factors gave good results.

Discussion: The manifestation of recurrent stroke in young age needs to consider hemodynamic factors that affect the consequences of arterial stenosis. In this case with recurrent stroke manifestations but complaints improved less than 24 hours due to good collaterals to the right anterior circulation.

Keywords: Ischemic stroke, hemodynamics, arterial stenosis

STROKE CHARACTERISTICS IN THE DEPARTMENT OF NEUROLOGY RSUP DR. MOHAMMAD HOESIN PALEMBANG, PERIOD 1 JANUARY 2017-31 DECEMBER 2021

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Introduction: Stroke is an acute focal or global functional brain disorder that lasts ≥24 hours, which causes disruption of cerebral blood flow. From the **Results:** of Riskesdas in 2007, 2013 and 2018, it was found that the prevalence of stroke in Indonesia is still high, namely 8.3‰, 12.1‰, 10.9‰. Research on the incidence of stroke in RSUP Dr. Mohammad Hoesin was last carried out more than 10 years ago, so this study was conducted to update data on the incidence and risk factors for stroke in RSUP Dr. Mohammad Hoesin.

Method: This research is an observational descriptive study using secondary data from medical records. The sample is a patient who is hospitalized with a stroke diagnosis and has complete data.

Results: 2102 complete medical record data were obtained. It was recorded that the highest proportion of strokes were ischemic strokes (69.8%) and dominated by the age group of 45-64 years (63.6%). The most common risk factor in this study was hypertension, with 79.5% for ischemic stroke and 76.8% for hemorrhagic stroke. This is in line with World Stroke Organization data in 2022 where the highest risk factor is hypertension (56%). Other stroke risk factors are hyperfibrinogenemia (46.5%), diabetes mellitus (31.4%), previous history of TIA/Stroke (32.1%), dyslipidemia (30.6%), heart disease (26.7%), family history of TIA/stroke (19.4%) and smoking (14.6%). In this study, we also found 31 patients of ischemic stroke and 24 patients of hemorrhagic stroke in COVID 19 patients.

Discussion: The incidence of stroke in RSUP Dr. Mohammad Hoesin is still high, with the most stroke risk factor is hypertension. It is hoped by controlling hypertension, the incidence of stroke can be reduced.

Keywords: Ischemic stroke, risk factors

EFFICACY OF TEMOZOLOMIDE AND INTERFERON COMPARED TO TEMOZOLOMIDE ALONE IN GLIOBLASTOMA: SYSTEMATIC REVIEW AND META ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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Introduction: Since 2005, temozolomide has been approved by FDA as a chemotherapy to treat glioblastoma. To improve its antitumor activity, temozolomide is used in combination with interferon. This study aimed to investigate the efficacy of the combination of temozolomide and interferon in glioblastoma.

Methods: A systematic literature search was conducted using four different databases (PubMed, Embase, Scopus, and Cochrane Library), and trace back literature. Eligible randomized controlled trial (RCT) studies evaluating the efficacy of temozolomide with interferon in human glioblastoma were included. Biases were assessed using the Risk of Bias 2 tool. Fixed effect meta-analysis was conducted to investigate overall median overall survival (OS) and median progression-free survival (PFS).

Result: Three RCTs were included. Two RCTs studies, comprising 230 newly diagnosed glioblastoma patients, were further analyzed by using a fixed effect model. Overall median OS was 3.07 months (95% CI -0.80, 6.93 months; Q = 0.04, I2 = 0.00, p = 0.12). Overall median PFS was -1.05 months (95% CI -2.92, 0.83 months; Q = 0.15, I2 = 0.00, p = 0.27).

Discusion: Previous in vitro and in vivo studies showed that a combination of temozolomide and interferon enhanced anti-tumor effects, reduced tumor size, and improved survival rates. In our meta-analysis, overall median OS was slightly prolonged in glioblastoma patients treated with a combination of temozolomide and interferon although it was not statistically significant. Future studies should include more RCTs with larger sample sizes and assess the role of combination therapy in recurrent glioblastoma.

Keywords: temozolomide, interferon, glioblastoma, efficacy

SUCCESSFUL TREATMENT OF MENINGOENCEPHALITIS TUBERCULOSIS IN SYSTEMIC LUPUS ERYTHEMATOSUS PATIEN

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Introduction: Central nervous system tuberculosis (TB) is the most devastating manifestation of TB. Systemic lupus erythematosus (SLE) is a chronic inflammatory autoimmune disease that affects various organs. In areas where TB is endemic, the incidence of TB among SLE patients was reported to be about 4 to 13.7%. Another study reported that the prevalence of TBM in SLE patients was 0.57-1.1%. Their risk factors for infection include immune system irregularities due to SLE and immunosuppressive therapy. In another study mention that 20% patient with Meningitis TB died. Therefore, early diagnoses and treatment are important.

Case Report: In this article, we present a young woman who had been diagnosed with class III lupus nephritis who presented with headaches, fever, vomiting, nuchal rigidity, ptosis, hemiparesis. The diagnosis of tuberculous meningoencephalitis was confirmed by cerebrospinal fluid examination and typical findings for tuberculous meningoencephalitis on magnetic resonance imaging. Patient given dexamethasone, rifampicin, isoniazid, pyrazinamide, ethambutol. Currently the patient is undergoing treatment for 4 months and has experienced significant improvement.

Discussion: This case is presented to remind us that tuberculous meningoencephalitis should be included in the differential diagnosis of central nervous system pathologies in patients diagnosed with SLE. This case is reported to highlight the challenges in diagnosing Mycobacterium tuberculosis infection in an immunocompromised state. Clinicians must maintain a high index of suspicion of Mycobacterium tuberculosis infection in such patients who present with nonspecific or unexplainable symptoms. In this case report showed a significant improvement after administration of therapy.

Keywords: Mycobacterium tuberculosis, lupus nephritis, immunosuppression

STROKE IN YOUNG WOMEN WITH SYSTEMIC LUPUS ERYTHEMATOSUS (SLE)

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Introduction: Stroke is one of the clinical manifestations that often occurs in patients with systemic lupus erythematosus (SLE), Systemic Lupus Erythematosus (SLE) is a chronic autoimmune inflammatory disease that often occurs in young women. Organ damage is mediated by immune complexes and autoantibodies. The diagnosis of SLE is based on criteria from the American College of Rheumatology, the diagnosis is made if ≥4 of 11 criteria are found.

Case Report: 21-year-old woman, admitted from the emergency room, with initial complaints of abdominal pain, weakness and fever. History of headaches, seizures, high blood pressure, use of psychotropic drugs, consumption of alcohol was denied. A rash appears on the forehead, body, mouth and joint pain, weakness all over the body, decreased consciousness on the 3rd day of treatment at the hospital. The patient experienced a decrease in consciousness and weakness of the limbs on the 3rd day of treatment. Physical examination found mouth ulcers, red rashes on the body and extremities.

Results: Blood examination Results Hemoglobin 5.1 g%, platelets 12,000/mm3, EKG Sinus tachycardia, Head CT acute infarct in the left thalamus and right frontal white matter. The patient was diagnosed with SLE and non- hemorrhagic stroke. Treated with 1x40 mg dexamethasone injection, 1x1 gram ceftriaxone injection, 1x 500 mg mecobalamin injection, citicolin injection 2x 500 mg, and 4 PRC transfusions.

Discussion: Stroke is one of the clinical manifestations that often occurs in patients with systemic lupus erythematosus (SLE), in this case the diagnosis of SLE was made based on the criteria of the American College of Rheumatology, Stroke in patients with suspected SLE in young women is a manifestation that must be watched out for, needed comprehensive treatment, in order to reduce morbidity and mortality.

Keywords: Systemic Lupus Erythematosus, young women, stroke

MINIMALLY INVASIVE PROCEDURE IN HODGKIN LYMPHOMA WITH CANCER PAIN IN KARIADI GENERAL HOSPITAL

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Introduction: Pain is one the most frequent and debilitating problem in cancer patient. The prevalence of cancer pain was 39.3% in post curative treatment, 55% during chemotherapy, 66,4% in late and terminal stage patients. It was also reported in 38 % patient with cancer pain that the severity was moderate to severe in degree with numerical rating scale score (NRS)≥5. Despite the management of cancer pain has been vastly developed, the results: are still unsatisfying.

Case Report: Woman aged 38 y.o complained from lower back to the back of the thigh, inner thigh and perineal area. The pain was like burning sensation, that arise spontaneously and when being touched by hand or garments, and when she was sitting and walking. Two years ago, she was diagnosed with Hodgkin lymphoma. Sensory examination was dysesthesia and allodynia from lower back to lower limb. The whole abdomen MRI result was multiple pelvic organ metastasis and multiple lymphadenopathies at abdominal-pelvic region, the whole-spine MRI result was multiple spinal metastasis. She had received superior hypogastric plexus radiofrequency ablation, inferior hypogastric block and intra-epidural steroid injection with satisfying result (NRS was diminished from 4-5 to 2).

Discussion: Pelvic organ metastasis in cancer patient often causes pain that arising from lower back that refer to lower limb due to over-reactivity sensory afferent system. Minimally invasive procedure has been integrated into 4th WHO pain-ladder. Superior hypogastric plexus block with or without RFA, inferior hypogastric block and intra- epidural steroid injection are some choices of procedures for pain cancer.

Keywords: Minimal invasive, Cancer pain, Hodgkin lymphoma

INTRACRANIAL VASCULAR ATTACKS AS A CLINICAL MANIFESTATION OF POLYCYTHEMIA VERA

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Introduction: Polycythemia vera is a myeloproliferative disorder characterized by an increase in erythrocytes in the blood. Thrombosis and bleeding can be early manifestations of polycythemia vera. In intracranial involvement, the prevalence of bleeding cases is less than thrombosis. Intracranial hemorrhage in polycythemia vera is a rarely reported case. In this case series, we will report both of that diseases.

