Kemenkes
RSPON Mahar Mardjono

National Scientific Meeting

PROCEEDING BOOK

Pertemuan Ilmiah Nasional (PIN) 2024

National Scientific Meeting

Unlocking Recent Evidence and Practice Guidelines: Bridging the Gap within Indonesia Context

Thursday, 30th May to Sunday 2nd June 2024

JW Marriott Hotel Surabaya
Embong Malang Street No.85-89, Surabaya

- Stroke and Vascular
- Neurointervention
- Neuroimaging
- Neurootology and Neuroophtalmology
- Neurorestoration and Neuroengineering
- Neuroepidemiology
- Ethics and Law

www.pinperdosni2024.com

CONTENT

Click the links below to jump straight to that section
(For optimal compatibility please use Adobe Reader)

Stroke and Vascular - Home Care in Stroke Patients: Preparation to Practices

Thursday, May 30th 2024
Oasis, JW Marriot Hotel, Surabaya

Assessment of Stroke Patients to Determine Home Care

Nurul Rakhmawati
Division Vascular National Brain Hospital, Prof. Mahar Mardjono, Jakarta

There are no criteria or standard guidelines in Assessment of Stroke Patients to Determine Home Care. Post-stroke assessment may include several aspects, such as assessment of the latest condition, risk identification, evaluation of the environment and caregiver, and follow-up care plan. Post-Stroke Home Care Checklist for Primary Care Professionals (PSHCC-PCP) can be use to help enhance the quality of professional care in post-stroke home care services. Indicators quality for home care stroke patients include the physical and psychological aspects of the patient and family, management of home care patients involving service providers, and completeness of administration. In providing comprehensive services and preparing for a good life after stroke, anticipating caregiver concerns, preventing suboptimal care that may lead to post-stroke complications such as permanent disability, pneumonia, decubitus ulcers, or depression, thorough preparation starting from the assessment of stroke home care is needed. Barthel Index (BI) is a strong predictor that is easy to use as a standard assessment in predicting post-stroke rehabilitation, differentiating between patients who can directly return home versus need rehabilitation facilities (Skilled Nursing Facility (SNF), Inpatient Rehabilitation Facility (IRF), or long-term acute hospital care). Other assessments includes Modified Rankin Scale (mRS), National Institutes of Health Stroke Scale (NIHSS), and Short Portable Mental Status Questionnaire (SPMSQ) to predict cognitive impairment. Mini-Mental State Examination (MMSE) and Montreal Cognitive Assessment (MoCA) have proven effective in predicting memory disorders in acute stroke patients.

Keywords: *Assessment; Stroke; home care*

Integrated and Multidisciplinary Home Care in Patients with Stroke

Paryono
FKKMK University of Gadjah Mada/Sardjito General Hospital Yogyakarta

Stroke is a health problem that experiences an increase in morbidity and mortality rates every year. Stroke is the second leading cause of death after heart disease. As many as 68.5% of stroke patients experience dependence when they leave the hospital. Homecare is a post-acute service, especially for patients with total dependency (Barthel Index Score <20) which can be carried out in a multidisciplinary manner by various health professions as one team to achieve and maintain optimal patient health status.

Providing homecare services that are more effective compared to outpatient care in hospitals, with fewer costs compared to outpatient services in hospitals. Homecare is a continuous and comprehensive health service provided to individuals and families at the patient's residence with the aim of improving, maintaining or restoring health or maximizing the level of independence and minimizing the consequences of disease. This health service is provided by professionals who are members of the homecare team, including; (1) Health professional groups, including nurses or professional nurses, doctors, physiotherapists, occupational therapists, speech therapists, nutritionists, radiologists, laboratories and psychologists, (2) Non-health professional groups, namely social workers and religious experts, (3) Non-professional groups, namely nurse assistants who serve as helpers waiting to serve the needs or daily activities of clients (caregivers). Interprofessional collaborative practice (ICP) can effectively improve the ability of health workers to carry out interprofessional communication thereby improving the quality of health services

Homecare services are more efficient than outpatient care in hospitals, care pathways for patients will support multidisciplinary collaboration and compliance with medical service standard.

Keywords : *Homecare, Stroke pasca acute, Multidisplin.*

Role of Caregiver in Stroke Patient Home Care Services

Chairil Amin Batubara
Faculty of Medicine, Universitas Sumatera Utara/ Adam Malik Hospital.

In Indonesia, stroke has been the second leading cause of death and disability. About 21%-74% of stroke patients die in the acute phase, 15%-25% die in the first year, and 5%-14% suffer new stroke episode in the same year. While, 40% of stroke patients are moderately disabled, and 15%-30% are severely disabled when discharged from the hospital. Later, 25%-50% of stroke patients who survived, become partially or totally dependent in daily activities, therefore, stroke survivors become dependent on their caregivers, who take on numerous roles.