Cases: Case 1 A 39-year-old woman was brought to the emergency due to sudden weakness of the right side of her body since 4 hours before admission. There was no previous history of other diseases. On physical examination, blood pressure was 180/100 mmHg (all others within normal limits), motor strength of right arm and right leg 2, paresis of N. VII, XII centrally. Laboratory examination obtained Hb 23.6 g/dl, Ht 73%, and erythrocytes 8.54. Head CT scan without contrast showed intracranial hemorrhage. Case 2 A 43-year-old woman was brought to the emergency due to sudden weakness of the left side of her body since 1 day before admission. There was no previous history of other diseases. On physical examination, blood pressure was 140/90 mmHg (others within normal limits), motor strength of the right arm and right leg was 3. Laboratory examination showed Hb 20.7 g/dl, Ht 67%, and erythrocytes 7,93. Head CT scan without contrast showed cerebral infarction. Peripheral blood smear shows panisocytosis (polycythemia), leukocytosis, thrombocytosis and eosinophilia. Bone marrow puncture shows increase hematopoiesis (erythropoiesis dan thrombopoiesis). Case 3 A 38- year-old woman was brought to the emergency for a seizure 2 hours before admission. On arrival at the emergency room, the patient had no seizures, but the left side of her body felt heavier than before. Vital signs were within normal limits, motor strength of the right arm and right leg was 3. Laboratory examination found Hb 19.5, Ht 65%, and erythrocytes 8.54. Head CT scan without contrast showed a cerebral infarction. Janus acrivated kinase (JAK)2 V617F mutation examination was positive.

Discussion: Polycythemia is a state of hemoglobin levels of more than 16.5 g/dL or hematocrit of more than 49% in men while in women, hemoglobin levels of more than 16.0 g/dL or hematocrit of more than 48%. Polycythemia is divided into primary polycythemia (vera) and secondary polycythemia. About 70% of the complications that occur in polycythemia are arterial thrombosis such as stroke. The occurrence of ischemic stroke is associated with increased blood viscosity and increased platelet activity in the arteries of the central nervous system. Hemorrhagic stroke is associated with platelet aggregation dysfunction and prolongation of activated partial prothrombin time (aPTT).

Keywords: myeloproliferative disorder, polycythemia vera, stroke

VISUAL HALLUCINATION IN ACUTE STROKE WITH RHEUMATIC HEART DISEASE

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Introduction: Disruption of any location of the visual pathway might impair the complex cerebral process of visual perception, resulting in visual hallucination (VH). Both stroke and rheumatic heart disease (RHD) might contribute to neuropsychiatric manifestations, such as VH. Although VH has been extensively studied in psychiatric diseases, it is rarely investigated as an acute stroke manifestation.

Case Report: A-31-years-old female presented to the emergency department with sudden left-sided weakness during activities. She also had pursed lips, slurred speech, and throbbing headaches. Brain CT shows a large infarct in the right temporoparietal lobe suggestive of cardioembolic stroke. The next day, the relatives described that she had VH of children and animals roaming the inpatient ward. She also had difficulty sleeping. Complaints persisted until the onset of the 5th day, after which VH began to decrease and did not complain again when the patient went home. The new patient was diagnosed with RHD about 1 week before the stroke and had a background of problems in the family before the stroke.

Discussion: Neuropsychiatric manifestations after a stroke can be associated with structural lesions in the brain or psychological conditions. The occurrence of VH in this patient supports the part of stroke manifestations related to the location of the lesion (cortical and subcortical topography). Not periodic as a seizure and does not also meet the diagnostic criteria of post-stroke depression. Clinicians need to identify any neuropsychiatric problems that arise from various aspects so that they can determine the optimal management of the patient.

Keywords: Visual hallucination, Acute Stroke, Rheumatic heart disease

CRYPTOCOCCAL MENINGITIS PRESENTING WITH A LACUNAR INFARCT IN AN HIV NEGATIVE INDIVIDUAL

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Introduction: Cryptococcal meningitis is the leading cause of fungal meningitis in human worldwide. HIV-negative patients with cryptococcal infection, half had CNS involvement and of these and 25% had received steroid therapy. One study found that the incidence of cerebral infarction secondary to cryptococcal meningitis in HIV-negative patients was roughly 4%. We report a rare case of cryptococcus meningitis with lacunar infract in an HIV negative.

Case Report: A-40-years old male came to emergency room with severe headaches and nausea persisting for the past three days. Severe headaches occur about 6 months. Patients has reported back pain and knee joint pain, both of which have been relieved by corticosteroid and herbal jamu. NRS examination showed a value 7. Neurological examination found neck stiffness. In the lumbar function, the liquid was colorless, and clear, with no clots, Polynuclear 0, Mononuclear 0, None and Pandy test positive, glucose 58. Negative HIV serology. CD4 showed 354. Ct scan without contrast showed lacunar infarct. The patient received treatment with dexamethasone, tramadol, fluconazole.

Discussion: In individuals without HIV infection, the presence of Cryptococcus organisms is typically lower, primarily localized in the meninges and large perivascular Virchow-Robin spaces. Cryptococcus can spread to the CNS hematogenous and penetrate the meningeal vessels, causing meningitis. Subsequent activation of inflammatory cells within the VRS leads to dilation of these spaces and deposition of inflammatory material to form mucinous pseudocysts. There are several theories to explain the possible underlying mechanism of vascular involvement.

Keywords: Meningitis Cryptococcus, HIV negative, Infarct

ISCHEMIC STROKE AFTER MYOCARDIAL INFARCTION

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Introduction: Ischemic stroke occurs due to blockage of blood vessels by thrombus or emboli, resulting in brain cells experiencing metabolic disorders. The reported global prevalence of 88% of all stroke events is an ischemic stroke. Ischemic stroke is one of the complications that can occur due to myocardial infarction through a heart embolism mechanism. The prevalence of ischemic stroke after myocardial infarction increases from 0.4% among patients aged 59-70 years to 1.6% among those aged >70 years.

Case Report: A 66-year-old man complained of weakness in his left limb 1 day before entering the hospital. Complaints were accompanied by slurred speech since 1 day before entering the hospital and his chest felt tight since 5 days before entering the hospital. The patient has a history of hypertension and cholesterol with controlled medication. The ECG Results showed sinus rhythm with ST elevation in leads V2-V4. Neurologic examination revealed weakness in the left extremity, laboratory findings showed increased LDL (223 mg/dL), CT scan of the head without contrast showed infarction of the right anterior crus internal capsule and right lentiform nucleus.

Discussion: Myocardial infarction can occur due to modifiable risk factors, which is this case are hypertension and dyslipidemia. Both of these risk factors lead to atherosclerosis which results in thickening and stiffness of the arteries, causing ischemia in the tissues and leading to myocardial infarction. Ischemic stroke that occurs after a myocardial infarction can be associated with an embolism. Most of the ischemic strokes that occur in patients with myocardial infarction are due to the embolization of the thrombus that forms in the left ventricle.

Keywords: Ischemic Stroke, Myocardial Infarction, Embolism

EFFECT OF RADIOFREQUENCY ABLATION (RFA) THERAPY ON NERVE CONDUCTION VELOCITY (NCV) MEASUREMENTS IN PATIENTS WITH CHRONIC PAIN

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Background: Radiofrequency Ablation (RFA) is a therapeutic approach used to treat chronic pain that does not respond to medication. RFA involves the application of heat energy to damage nerves responsible for transmitting or modulating pain signals.

Methods: A single-group pre-post test design was employed, involving patients who underwent RFA treatment between 2021 and 2022 for chronic pain resulting from Hernia Nucleus Pulposus (HNP) that did not improve with medication. NCV measurements were obtained using electromyography (EMG) to assess the speed and amplitude of nerve conduction.

Results: The study included a sample of 10 individuals, with an average age of 57 years, who underwent RFA therapy. The participants had a BMI of 24.6 kg/m2 and an average hospital stay of 3 days. Following RFA therapy, patients with chronic pain exhibited a decrease in nerve conduction velocity, although the reduction was not statistically significant ($p > 0.001$).

Conclusion: RFA therapy for patients with chronic pain resulted in a reduction in nerve conduction velocity (NCV), which may contribute to decreased pain sensation.

Keywords: Chronic Pain, Radiofrequency Ablation, Nerve Conduction Velocity (NCV)

COMPARISON OF THE EFFECTIVITY OF NEUROMUSCULAR TAPING, DRY NEEDLING AND MEDICAMENTOSA THERAPY IN LOW BACK PAIN AT LOMBOK BARAT GENERAL HOSPITAL

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Introduction: Prevalence of low back pain (LBP) is estimated 60-80% may occur as a result of the damage of nervous system and other structures such as bones, muscles and ligaments. There are several therapeutic modalities that can be done in case of LBP such as drug therapy, neuromuscular taping and dry needling

Methods: This was an experimental study which was conducted on 30 subjects with LBP. Intervention therapy by NMT, DN and drug therapy with 10 subjects in each group. Then, it was measured by pain scale Numeric pain rating scale (NPRS) before giving therapy, on day 1, day 3 and day 6. Furthermore, the data were analyzed using SPSS descriptively and repeated anova analysis.

Results: The result showed that male sex were commonly found in group of Dry needling ($p<0.05$), however there was no different of demographic data and clinical data (including pain scale) among three treatment groups ($p>0.05$) and there was no significant reduction different in pain scale among group therapy of NMT, DN and drug ($p>0.005$).

Discussion: NMT works by mechanically stimulating the receptors so that activating the nerve impulses, causes local depolarization and lifts the skin with a result widening the interstitial space, improve circulation and absorbs fluids under the skin thereby reducing the pressure of the subcutaneous tissue. Dry needling works by causing local muscle twitching and local relaxing effects resulting reducing pain and muscle tension. Medicamentosa therapy works by inhibiting the production of prostaglandins which plays role in the inflammatory process and causes muscle relaxation in reducing pain. Despite with different mechanisms, these three methods have the same effectiveness.

Keywords: low back pain, neuromuscular taping, dry needling, NPRS scale

ANTICOAGULANTS THERAPY IN SAH AND SECONDARY ICH CAUSED BY CEREBRAL VENOUS SINUS THROMBOSIS

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Introduction: Cerebro Venous Sinus Thrombosis (CVST) is a rare cause of Sub Arachnoid Hemorrhage (SAH) and Intracerebral Hemorrhage (ICH). CVST accounts for 1% of all stroke cases but has a high mortality rate of up to 30%.

Case Report: A 40-year-old woman presented with a 3-day history of decreased consciousness and status epilepticus. Physical examination revealed GCS E2M4V3, Blood Pressure: 150/85 mmHg, Heart Rate: 92 beats per minute, Respiratory Rate: 22 breaths per minute, Oxygen Saturation: 99% on room air, right-sided lateralization. Diagnostic tests showed a platelet count of 260,000 g/dL, D-Dimer level of 1910 µg/L, and Fibrinogen level of 472 µg/L. Head CT scan revealed ICH in the right temporo-occipital cortical subcortical lobes and SAH. Urgent DSA showed multiple thrombi in the superior sagittal sinus, right transverse sinus, right sigmoid sinus, and left transverse sinus, with no evidence of aneurysm. The patient was administered anticoagulants and experienced clinical improvement (GCS E4M6V5 consciousness level, no sign of seizures, and motor strength improved to 4).

Discussion: Once the diagnosis of CVST is established, immediate anticoagulant therapy should be initiated. Systemic anticoagulants are the first-line treatment for CVST, even in the presence of ICH or SAH, according to the AHA/ASA Guidelines. The goal of anticoagulant therapy in CVST is to prevent thrombus growth and facilitate

Keywords: CVST, SAH, secondary ICH, anticoagulants

ISCHEMIC STROKE IN A 19-YEAR-OLD MALE WITH NEPHROTIC SYNDROME

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Introduction: Stroke occurrences in young adults are rare, and the pathogenesis of stroke in this population requires consideration of specific risk factors.

Case Report: This case report presents the case of a 19-year-old male with nephrotic syndrome who experienced an ischemic stroke with symptoms of right hemiparesis, motor aphasia, and palpebral edema. The patient had a history of nephrotic syndrome since the age of four.

Discussion: The hypercoagulable state in nephrotic syndrome refers to an imbalance between factors that promote blood clotting (procoagulant/prothrombotic) and factors that inhibit clotting (anticoagulant/antithrombotic). This imbalance increases the risk of developing blood clots in both venous and arterial vessels. This case report emphasizes the importance of comprehensive screening to identify potential causes of ischemic stroke in young patients.

Keywords: ischemic stroke, nephrotic syndrome, young adults

SPACE OCCUPAYING LESSION ET CAUSA BRAIN ABCESS

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Introduction: The incidence of brain abscess in the United States reaches 1500 to 2500 cases annually. Research at the RSCM in 2011 found 11 cases of brain abscess. The results of this study indicate that males suffer more brain abscesses and the location of the abscess is supratentorial, the average age of the patient is 32 years. Brain abscess generally occurs in patients with immunodeficiency risk factors, however, in rare cases, brain abscess may occur in immunocompetent patients who are not accompanied by these risk factors. Brain abscesses are caused by pathogens such as bacteria, viruses, fungi and parasites which can spread hematogenously (hematogenous spread) or can be from infections adjacent to the brain (direct spread) and can cause non-specific clinical manifestations such as headaches, seizures, deficits neurological, loss of consciousness, and fever.

Case Report: Male, 38 years old with weakness of the lower face and left side limbs accompanied by slurred speech that occurs slowly after experiencing a headache that hasn't improved for 2 weeks and got worse in the last 1 week. ring-shaped, well-defined isohypodense lesion in the right parietal subcortical with finger-like vasogenic edema in the right subcortical frontoparietal region.

Discussion: Space-occupying lesions caused by brain abscesses may also occur in the immunocompetent, HIV- negative person and without a history of long-term use of immunosuppressant drugs. CT-scan with contrast is the standard examination for brain abscess with 100% sensitivity, the examination will find 4 phases namely early cerebritis, late cerebritis, early capsule formation, late capsule formation which will occur in 2 weeks. On the CT-Scan Early capsule formation image, it is seen in the hypodense area with the formation of intact and thick hyperdense rings both with and without contrast.

Keywords: Space Occupying Lesion, Brain Abscess, Hemiparesis, Cephalgia

TOLOSA HUNT SYNDROME: A 50-YEAR-OLD MAN WITH UNILATERAL PAINFUL OPHTALMOPLEGI

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Background: Tolosa Hunt Syndrome (THS) is a rare clinical syndrome described as unilateral orbital or periorbital pain involving parese of one or more cranial nerves oculomotor (III), trochlear (IV), and or abducens (VI) caused by nonspecific granulomatous inflammation on the cavernous sinus, superior orbital fissure or orbital. MRI images can show thickening at cavernous sinus or orbital fissure. Giving corticosteroids for 48 hours resulted improvement in clinical symptoms. This article is case report of a 50 years old man with Tolosa Hunt Syndrome.

Case Report: A 50- year-old man has came with complaints of recurrent headaches for 6 months in the left eye area, pain when moving his eyes, accompanied by burning sensation like electrocution, with difficulty moving the left eyeball to the left side. Laboratory tests revealed increased leukocytes, on MRI examination there is thickening of the musculus rectus lateralis. The patient was given injection methylprednisolone and gave good responses.

Discussion: Some cases of unilateral headaches accompanied by parase cranial nerve involvement of eyeball mover qualified for Tolosa Hunt syndrome (THS) and responded well to steroids.

Keywords: Tolosa Hunt syndrome (THS), Ophtalmoplegi, Steroids

EFFECT OF BISPHOSPHONATES ON PAIN AND QUALITY OF LIFE CHANGES IN LOW BACK PAIN WITH OSTEOPOROSIS PATIENT: A META-ANALYSIS STUDY

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Introduction: Osteoporosis is a significant cause and consequences of morbidity and mortality in the elderly and an important public health issue. Bisphosphonates are the primary treatment options for osteoporosis. The administration of bisphosphonates may show better treatment efficacy, but less is known about its impacts on health-related quality of life (HRQoL), and whether the anti-osteoporosis treatment can improve HRQoL of osteoporosis patient.

Methods: Randomized controlled trials with Bisphosphonates treatment for osteoporosis were retrieved from PubMed, EMBASE and clinicaltrials.gov. The risk ratio with 95% confidence interval (RR, 95% CI) was calculated to evaluate the effect of Bisphosphonates treatment on incidence of fracture. Data on changes in HRQoL following Bisphosphonates treatment was also extracted. SPSS software was used for all the statistical analyses.

Results: Effective anti- osteoporotic drugs could improve HRQoL. After receiving treatment, patients had a significant improvement in their health conditions. The mean increases in mental component scores were 2.43 (95% CI: 1.71–3.03) and 2.52 (95% CI: 1.75–3.07), respectively, with an increase of 4.48 (95% CI: 3.71–5.25) or 4.53 (95% CI: 3.74–5.19) in the physical component scores.

Discussion: Our meta-analysis showed that Bisphosphonates treatment is beneficial to improve HRQoL of osteoporosis.

Keywords: Bisphosphonates; Pain; Quality of Life; Osteoporosis

CEREBRAL TOXOPLASMOSIS IN HIV PATIENTS

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Introduction: Toxoplasma gondii is a protozoan parasite and foodborne pathogen, in which direct contact with cat feces or ingestion of water or food contaminated by sporulated oocysts can also serve as a route of infection, approximately 43.6% of HIV-infected patients also contract Toxoplasma gondii, also known as Toxoplasma gondii. as cerebral toxoplasmosis. Cerebral toxoplasmosis is a major problem of central nervous system infection in HIV/AIDS patients (PLWHA). The characteristic clinical manifestations of this disease are headache and seizures, with other symptoms such as focal neurological deficits, fever, mental and behavioral disturbances, ataxia, cranial nerve disorders, and visual disturbances, and in some cases, can also be found a syndrome of intracranial hypertension and involuntary movements.

Case Report Case 1: Male, 34 years old with headache, neck stiffness, diplopia and accompanied by a history of decreased consciousness, Case 2: Male, 33 years old with involuntary movements of the right hand, headaches and dysarthria, both patients tested positive for HIV and IgG Toxoplasmosis.

Discussion Cerebral toxoplasmosis has become a major CNS problem among people living with human immunodeficiency virus (HIV)/-AIDS.. In the case report it was found that the symptoms of both patients supported the picture of Cerebral Toxoplasmosis with HIV, namely headache, diplopia, involuntary movements, and dysarthria.

Keywords: Cerebral Toxoplasmosis, HIV, Imaging of Toxoplasmosis Cerebri

MILLER FISHER SYNDROME

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Introduction: Miller Fisher Syndrome (MFS) also called Fisher's syndrome, was first recognized by James Collier in 1932 as a separate clinical triad of ophtalmoplegia, ataxia, and areflexia. MFS is commonly associated with the involvement of the lower cranial and facial nerves and does not usually involve motor weakness of limbs. The incidence of Miller Fisher in North and South America, is about 1-5% of GBS. It is more commonly found in males than females with a ratio of 2:1 with an average age of onset of 43 years of age. Based on data from Cipto Mangunkusumo Hospital (RSCM) Jakarta showed that at the end of 2010-2011 there were 48 cases of GBS in one year with various variants of the amount per month. In 2012 various cases in RSCM has increased about 10%.

Case Report: Female, 27 years old, came into the hospital with chief complaint of restriction in certain direction, double vision, and dizziness two weeks ago, result of neurologic examination ptosis on the left eye, parese n.IV, VI bilateral and partial parese n.III, areflex, ataxia. Theres no motor weakness of limbs involved.