Caregivers can be either informal or formal, who play a central role in post-stroke patients' care to improve the quality of patient management. The caregivers, who can provide caregiving in home-bound setting, mostly informal relies on family members, such as the spouse or offspring, or domestic helpers or trained individuals. While formal care is done by professionals, such as nurses and therapists.

There are some roles of caregiver: communication, daily care activity, maintaining patient's health (rehabilitation and medicine) and psycological conditions. Good communication skills are necessary for caregivers to communicate between the patient and family or people involved (such as doctors, or therapists). While daily activity include basic such as feeding, dressing, personal hygiene, etc; or instrumental such as spiritual activity, transportation, shopping, managing finances, etc. As the caregivers play a central role in post-stroke patients' care, it is necessary to overcome the caregiver's problems, includes: lack of knowledge and communication, unconcerned family, suboptimal service, and burnout.

Keywords: *Stroke, caregiver roles, homecare services, communication*

Role of Neurologist to Prepare of Caregiver on Homecare Stroke Service

Al Rasyid
Departemen Neurologi FKUI/RSCM Jakarta

The homecare program delivers health care and social services at home for individuals with disabilities or those confined to home, including stroke patients. Its objectives are to optimize patient health, maximize independence, and minimize stroke impacts. Neurologists play a pivotal role in preparing caregivers for home-based stroke care, equipping them to manage patients with total dependency. This includes maintaining stroke care, managing risk factors, preventing complications, and preventing recurrent stroke events. Furthermore, neurologists ensure the continuity of rehabilitation or neurorestoration programs at home, empowering caregivers to independently manage patient care and medication adherence. Caregiver duties commence during the patient's hospital stay and include daily patient care (24-hour coverage), feeding (via nasogastric tube or oral), bathing, and medication administration as instructed by medical professionals. Caregivers also serve as liaisons between the patient, family, and healthcare team, addressing basic needs and extending hospital-initiated rehabilitation at home. They monitor sleep patterns and maintain the patient's psychological well-being by encouraging communication and recreational activities to alleviate loneliness. Preparation by neurologists involves training caregivers with the help of nurses, physiotherapists, and other specialists, informing them about the psychological impacts due to the patient's condition, ensuring quality of care, and discussing financial and resource support for caregivers with the patient's family, alongside expressing appreciation and support for the caregivers' efforts.

Keyword: *stroke homecare, caregiver training, neurologist role*

Application of Advanced Medical in Home Care Focus in Total Dependent Patients

Andi Basuki Prima Birawa
National Brain Center Hospital Prof. Mahar Mardjono – Jakarta

The increase in life expectancy in Indonesia has also led to an increase in the incidence and prevalence of non-communicable diseases, including stroke, which is disease with the highest disability rate. Some stroke survivors have to live with mild to severe symptoms that affect the quality of life of the patient and even their family.

The level of patient dependency is measured using the NIHSS scale (National Institutes of Health Stroke Scale Score), mRS (modified Rankin Scale), Barthel index, FIM (Functional Independence Measure). At a severe level of dependency, various medical and non-medical complications often occur, including urinary tract infections, aspiration pneumonia, decubitus ulcers, constipation, contractures, deep vein thrombosis and pulmonary embolism, urinary and bowel incontinence, shoulder pain, falls, and depression.

Early detection and treatment in home care, which is mostly carried out by caregivers, needs to be done early and precisely so that it can prevent more serious complications. Good cooperation from all parties such as doctors, caregivers, families, the environment and other stakeholders is very necessary.

Keywords : *Home Care, Dependent patients, Medical complications, Prevention*

The Concept of Preparing Unit Costs for Home Care Services for Stroke Patients

Widodo Mardi Santoso
Neurology Department Faculty of Medicine Brawijaya University – Saiful Anwar Hospital East Java Province

The unit cost of health services in a hospital is a calculation of the costs incurred to produce a particular service. Some of the purposes of calculating unit costs are as a basis for proposing new tariff patterns, as a basis for preparing budgets, analyzing health service costs, and as a medium for advocacy to stakeholders. There are many methods for calculating unit costs, one method that is considered the best is activity based costing (ABC). This calculation method is based on all activities that spends hospital resources. The ABC method is considered more appropriate for use in hospitals because it can overcome distortions in traditional cost accounting method. Apart from that, using this method can also identify the overhead and non-value added costs. Home care services for stroke patients are one of the hospital services that should receive attention from the financial aspect, because it is one of the services that is not covered by the Indonesia National Health Insurance System (JKN). The unit cost must be calculated carefully to obtain a figure that is really close to the actual cost, so that it can prevent hospital losses. All home care service activities for stroke patients include direct and indirect cost components; costs for major expenditure, operational cost, and maintenance cost must be documented in detail.