Discussion: Miller Fisher syndrome clinically presents as ophthalmoplegia, ataxia, and areflexia. The most common symptoms in MFS are diplopia (65%), gait disturbances (32%), and dysesthesia (14%). Less common symptoms include impaired consciousness, blepharoptosis, limb weakness, bulbar dysfunction, dysphagia, photophobia, dizziness, blurred vision, headache, and facial weakness. MFS is primarily treated with adequate supportive care, pain control, and immunotherapy. IVIG or plasmapheresis is the recommended

therapy, however, patients with MFS usually have a natural good recovery over time.

Keywords: Sindroma Miller Fisher, Guillain Barre Syndrome, Diplopia, Ofthalmoplegia, Ataxia

EXPLORING THE LINK: UNRAVELLING THE ASSOCIATION BETWEEN TRIGLYCERIDE GLUCOSE INDEX AND NIHSS SCORE IN NONDIABETIC ACUTE ISCHEMIC STROKE PATIENTS

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Introduction Stroke significantly impair quality of life and impose significant costs on both economy and society. The triglyceride and glucose (TyG) index is a biochemical measure which has significant benefit in the prediction of acute ischemic stroke outcome. The primary objectives of this research are to determine whether TyG index is independently associated with National Institutes of Health Stroke Scale (NIHSS), one of acute ischemic stroke outcomes parameter.

Methods: This study was a-single centre, retrospective study, included patients admitted with nondiabetic acute ischemic stroke between January 2018 – December 2021. TyG index was calculated by formula: log natural (triglyceride x fasting blood glucose/ 2). TyG index was classified into low ($<$ 4.76) and high ($\geq$ 4.76). NIHSS was taken within 24 hours of admission and performed at least by two physicians. NIHSS was divided into two groups: group 1 (NIHSS 0 – 15) and group 2 (NIHSS 16 – 42).

Results: A total of 257 patients (63 $\pm$ 7 years, 59.1% men) were enrolled. Of 257 patients, 87 patients (33.9%) have TyG index $\geq$ 4.76 and 56 patients (21.8%) have NIHSS between 16 to 42. Higher levels of TyG index were significantly associated with higher NIHSS ($p = 0.000$).

Discussion In this retrospective study, TyG index was significantly associated with NIHSS on admission. Our findings was consistent with latest meta-analysis by Yang et al in January 2023, included 18 studies and 592.635 patients, found that in 6 studies higher TyG index was associated with poor functional outcome after acute ischemic stroke event.

Keywords: triglyceride-glucose index; NIHSS score, acute ischemic stroke

SUPER REFRACTORY NON-CONVULSIVE STATUS EPILEPTICUS RESOLVED WITH INTRAVENOUS KETAMINE

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Introduction: The reported incidence of super refractory status epilepticus is 0,7 per 100,000 cases, about 5-10% of the incidence of status epilepticus, with mortality rate reported to be 36%.

Case Report: Here we report a case of super refractory non-convulsive status epilepticus that we treated in the Intensive Care Unit (ICU). The patient is a 71-year-old man who came to the emergency room with two times convulsive seizure on the left side of the body with 5- and 10-minute respective duration, without improvement in consciousness between seizures. The patient was then given phenytoin according to the status epilepticus treatment algorithm and the seizures finally stopped but there was no improvement in consciousness. After an Electroencephalography (EEG) examination, the patient was diagnosed as Non-Convulsive Status Epilepticus (NCSE). Since the seizure was refractory to benzodiazepines which was initially given, patient then received propofol with titrated dose according to the result of Long Term EEG Monitoring (LTEM), but even after 12 days there was still no improvement as clinically targeted which eventually put the patient in super refractory status. The patient was finally given ketamine which ultimately gave improvement until the PLED picture was no longer visible on LTEM. The patient was subsequently transferred to inpatient care in a stable clinical and hemodynamic condition.

Discussion: Status epilepticus that persists despite anesthetic drugs is called super- refractory status epilepticus. Several studies have demonstrated the effectiveness of ketamine in controlling seizures in this condition. Ketamine acts as an NMDA receptor antagonist and inhibits glutamatergic transmission so that its use is said to be quite effective especially because it does not cause hemodynamic disturbances.

Keywords: NCSE, super refractory status epilepticus, ketamine

HYPERGLYCEMIC CRISIS ON TYPE 2 DIABETES MELLITUS COMPLICATING HYPOKALEMIC PERIODIC PARALYSIS LEADS TO CARDIAC ARREST

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Introduction: Hypokalemic periodic paralysis is a rare neuromuscular disorder characterized by episodic and severe muscle weakness, usually precipitated by a high-carbohydrate diet or strenuous exercise. Hypokalemia is associated with an increased risk of arrhythmias in patients with heart disease, increasing the mortality rate by approximately 10-fold.

Case Report: Here we report a case of hypokalemic periodic paralysis which we treated at the High Care Unit and experienced cardiac arrest up to ROSC (Return of Spontaneous Circulation) and was eventually transferred to the Intensive Care Unit (ICU). The patient is a 55-year-old woman who comes to the emergency room with weakness in all four limbs and a history of high-sugar-high-carbohydrate diet and uncontrolled diabetes mellitus. The patient was then treated as hypokalemic periodic paralysis (potassium 1.9 mmol/l) and received insulin therapy for random blood sugar of 319 mg/dl which also complicates the management of hypokalemia. During treatment, the patient experienced cardiac arrest and was resuscitated to ROSC until she was finally transferred to the ICU. After being given an extremely low-carb diet, blood sugar began to be controlled and insulin dose began to decrease until finally potassium levels returned to normal. The patient was subsequently transferred to inpatient care in a stable clinical and hemodynamic condition.

Discussion: Hyperglycemia leads to an osmotic diuresis as the renal threshold to reabsorb glucose is surpassed, leading to profound dehydration and electrolytes. On the other hand, the use of insulin in the management of hyperglycemia will eventually exacerbate hypokalemia. If the potassium balance is disturbed, it can lead to disruption of the electrical conduction of the heart, dysrhythmias, and even sudden death. Under these conditions, dietary adjustments are expected to control blood sugar, reduce insulin use, and ultimately prevent worsening of hypokalemia and cardiac arrest.

Keywords: Hypokalemia, type 2 DM, Periodic Paralysis, Cardiac Arrest

SUGGESTIVE OF CEREBELLAR TUBERCULOMA WITH CENTRAL VERTIGO AS CLINICAL MANIFESTATION

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Introduction: Intracranial tuberculoma is uncommon form of extrapulmonary tuberculosis. The initial clinical manifestation of tuberculoma is variable, depends on location, size, and number of lesions. The delay of diagnosis and treatment caused by the absence of previous history of tuberculosis in more than half of the patients, the unclear initial clinical presentation, and the prevalent radiological characteristics.

Case Report: A 21 years old female with complaints of headache, dizziness with difficulty to open eyes, nausea, vomiting and hard to stand firmly 2 months before admission which was getting severe. The patient had history of fever, night sweats and weight loss. From physical examination was found bidirectional nystagmus, positive result of test of skew, romberg and sharpened romberg test and dysmetria. Head CT Scan with contrast showed a ring enhancement due to intracranial tuberculoma dd/ abscess, toxoplasmosis of the right cerebellum. The patient was diagnosed with secondary headache and central vertigo due to cerebellum SOL suspected tuberculoma. The patient administered with symptomatic therapy, patient was referred to National Brain Center Hospital Jakarta for MRI examination once complaints were improved.

Discussion: Tuberculoma is tumor-like mass of tuberculous granulation tissue. Tuberculoma is subacute or chronic disease, with clinical symptoms are fever, vomiting, headache, focal neurological deficit, seizure, hydrocephalus, meningeal irritation signs and signs of increased intracranial pressure like papilledema which arise lasting from weeks to months. Diagnosis of tuberculoma based on clinical symptoms and imaging examination such as CT Scan and MRI with contrast and magnetic resonance spectroscopy (MRS).

Keywords: tuberculoma, cerebellum, central nervous system tuberculosis

UNILATERAL FACIAL PALSY IN ACUTE INFLAMMATORY DEMYELINATING POLYNEUROPATHY TYPE OF GUILLAIN- BARRÉ SYNDROME

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Introduction: Guillain-Barré Syndrome (GBS) is a rapidly progressive and potentially life-threatening polyradiculoneuropathy following antecedent illness. The worldwide incidence of GBS is estimated at 1-2/100.000 per year. Early diagnosis, monitoring and treatment are essential for a better outcome.

Case Report: A-39-year-old male presented with unilateral left facial weakness and numbness of three days' duration. The patient also has symptoms of lower and upper extremity paresthesias, muscle weakness and hyporeflexia. The patient's Hughes score is 4 (confined to bed or chair bond). Nerve conduction test showed motor and sensory <90% lower limit of normal, F-wave and H- reflex of lower extremities and upper extremities suggest motor polyneuropathy and demyelination of sensory type. The patient was treated with intravenous immunoglobulin (IVIG) 0.4 g/kg daily for five days. After 2 weeks of treatment, Hughes score becomes 3 (able to walk 5 m with assistance).

Discussion: Bilateral facial nerve palsy is the most common pattern of cranial nerve involvement in GBS, although unilateral facial palsy can be seen in rare cases. GBS patients with facial nerve and bulbar palsy require early diagnosis, close monitoring and prompt treatment as they are at risk of developing acute respiratory failure.

Keywords: guillain-barré syndrome, unilateral facial palsy, hughes score

RELATIONSHIP BETWEEN STAY ON THE RIVERSIDE AND SYSTEMIC INFLAMMATORY RESPONSE SYNDROME (SIRS) IN STROKE PATIENTS AT ULIN HOSPITAL, BANJARMASIN

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Introduction: South Kalimantan is a province that has 97 rivers, and many people who live on the riverside make the rivers a source of life. Currently, there is more and more river water pollution, which has an impact on the health status of people living on the riverside, especially inflammation. The purpose of this study was to determine the relationship between living by the riverside and the occurrence of Systemic Inflammatory Response Syndrome (SIRS) in stroke patients.

Methode: This study used an analytic-observational design. The study subjects were stroke patients who were treated at the stroke unit and nerve ward at Ulin Hospital, Banjarmasin, for the period October 2022–May 2023. There were 128 subjects who were divided into two groups based on whether they lived on the riverside (64 people) or not (64 people). Variable analysis used descriptive analysis, the chi-square test, and multivariate analysis using the logistic regression test.

Results: Based on the descriptive analysis, it was found that there were no variables that showed meaningful

Results: Bivariate analysis resulted in variables that had a significant relationship, namely, living on the riverside (p = 0.01; RR 1.68; 95% CI: 1.13-2.50); history of DM (p = 0.02; RR 0.54; 95% CI: 0.30-0.97); leukocyte count (p = 0.02; RR 0.49; 95% CI: 0.33-0.71); type of stroke (p = 0.01; RR 0.52; 95% CI: 0.37-0.74); NIHSS (p = 0.01; RR 0.54; 95% CI:0.33-0.89); GCS (p = RR 1.85; 95% CI: 0.55-1.51). In the multivariate analysis, it was found that living on the riverside and mortality rate were independent predictors, which together with the dependent predictor factor, i.e., the type of stroke, affected the incidence of SIRS in stroke patients.

Discussion: The conclusion of the study is that living on the riverside and mortality can be used as predictors of SIRS in stroke patients.

Keywords: riverside, stroke, SIRS

HEMORRHAGIC STROKE AND ACUTE CORONARY SYNDROME, AN EMERGENCY SETTING CLINICAL DILEMMA

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Introduction: Stroke is the second leading cause of mortality in the world and predominantly caused by hemorrhagic stroke. Although rarely happened, hemorrhagic stroke and acute coronary syndrome can be found together and associated with higher rate of mortality and worst prognosis. This can become a clinical dilemma because of the contradictory in management of both conditions.

Case Report: The cases were found in the RS Emanuel Banjarnegara (Type C Hospital). First case, 73 years old female came to Emergency Department with decrease of consciousness since morning. Patient has a history of stroke and uncontrolled hypertension. Second case, 66 years old female came to Emergency Department with decrease of consciousness since 9 p.m. The patient also has history of uncontrolled hypertension. In both cases, head CT-scan examination shown intracerebral hemorrhage, electrocardiographic examination found abnormalities in the ST segment, and positive qualitative troponin.

Discussion: In the emergency setting, a doctor must evaluate the risk and benefit of the treatment modality. On one side, hemorrhagic stroke requires treatment to minimize bleeding, whereas in acute coronary syndrome, it is necessary to initiate antiplatelet and/or fibrinolytic drug which is an absolute contraindication for hemorrhagic stroke. During the process of writing of this article, there is no evidence-based guideline management of this condition. The priority of organ is based on the hemodynamic stability of the patient.

Keywords: Hemorrhagic Stroke, Acute Coronary Syndrome, Emergency, Management

AUTOIMMUNE RELATED STROKE IN YOUNG ADULT: DIAGNOSTIC CHALLENGES AND FINDINGS

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Introduction: Diagnosing autoimmune-related stroke in young adults is challenging due to its complexity. This case study examines the diagnosis and clinical findings of a 28-year-old male patient with severe vertigo, severe gastrointestinal symptoms, and subsequent neurological abnormality.

Case Report: The patient underwent a comprehensive evaluation, including medical history review, physical examination, laboratory tests, head CT scan, brain MRI, echocardiography with bubble test, Holter ECG, and CT angiography of carotid and cerebral arteries. Intravenous methylprednisolone was administered for this suspected autoimmune-related case. Initial examination showed normal vital signs. Leukocytosis was detected in laboratory tests, while initial brain CT revealed no abnormalities. However, subsequent neurological examination identified hemihypesthesia and drifting on the left side. MRI confirmed acute infarctions in the left and right cerebellar lobes. Further investigations for cardiovascular causes yielded normal

Results: CT angiography and DSA later showed irregular stenosis of the right vertebral artery and left anterior cerebellar artery.

Discussion: Etiology investigation of stroke in young adults requires a comprehensive examination to identify risk factors. Consider autoimmune processes like vasculitis when conventional risk factors are unremarkable. Findings in radiology, autoimmune-related laboratory tests, and treatment responses support vasculitis in this patient as a likely cause. Diagnostic criteria for cerebral vasculitis are debated, and brain tissue biopsy is rarely performed. CSF analysis and radiological tests aid in diagnosing vasculitis. Accurate diagnosis and treatment of vasculitis in stroke require thorough evaluation and precise consideration.

Keywords: Stroke, Autoimmune, Young Adult, Diagnostic

ABNORMAL EPILEPTIFORM DISCHARGES AS A PREDICTOR OF RECCURENT SEIZURE DURING RAMADHAN FASTING IN MUSLIM PATIENTS WITH EPILEPSY

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Introduction: Like many religions and cultures that practice voluntary fasting, Muslims all over the world, including people with epilepsy, fast every year during the holy month of Ramadan. Various factors can contribute to increased seizure risk in Ramadan such as abnormality EEG, seizure control before Ramadhan, regimen of antiepileptic drugs (AEDs), and severity of fatigue. The purpose of this study was to determine the relationship between epileptiform discharges (EDs) and the incidence of seizure during Ramadan fasting.

Methods: This study used an observational analytic study with a retrospective cohort. The research subjects were taken from Muslim patients with epilepsy (MPWE) who completed Ramadhan fasting in 2023. They were assessed

recording EEG, regarding seizure control, AEDs, and severity of fatigue using VAS-F.

Results: The study included 107 MPWE. The majority of patients (72,89%) completed Ramadan fasting without breakthrough seizures. The bivariate analysis found EDs, longer disease duration, shorter periods of seizure freedom, polytherapy, and moderate fatigue was significantly associated with incidence of seizure during Ramadhan fasting. Multivariate regression analysis obtained that EDs was associated with an increase in the probability of recurrent seizure by 7,63%. Moderate fatigue, polytherapy, and seizure freedom before the last three months was another independent predictor in the occurrence of recurrent seizures during Ramadhan fasting.

Discussion: Epileptiform discharges in EEG can be a predictor of the incidence of recurrent seizure in Ramadhan fasting.

Keywords: epileptiform discharges, Ramadhan fasting, epilepsy, seizure

METHYLPREDNISOLON AND ANTIMALARIALS IN MANAGING NEUROPSYCHIATRIC LUPUS

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Introduction: In order to determine the efficacy of Methylprednisolon (MP) and Antimalarials (AMs) including Chloroquine/Hydroxychloroquine (HCQ)) in managing Neuropsychiatric Sytemic Lupus Erythematous (NPSLE) an evidence-based appraisal was conducted.

Case Report: a 37-year-old woman diagnosed with SLE came to the ER in an altered conscious state. She was then admitted to the ICU and diagnosed with Neuropsychiatric SLE (NPSLE) by the internist as the doctor in charge. As part of the therapy regimen, she was given Intravenous Pulse Methylprednisolon, methyprednisolon per oral three times daily and later Chloroquin once daily.

Discussion: Only three of the four studies eligible for assessment that were considered valid, important and applicable. RCT by Barile Fabris et al. (2005) compared MP and Cyclophosphamide (Cy) to manage NPSLE and showed that both were effective ($p<0.03$), with the latter proven to be more effective.

Review by Badsha et al (2003) concluded that IV pulses of MEP rapidly immunosuppress patients with organ and/or life-threatening manifestations of SLE. Systematic review by Ruiz-Irastorza et al stated that high levels of evidence were found that AMs prevent lupus flares and increase long- term survival of patients with SLE; moderate evidence of protection against irreversible organ damage and thrombosis, including NPSLE. Toxicity related to AMs is infrequent, mild and usually reversible, with HCQ having a safer profile.

Keywords: Methylprednisolon, Antimalarials, Neuropsychiatric Lupus

HEMICHOREA-BALLISMUS ASSOCIATED WITH NONKETOTIC HYPERGLYCEMIA: CLINICAL CHARACTERISTICS AND BLOOD SUGAR PROFILE OF 5 CASES

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Introduction: Hemichorea-ballismus Non Ketotic Hyperglycemia (HCB-NK) is a rare complication of diabetics with hyperglycemia. Clinical characteristics in each individual can be varied.

Methods: We describe 5 patients with HCB- NK who attended Ar Bunda Lubuk Linggau Hospital between March 2021 and April 2023. Sociodemographic data, laboratory and imaging features were taken from medical records.

Results: All patients admited with complaints of involuntary movements of the limbs. Four patients had a history of diabetes, one patient was newly diagnosed. Two patients showed pure chorea movements, one patient pure ballismus and two patients showed a combination of chorea- ballism. The majorities (80%) were found on one side, the other patient was bilateral. Three patients experienced involuntary movements of the hands, one in the hands and feet, the other in both hands and face. The majority of patients (60%) had a good outcome within a week, one person had symptoms recurrency two months later, one person had persistent symptoms. Patients with persistent symptoms and recurrency have a history of diabetes for more than 10 years. The mean serum glucose level measured at admission was 510.80 (±76.77) mg/dl, Hba1c level was 10.92% (±2.63) with negative urine ketone. On computerized tomography (CT) scan examination, one patient had found hyperdence bilateral striatal appearance, one patient with hyperdence in left caudate nucleus, and three patients showed normal findings.

Discussion: HHNK is a complication in diabetics that has different clinical characteristics. Controlling blood glucose levels, and giving pharmacological therapy earlier can give good results.