Keywords : *unit cost, home care stroke, activity based costing.*

Neurointervention- Precision Diagnostic to Interventional Treatment

Thursday, May 30th 2024
Ballroom A-B, JW Marriot Hotel, Surabaya

Understanding the Aneurysm Subtype and Interventional Strategies (Saccular, Dissection, Fusiform, Mycotic)

Pinto Desti Ramadhoni
Neurology Department, Sriwijaya University, Faculty of Medicine. Mohammad Hoesin Hospital, Palembang South Sumatera

An aneurysm is an abnormal dilation of a blood vessel that can cause life-threatening complications if untreated. This review explores the subtypes of aneurysms: saccular, dissecting, fusiform, and mycotic, each distinguished by unique morphological and etiological characteristics. Endovascular intervention strategies for both ruptured and unruptured aneurysms heavily depend on the specific morphology of the aneurysm. Understanding the unique features of each aneurysm subtype, guides the selection of appropriate and effective endovascular techniques.

Saccular Aneurysms: Typically spherical and protruding from the vessel wall, resembling a berry. Often found in cerebral arteries, they are highly prone to rupture, leading to subarachnoid hemorrhage. Management is well-suited with coil embolization, which involves inserting coils into the aneurysm sac to induce clotting and prevent rupture. For larger or more complex saccular aneurysms, a flow-diverter stent can be used to redirect blood flow away from the aneurysm, reducing rupture risk.

Dissecting Aneurysms: Occur when a tear in the intimal layer of the vessel wall allows blood to enter and separate the layers, creating a false lumen. They can be found in cerebral vessels and carry significant risks of rupture or blood flow disruption.

Fusiform Aneurysms: Characterized by spindle-shaped dilation involving the entire circumference of the vessel wall. Commonly found in larger arteries and associated with atherosclerotic disease, they present unique challenges for intervention.

Mycotic Aneurysms: Caused by infection, these are rarer but have a high risk of rupture due to vessel wall weakening by infectious agents. Effective management often requires antibiotic therapy and surgical intervention.

***Keyword**: Intracerebral aneurysm, endovascular coiling, interventional manajement*

Cerebral Venous Anatomy and the Disease: Diagnosis and Neurointerventional Treatment (Learning from Cases)

Muhammad Yusuf
Neurologist/Consultant Neurology Intervention Haji Hospital North Sumatra

The cerebral venous system (cerebral veins) is a network of veins responsible for returning blood from the brain to the heart. The cerebral venous system consists of superficial and deep veins that drain blood out of the brain. The major veins include the superior cerebral veins, inferior cerebral veins, basal veins, and the great cerebral veins (veins of Galen). Blood from the brain eventually flows into the venous sinuses of the dura, such as the superior sagittal sinus, straight sinus and cavernous sinus.

The cerebral venous system has thin venous walls and can expand to accommodate changing blood volumes. It does not have valves like the peripheral veins, so blood flow can occur in both directions. It has many anastomoses (connections between veins), which provide alternative routes in case of blood flow obstruction.

Cerebral vein thrombosis is the formation of a blood clot in a cerebral vein, which can lead to stroke. Cerebral venous malformations are abnormalities in the formation of cerebral veins from birth, such as venous vessel malformations or developmental venous anomaly

An understanding of the cerebral venous system is important in the diagnosis and management of related conditions, such as venous stroke, venous hypertension, and other cerebral vascular disorders.

Keywords *: Cerebral, Venous, Sinuses, Thrombosis, Neurointerventional*

Carotid Disease and Art Of Intervention: Atherosclerotic, Web And Dissection

Merlin P. Kastilong
Pelni Hospital, Pertamina Hospital

Stroke is still a major cause of mortality and morbidity in worldwide, including Indonesia. Therefore, it is critical for stroke patients to receive prompt diagnosis and appropriate treatment to reduce injury of brain tissue and to prevent further complications. The etiology of stroke are diverse and carotid artery disease is responsible for approximately 20% of strokes in the adult population. While atherosclerosis is the predominant cause of carotid artery disease, dissection and carotid web are also known as the etiology, particularly in younger individuals. In recent times, cerebral revascularization through endovascular technique has transformed the management of stroke, leading to more aggresive treatment approaches. Endovascular treatment in carotid artery disease such as carotid angioplasty and stenting, coil embolization, flow diversion and parent vessel sacrifice have emerged as a treatment modality, replacing and completing conservative approach. This presentation aims to delineate the art of neurointervention for treating carotid artery disease due to atherosclerosis, dissection, and carotid web. In conclusion, endovascular treatment despite conservative treatment are reasonable, feasible and safe treatment option to prevent stroke in selected patients particularly when performed by experienced neurointerventionists.