Keywords: Chorea, ballism, hyperglycemia

ECHOCARDIOGRAPHY PROFILE IN PATIENTS WITH INFARCT STROKE AT PRAYA GENERAL HOSPITAL CENTRAL LOMBOK PERIOD OF AUGUST TO NOVEMBER 2022

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Background: Cardioembolic stroke is the most disabling cause of stroke and accounts for 20-30% of ischemic stroke. Transthoracic echocardiography is a routine procedure performed in patients with stroke which is indicated due to cardiac embolism process that aims in secondary management of stroke and identifying risk factors from the heart. The objective of this study is to see the echocardiography profile in patient with infarct stroke with suspicion of a cardiac embolic source.

Methods: This study is a retrospective review by examining medical record of patients with infarct stroke who underwent echocardiography examinations from August to November 2022, with a total of 30 patients. The parameters of this study are heart rhythm, echocardiographic profile consisting of left ventricular (LV) function, heart muscles and chambers condition, presence of thrombus, myxoma and pericardial effusion, impaired diastolic function, and valve impairement.

Result: Of the 30 patients, rhythm disturbances were found in the form of Atrial Fibrillation (AF) in 11 patients (36.7%). Decreased left ventricular function (LV Fuction) in 14 patients (46.7%). 22 patients (73.3%) with LVH (left ventricular hypertrophy). Cardiac chamber dilatation in 16 patients (53.3%). 1 patient with myxoma, 1 patient with pericardial effusion and no thrombus was found in 30 patients. Impaired diastolic function in 22 patients (73.3%) and heart valve impairement in 22 patients (73.3%).

Discussion: The most common echocardiographic profile finding at patients with infarct stroke in this study was left ventricular hypertrophy (LVH), dilated cardiac chambers, impaired diastolic function and the presence of heart valve impairement.

Keywords: cardioembolic stroke, Transthoracal Echocardiography, Echocardiography profile

BRACHIAL PLEXUS BIRTH PALSY AND CONSERVATIVE MANAGEMENT

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Introduction: Brachial plexus birth palsy (BPBP) is defined as an injury to any nerve root of the brachial plexus (BP) during difficult delivery It is relatively rare, with an incidence in worldwide about 0,1 to 8,1 per 1000 live birth BP is formed by the anastomosis of the ventral branches of the spinal nerves from C5 to T1 that provide motor and sensory innervation to the upper extremity. The causes are probably multifactorial, but the two main risk factors are shoulders dystocia and macrosomia. Appropriate and immediate of diagnosis, initial therapy, and passive physiotherapy can promote the functional of the injured arm.

Case Report: A 2-month-old baby girl with weakness of the right upper limb since birth. The patient had history of difficult delivery which were shoulder dystocia and macrosomia (birth weight of 4,600 gr). The diagnosis of BPBP was established from the physical examination. The X-ray of the right shoulder showed dislocation of the glenohumeral joint. Cervical MRI was carried out under anesthesia, showed normal results. The patient received steroid and neurotonic therapy, and underwent passive physiotherapy. It showed clinical improvement, but physiotherapy and further observation is still need to be carried out.

Discussion: BPBP incidence are relatively rare depending on the risk of difficult delivery. BPBP can be detected from clinical jugdement. Initial treatment of medication, passive physiotherapy, and further observation can improve the function of the affected limb and reduce the risk of complications.

Keywords: Brachial Plexus Birth Palsy, Erb's Palsy, Klumpke's palsy

A G2P0A1 FEMALE WITH SLE, AIHA AND WHO GRADE IV HIGH GRADE GLIOMA

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Introduction: Systemic lupus erythematosus (SLE) is a multisystem autoimmune disease that causes damage to various organs. SLE mainly affects women of reproductive age. SLE affects pregnancy by causing fetal morbidity and mortality, preterm birth, Intrauterine Growth Restriction (IUGR). Autoimmune hemolytic anemia (AIHA) is a rare disorder characterized by hemolysis caused by autoantibodies that directly attack the patient's red blood cells. The causes of AIHA range from idiopathic (50%), lymphoproliferative syndromes (20%), autoimmune diseases such as systemic lupus erythematosus (SLE) (20%) to infections and tumors. Gliomas are brain tumors that originate from glial cells. Gliomas are divided into low grade glioma (LGG) and high grade glioma (HGG). High grade glioma, also known as malignant glioma, experiences rapid tumor growth although it rarely metastasizes outside the CNS. Glioblastoma multiforme (GBM) is classified as WHO grade IV HGG, with an incidence of approximately 75% of HGG.

Case Report: The patient, a 29-year-old woman, G2P0A, 32 weeks pregnant, came to the neurology clinic of Kariadi General Hospital with complaints of weakness of the left limbs since approximately 2 weeks before entering the hospital. The patient could not move her left hand and foot. Initially, the patient had been treated at another hospital with a diagnosis of stroke and was referred to Kariadi General Hospital. The patient went to the clinic and was advised to be hospitalized. When examined, the patient appeared slurred and slumped, weakness in the left hand and leg. The patient does not have a history of the same complaint in the family, has never used hormonal or non- hormonal birth control or non-hormonal because of a history of abortion when the first pregnancy was 5 weeks old, about 2 months before the second pregnancy. From the physical examination, it was found that muscle strength was weakened on the left side, the left hand could only shift, the left leg could only fight gravity. Tonus in the superior and inferior extremities increased, as well as physiological reflexes in the left side suiperior and inferior extremities increased. Pathological reflexes, and clonus were not found. Muscle trophies are still eutrophic. There are complaints of hypesthesia corresponding to the dermatome n.V1, V2, V3. From the laboratory examination, the patient obtained Hb 8.4, MCH 20.7, MCV 71.6. The results of dsDNA examination were positive (33.4), ANA test negative (10.4), Coombs test rec 1 positive and Coombs test indirect negative, quantitative CRP 0.30, Ferritin 5.17, and Fe 11. The patient was diagnosed with SLE with AIHA. The results of MRI, MRA, and MRV showed meningiomatosis in the form of a solid mass with some intratumoral hemorrhage. In the anatomical pathology examination, the results of High Grade Glioma Who Grade IV were obtained.

Discussion: The diagnosis of SLE can be established through clinical features and laboratory examinations, in this case in the laboratory examination of the patient obtained Hb 8.4, MCH 20.7, MCV 71.6. The results of dsDNA examination were positive (33.4), ANA test negative (10.4), Coombs test rec 1 positive and Coombs test indirect negative, quantitative CRP 0.30, Ferritin 5.17, and Fe 11. The patient was diagnosed with SLE with AIHA. For tumor suspicion from the results of MRI, MRA, and MRV obtained a picture of meningiomatosis in the form of a solid mass with some accompanied by intratumoral hemorrhage. Any tumor in the brain in pregnancy brings a dilemma in the absence of treatment standards. The goal of treatment is to minimize mortality and morbidity for both mother and fetus. Management should be individualized by a multi-disciplinary team with consideration of various factors including tumor location, associated signs and symptoms, gestational age and patient wishes. Craniotomy was performed with consideration and close observation of the patient's pregnancy condition. The patient was admitted to the intensive care unit post-operatively and discharged in good condition. The anatomical pathology examination revealed a high grade Who Grade IV Glioma. The goal of treatment was to minimize mortality and morbidity for mother and fetus, improve the quality of life of the patient and fetus. The patient had parturition at 35 weeks of gestation. The patient underwent post partum ER therapy until now it has been the 15th ER. Until now the patient's condition is good.

Keywords: SLE, AIHA, High Grade Glioma, Pregnancy

DIRECT ORAL ANTICOAGULANTS AS TREATMENT IN CEREBRAL VENOUS THROMBOSIS

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Introduction: Cerebral venous thrombosis is a rare type of stroke caused by partial or complete occlusion of cerebral venous sinuses. Current guidelines recommend administration of Low Molecular Weight Heparin during acute phase and oral Vitamin K antagonists (VKAs) for 3-12 months. Direct Oral Anticoagulants (DOACs) are an attractive alternative to VKAs as therapy for CVT, for its safety and efficacy as anticoagulant for deep venous thrombosis or pulmonary embolism.

Method: This systematic review is written based on PRISMA guidelines with electronic search on various databases for journals published from June 1, 2018 to June 1, 2023.

Results: Three studies met inclusion criteria. Three randomized controlled studies with 106 patients treated with DOAC, and 109 patients treated with standard therapy. Dabigatran and Rivaroxaban are DOACs used in reviewed studies.

Discussion: Use of DOACs on CVT has similar efficacy and safety compared to VKAs with better recanalization rate.

Keywords: DOAC, Cerebral Venous Thrombosis, Warfarin

POST CAESAREAN SECTION BELL'S PALSY IN PATIENT WITH PREEKLAMPSIA

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Background: Bell's palsy is the most common peripheral paralysis of the seventh cranial nerves with a rapid and unilateral onset. There is controversy regarding an increased incidence in women during the third trimester of pregnancy, particularly in the 2 weeks preceding delivery and in the first 2 weeks postpartum. Bell's palsy may be more common in diabetic patients and possibly in those with risk factors for preeclampsia.

Case illustration: A 27- year-old woman was treated post saecarean section on the second day, This complaint occurred suddenly when she woke up. Patients complain of numb on the left face, limited lip movement, left eyebrows, dryness, vital signs and examination generally obtained within normal limits. Neurological examination of N. Facial (VII) when moving, it seen that the right forehead muscle is behind, the height of the eyebrows and the corner of the right eye are lower, the corners of the mouth are more attracted to the left, and the nasolabial angle flatter on the right side. When the patient closes her eyes, the right eye weaker or Bell's Phenomenon (+) was found. From the ct scan results obtained within normal. Management was given corticosteroids, lubricant eye drops, mecobalamin, neuroprotector and physiotherapy, the patient was discharged after two days of bells palsy treatment and continued outpatient therapy.

Discussion: The relationship between bells palsy in patients with preeclampsia remains unclear. Some literature explains microvascular ischemic mechanisms, perineural edema and the involvement of inflammatory mediators.

Keywords: bells palsy, post saecaria section, preeklampsia

THE EFFECT OF TRIGLYCERIDE LEVELS ON THE CLINICAL OUTCOME OF ACUTE ISCHEMIC STROKE IN THE HOSPITAL. DR. WAHIDIN SUDIROHUSODO MAKASSAR

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Introduction: Stroke is a clinical syndrome in the form of focal or global neurological deficits, lasting more than 24 hours, causing death. Increased triglyceride is a predictor of prognosis in acute ischemic stroke.

Methods: The research was conducted at RSUP. Dr. Wahidin Sudirohusodo Makassar, starting in January 2023. This type of retrospective descriptive study, using medical record.

Results: Examination of triglyceride levels was carried out on 49 people. There were 31 patients (63.3%) with abnormal triglyceride levels. With an average triglyceride level of 207.88. The average NIHSS score is 5.59 and NIHSS is 4.08. The average Barthel Index at admission to the hospital was 16.82, and the average Bathel index at discharge was 16.76. The NIHSS p-value at admission was 0.099 and NIHSS at discharge was 0.223, the Bathel index p-value at admission was 0.127, and the Bathel index at discharge was 0.071 which showed no significant difference between normal and abnormal triglyceride levels. The correlation between triglyceride levels, NIHSS and Bathel index resulted in no significant p value.

Discussion: Excess triglyceride levels in the blood will be broken down by the liver into LDL. Elevated triglyceride levels also make LDL cholesterol toxic to the arterial wall and reduce the beneficial effects of HDL. This is why there is no relationship between triglycerides and the length of stay of acute ischemic stroke patients.

Keywords: Triglycerides, Acute Ischemic Stroke

MULTIPLE VALVE INFECTED ENDOCARDITIS PRESENTING WITH TOTAL OCCLUSION OF INTERNAL CAROTID ARTERY IN A YOUNG SUBJECT

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Background: Neurological complications are one of the complications of Infective Endocarditis (IE) and the most common is acute ischemic stroke, manifesting clinically in 40% of patients. This condition is often associated with high morbidity and mortality because these complications occur silently and are not recognized by clinicians. Initial handling is very dependent on establishing the initial diagnosis, the patient will die within 5 years after diagnosis. Furthermore, IE can occur at any age and has shown an increase in younger ages over the last five decades.

Case Report: Male, 32 years old, with weakness in the right half of the body, suddenly during activities. The patient is difficult to speak, can follow orders. Glasgow Coma Scale 15. Cranial Nerves: Slight Parese Nerves VII and XII right central. Movement and muscle strength decreased in the right extremity, Babinski was positive in the right extremity. Echocardiography: Oscillating mass in NCC suggestive Valvular Vegetation with size 1.3x0.4cm, Severe Aortic Regurgitation due to LCC prolapse, All Cardiac Chambers Dilatation. Non-contrast head CT: Hyperdense left media cerebral artery sign suggestive of a hyperacute infarction. Arteriography Cerebral Arteries: Total occlusion was observed at the Lt - proximal ICA and severe stenosis of left posterior cerebral artery was observed.

Discussion: Stroke in Infected Endocarditis occurs due to the spread of multiple emboli causing total or partial arterial occlusion of the endocardial vegetation and usually involves the middle arteries in more than 40% of cases. Studies have found that stroke is associated with a poorer prognosis and higher mortality in patients with infective endocarditis (IE).

Keywords: Infective Endocarditis (IE), STROKE, Arterial Occlusion, Endocardial Vegetation

CLINICAL OUTCOME OF PLASMAPHERESIS THERAPY IN MILLER FISHER SYNDROME: A CASE SERIAL

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Background: Miller Fisher Syndrome (MFS) is known as one of the rarest form of Guillain Barre Syndrome (GBS). The incidence rate is around 1-2 cases per 1,000,000 population. MFS has a triad of ophthalmoplegia, ataxia and areflexia. Treatment for MFS either Intravenous Immunoglobulin (IVIG) or plasmapheresis therapy (TPE). According to the 2019 American Society of Aphaeresis (ASFA) guidelines, TPE in GBS is an indication of category I ASFA (recommendation level 1A). It is recommended to exchange 1-1.5 plasma volumes per session, 5-6 times over 10-14 days. Based on existing research, TPE and IVIG have the same effectiveness as therapy for MFS.

Case Report: There were 3 MFS patients in this case report, supported by clinical symptoms of MFS accompanied by supportive cerebrospinal fluid (CSF) analysis.

Results: Case 1 female 22 years, came with symptoms ophtamoplegi, ataxia, areflexia onset 4 days. Case 2, a 30-year-old man came with symptoms ophtamoplegia, ataxia, and areflexia onset 7 days. Case 3, a 44 year old man with symptoms ophtamoplegi, ataxia, areflexia onset 14 days. Laboratory result of the three patients showed cytoalbumin dissociation. All of patients received TPE 4 times and gained clinical improvement.

Conclusion: TPE has been used as a treatment modality in many autoimmune diseases, including neurological diseases such as GBS including MFS. Several studies have reported that TPE is more effective in improving outcomes than IVIG.

Keywords: Miller Fisher Syndrome, Plasmapharesis, Guillain Barre Syndrome

ONE AND A HALF SYNDROME AND INTERNUCLEAR OPHTALMOPLEGIA AS NEUROOPHTHALMOLOGIC MANIFESTATION IN PATIENTS WITH BRAINSTEM STROKE

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Introduction: Brainstem stroke syndrome accounts for 10-15% of all types of stroke, which may result in relatively rare neuroophthalmological manifestations. The aim of this case report is to report findings of one and a half syndrome (OAHS) and internuclear ophthalmoplegia in a patient with brainstem stroke.

Case Series: First case, female, 56 years old, came to the Emergency Room of Ciawi Regional Hospital with sudden weakness on the right side of the body. Patient was conscious, blood pressure 160/90 mm Hg. One and a half syndrome was found, namely when asked to glance to the left, conjugate gaze palsy was obtained horizontally, and when asked to glance to the right, there was adduction inability of the left eye (ipsilateral). Right eye abduction was normal with present nystagmus. Paresis of right central CN. VII, XII was present, along with hemiparesis dextra (contralateral). Head CT scan shows hemorrhage in pons and intraventricular. Second case, female, 65 years old, came with a protruding mouth, vertigo, and sudden double vision. Patient was conscious, blood pressure 120/80 mmHg, with high blood sugar. Internuclear ophthalmoplegia was present, namely an adduction inability of the left eye (ipsilateral) when asked to glance to the right. Right eye abduction was normal with present nystagmus. no abnormalities were seen in the primary position and when asked to glance to the left. Paresis of right peripheral CN. VII, hemiparesis and right (contralateral) hemihypesthesia was present. MRI shows multiple chronic infarcts as well as subacute infarcts in bilateral parietal and pons.

Discussion: The appearance of one and a half syndrome and internuclear ophthalmoplegia are part of the stroke symptoms, which can be found in the brainstem, according to the imaging findings. Clinical knowledge is necessary for topic determination, rehabilitation process and evaluation.

Keywords: brainstem stroke, one and a half syndrome, internuclear ophthalmoplegia, neuroophthalmology, case report

CLINICAL OUTCOME IMPROVEMENT IN THROMBOSIS OF CRANIAL VENOUS SYSTEM WITH ADJUVANT INITIAL CORTICOSTEROID THERAPY FOLLOWED BY ANTICOAGULANT THERAPY

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Introduction: Cerebral venous sinus thrombosis (CVT) is a relatively rare but potentially life-threatening type of stroke. CVT occurs when blood vessels in the sinus veins of the brain become blocked by blood clots. This can lead to a decrease blood flow to the affected brain area and cause symptoms such as headaches, nausea, vomiting, vision disturbances, and seizures. If left untreated, CVT can result in serious complications such as brain edema, hemorrhage, even death.

Case Report: We report a case of a 42-year-old female who presented to the hospital with complaints of sudden closure of the right eyelid for 1 month, accompanied by headaches, nausea, vomiting and double vision. The patient had hypertension, paresis of the right oculomotor (III) and trochlear (IV) nerves, and mild central type paresis of the right facial (VII) nerve. Right vertebral artery hypoplasia, small vessel infarction, small vessel disease, CVT confirmed by digital subtraction angiography (DSA). The patient was initially treated with corticosteroid therapy, specifically short-term intravenous administration of methylprednisolone, then followed by anticoagulant therapy.

Discussion: CVT has varied clinical manifestations depending on the location and size of the blood clot. Anticoagulant therapy is the most common treatment for CVT, most patients having a good prognosis with anticoagulation. However, severe cases may require intravascular therapy. Steroids are given to prevent cerebral edema. The beneficial effects of steroids as adjuvant therapy to anticoagulants for this patients are believed to be related to the pathogenic mechanisms of CVT.

Keywords: Cerebral Venous Thrombosis, Cranial Nerve Palsy, Ptosis

SUPERIOR HYPOGASTRIC GANGLION AND DORSAL ROOT GANGLION RADIOFREQUENCY REDUCES NEUROPATHIC PAIN IN LUMBAR DISC HERNIATION PATIENT WITH L5-S1 ANTERIOR PROTRUTION

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Introduction: Approximately 36% - 55% of patients with chronic low back pain (LBP) have neuropathic pain syndrome. Prescription of adjuvant analgesics or antidepressants is effective in reducing pain but requires special attention.

Case Report: Female, 57 years with complaints: LBP since 5-7 days, bilaterally to the hips-groin, as well as to the fingers and soles (NRS 6-8, PainDETECT 35). Three times experienced of felt down 10 years ago, and still works in lower sitting above 5 hours daily. Allodynia (+), dysesthesia (+), hyperalgesia (+), also L4-5 and L5-S1 hypesthesia. Magnetic resonance imaging (MRI): posterocentral and lateral bulged (L4-5, L5-S1), anterior protrusion of L5-S1. Radiofrequency ablation (RFA) 70° of superior hypogastric ganglion (90 seconds), and pulsed radiofrequency (PRF) 42° dorsal root ganglion (DRG) L4-5, L5-S1 bilaterally (120 seconds) reduces nociceptive pain (NRS 2- 3) and neuropathic (PainDETECT 12). Post-surgical medication: Levofloxacin 500 mg/ 24 hours, Gabapentin 50 mg/ 8 hours, Paracetamol 500 mg/ 8 hours, Amitriptyline 12.5 mg/ 12 hours, Vit B12 50 mcg/ 12 hours.

Discussion: The sympathetic ganglion supplies the anterior segments of the lumbar vertebrae and the anterior longitudinal ligament, often overlooked as a cause of pain.

Conclusion: The management of LBP patient concerned on the causes, whether associated to structural abnormalities or nerve dysfunction.

Keywords: lumbar disc herniation, neuropathic pain, anterior herniation, superior hypogastric, DRG, radiofrequency

SUPERIOR VENA CAVA SYNDROME PRESENTING AS DELIRIUM IN A PATIENT WITH MEDIASTINAL MASS

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Introduction: Superior vena cava syndrome is a collection of symptoms that result from obstruction of blood flow in superior vena cava. Mediastinal malignancies are the most common cause, such as lung cancer and Non-Hodgkin's lymphoma. The most common clinical symptom is facial swelling and dyspnea. Neurologic symptoms include headache, blurry vision and decreased level of consciousness. The incidence of superior vena cava syndrome with delirium is very rare, only 5%.

Case Report: A 64 year old man with complaints of neck swelling spreading to face and right arm since 6 days and dyspnea. He appeared agitated and difficult to communicate with. He is a smoker. Physical examination revealed delirium, edema of dextra colli region and distention of right jugular vein. Laboratory tests showed hypercoagulopathy. Chest radiography revealed suspected superior mediastinal mass. Contrast head CT scan showed chronic infarction in internal capsule, dilatation and suspected thrombus of right internal jugular vein. He was diagnosed with delirium, superior vena cava syndrome and suspected mediastinal mass. During treatment patient received steroid, diuretics, heparin and radiotherapy. He passed away due to respiratory failure.

Discussion: Delirium as one of the neurological symptoms of superior vena cava syndrome occurs due to cerebral edema. Steroids may reduce the effect of tumors on superior vena cava obstruction and prophylaxis for radiation-induced edema. Diuretics provide diuretic effect thereby reducing venous return to heart. Heparin given because obstruction of superior vena cava is at risk of causing thrombosis. Radiotherapy aims to reduce obstruction of superior vena cava caused by malignancy.

Keywords: delirium, superior vena cava syndrome, mediastinal mass

INTRACRANIAL VASCULAR ATTACKS AS A CLINICAL MANIFESTATION OF THROMBOSIS AND HAEMORRHAGE IN POLYCYTHEMIA VERA PATIENTS

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Introduction: Thrombosis and bleeding can be early manifestations of polycythemia vera. The prevalence of bleeding cases is less than thrombosis. Intracranial hemorrhage in polycythemia vera is a rarely reported case. In this case series, we will report both of that diseases.

Cases: Case 1. A 39-year-old woman had sudden weakness of the right side. There was no previous history of other diseases. Blood pressure was 180/100 mmHg (all others within normal limits), right motor strength was 2, paresis of N. VII, XII centrally. Hb 23.6 g/dl, Ht 73%, and erythrocytes 8.54. Head CT scan without contrast showed intracranial hemorrhage. Case 2. A 43-year-old woman had sudden weakness of the left side. There was no previous history of other diseases. Blood pressure was 140/90 mmHg (others within normal limits), left motor strength was 3. Hb 20.7 g/dl, Ht 67%, and erythrocytes 7,93. Head CT scan without contrast showed cerebral infarction. Peripheral blood smear shows panisocytosis, leukocytosis, thrombocytosis and eosinophilia. Bone marrow puncture shows increase hematopoiesis. Case 3. A 38-year-old woman had seizure 2 hours before admission. The left side of her body felt heavier than before. Vital signs were within normal limits, right motor strength was 3. Hb 19.5, Ht 65%, and erythrocytes 8.54. Head CT scan without contrast showed a cerebral infarction. Janus acrivated kinase (JAK)2 V617F mutation examination was positive.

Discussion: About 70% of the complications that occur in polycythemia are arterial thrombosis such as stroke. The occurrence of ischemic stroke is associated with increased blood viscosity and platelet activity in the arteries. Hemorrhagic stroke is associated with platelet aggregation dysfunction and prolongation of activated partial prothrombin time (aPTT).

Keywords: myeloproliferative disorder, polycythemia vera, stroke

CLINICAL IMPROVEMENT OF A PATIENT LOSS OF CONCIOUSNESS IN CASE HEMORRHAGIC TRANSFORMATION WITH CONFIRM STATUS OF COVID 19

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Introduction: Ischemic stroke is a serious complication that occurs due to a blockage in the blood vessels of the brain, resulting in damage to brain tissue. Some evidence suggests a link between COVID-19 infection and ischemic stroke. Hemorrhagic transformation is a condition in which bleeding occurs in areas of the brain that previously experienced ischemia due to acute ischemic stroke. This case report aims to report a case of hemorrhagic transformation in a COVID-19 patient.

Case Report: A 49 year old woman experienced a sudden loss of consciousness after waking up for the last 2 days. The patient had previously experienced weakness on the left side for 6 days. The patient did not report any headache, nausea, or vomiting. The patient is also known to be positive for COVID-19 with symptoms of cough, shortness of breath, muscle aches and decreased appetite. The patient's medical history included hypertension for 2 years, history of transient ischemic attack (TIA) about 2 years ago, and no history of diabetes mellitus. Neurologic examination showed movement and strength disturbances on the left side of the body. Head CT scan results: showed a large infarction in the right cerebri accompanied by hemorrhagic transformation. D-Dimer examination showed a result of 2.55 (normal value <0.5). Investigations showed indications of hemorrhagic transformation.

Discussion: Several hypothesized mechanisms for the association between COVID-19 and ischemic stroke include hypotension and inadequate cerebral perfusion, relative hypertension causing posterior reversible encephalopathy syndrome, hyperinflammatory state, and septic embolization with additional bacterial infection. Several cases of hemorrhagic transformation from stroke infarction have been reported in COVID-19 patients. In this case, hemorrhagic transformation occurred due to great vessel disease and possibly endothelial damage associated with COVID-19 infection. Patients are given therapy

according to the management of acute ischemic stroke. The patient's clinical condition improved significantly and the subsequent PCR test was negative.

Keywords: Hemorrhagic Transformation, Ischemic Stroke, COVID-19

CORRELATION BETWEEN SYSTOLIC BLOOD PRESSURE AND INTRAVENTRICULAR HEMORRHAGE EXPANSION WITH STROKE HEMORRHAGE PATIENT DISCHARGE STATUS

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Introduction: Stroke is the second highest cause of death in Indonesia with a mortality rate of 8.4%. Stroke prevalence in Indonesia in 2018 was 10.9%. ypertension is the most common risk factor for stroke. Expansion of intraventricular haemorrhage is one of the prognostic factors of 30-day mortality in intracerebral haemorrhagic stroke cases. This study aims to see the relationship between systolic blood pressure on admission and expansion of intraventricular haemorrhage with discharge status in patients at KRT Hospital. Setjonegoro Wonosobo Hospital, Central Java.

Methods: This study was a cross-sectional study. The subjects were 107 haemorrhagic stroke patients with an average age of 59 years who were treated at KRT Hospital. Setjonegoro Wonosobo Hospital. The data used were secondary data, namely medical records from January to December 2022. This study has independent variables, namely systolic blood pressure and expansion of interventricular bleeding and discharge status of patients as dependent variables. The statistical test used is the Spearman correlation test where p is significant if $p < 0.05$.

Results: There was no significant relationship between systolic blood pressure and discharge status ($p = 0.675$). There is a significant relationship between the extent of intraventricular haemorrhage and discharge status ($p = 0.005$).

Discussion: There is no significant relationship between systolic blood pressure and discharge status, but there is a significant relationship between the expansion of intraventricular haemorrhage and discharge status.

Keywords: Systolic Blood Pressure, Expansion of Intraventricular Hemorrhage, Intracerebral Hemorrhage

POSTPARTUM GUILLAIN-BARRÉ SYNDROME: A RARE CASE REPORT WITH THOROUGH SYSTEMATIC REVIEW

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Introduction: Guillain-Barré Syndrome (GBS) is a rare neurological disorder characterized by widespread weakness and numbness. We report a case of a postpartum woman who developed typical symptoms of GBS shortly after delivery.

Case Report: A woman presented to the emergency room with weakness in all four extremities, which had worsened over a 10-day period following the birth of her second child. She experienced thigh pain, stiffness, and progressive weakness in her hands and ankles. Numbness, tingling, and weakness persisted until she sought emergency care. General examination, vital signs, and cranial nerves were normal. Motor examination revealed weakness in the upper (5532/5532) and lower extremities (2234/2234). Laboratory and radiological tests were normal. Cerebrospinal fluid analysis showed cytoalbumin dissociation. Nerve conduction velocity tests indicated decreased compound muscle action potential in the peroneal and ulnar nerves, as well as loss of waves in the median nerves. The patient received a diagnosis of postpartum GBS of the Acute Motor Axonal Neuropathy type and underwent a 5-day intravenous immunoglobulin therapy. She was discharged without recurrent complaints.

Discussion: Our systematic review in this case report shows that postpartum women face a higher risk of developing GBS within the first 30 days [RR: 2.93 (1.20-7.11)] (Level of evidence III). However, the cause of this relationship remains uncertain, prompting further research on postpartum GBS.

Keywords: polyneuropathy, birth, emergency, neurology, case report

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