Keyword: *carotid atherosclerosis, dissection, web, endovascular*

Brain AVM Embolization using NBCA: Selecting Concentration Dose and Mixing (Practical use NBCA and Lipiodol)

Achmad Firdaus Sani
Dep. Neurology Faculty of Medicine Universitas Airlangga – Dr. Soetomo Hospital Surabaya

Brain arteriovenous malformations (AVMs) pose significant risks due to potential hemorrhage, necessitating effective intervention strategies. One of the prominent methods for treating brain AVMs is embolization using N-butyl cyanoacrylate (NBCA). This presentation focuses on the practical aspects of utilizing NBCA for AVM embolization, specifically addressing the critical factors in selecting the appropriate concentration dose and mixing ratio with Lipiodol.

NBCA is a liquid embolic agent that polymerizes rapidly upon contact with blood, making the choice of concentration and the NBCA-Lipiodol mixture crucial for successful embolization and minimizing complications. The concentration of NBCA determines the polymerization rate and penetration depth within the AVM nidus, directly impacting the efficacy and safety of the procedure. Lipiodol, an oily contrast agent, is mixed with NBCA to visualize the embolic material under fluoroscopy and to adjust the viscosity of the mixture.

This presentation discusses the factors influencing the choice of NBCA concentration, including AVM size, vascular architecture, and flow dynamics. Additionally, it explores the practical steps for preparing and administering the NBCA-Lipiodol mixture, emphasizing techniques to achieve optimal viscosity and radiopacity. Clinical outcomes, complications, and best practice recommendations are also reviewed to provide a comprehensive guide for clinicians. By meticulously selecting the concentration dose and mastering the mixing process, practitioners can enhance the precision and success rate of AVM embolization, ultimately improving patient outcomes. This presentation underscores the importance of tailored embolization strategies in the management of brain AVMs using NBCA and Lipiodol.

Keyword : *AVM Embolization, NBCA-Lipiodol Mixture, Concentration Dose*

When Your 3D DSA is not Working in Your Cathlab: Neurointerventional Tips and Tricks

Yudhi Adrianto
Department of Neurology, Faculty of Medicine, Universitas Airlangga

The neurointervention procedure is a sophisticated procedure that requires complete cathlab equipment including 3D facilities. Comprehensive analysis of cerebral vascular angioarchitecture is very necessary in carrying out diagnostic and therapeutic procedures. Limited cathlab facilities are often an obstacle to health service facilities in Indonesia, including the sophistication of cathlab facilities. 3D-DSA capability is a necessity for complete angiarchitectural evaluation of cerebral vascular abnormalities, but not all DSA tools have 3D capabilities. This situation certainly has an impact on the accuracy of analysis and decision making particularly in cases of vascular anomalies. On this occasion, we will discuss the limitations of unavailable 3D DSA and their solutions, along with tips and tricks

Keywords: *Neurointervention, Cathlab, 3D DSA*

Flow Model: Liquid Embolization, Balloon Embolization

Dedy Kurniawan
Dep. Neurology Faculty Medicine of Universitas Airlangga RSUD dr. Soetomo Surabaya

In interventional neurology, embolization changed vascular treatment. The main embolization flow concepts are liquid and balloon. This article will compare the mechanisms, characteristics, and processes of both treatments and their efficacy, success rates, and long-term effects. A liquid embolization blocks blood arteries or aberrant vascular structures with injectable embolic agents. Designed embolic agents harden in blood, restricting vascular flow. Liquid embolic agents are onyx and EVOH. Under fluoroscopic observation, a microcatheter injects liquid embolic agent into the target area. This approach accurately distributes and produces embolic material for vascular blockage. Embolization uses detachable balloons containing coils or particles. In balloon embolization, the balloon is inflated inside the vessel to block blood flow. Balloon embolic agents seal vessels. Uninflated balloons are delivered through microcatheters to the target region and inflated to occlude vessels. For accurate placement and regulated embolic material deployment, this method works. Many research have compared liquid and balloon embolization success. Both liquid and balloon embolization can cure vascular abnormalities and cancers, but the lesion and interventional radiologist decide. Long-term results and difficulties drive preferred method. More study is needed to determine the best liquid versus balloon embolization approach for diverse clinical circumstances based on patient results, procedural complexity, and safety. Finally, interventional radiologists use liquid and balloon embolization flow models to treat numerous vascular diseases. Each technique's physics, properties, and processes must be understood to succeed. Clinically, both techniques are useful, but interventional radiology research and technology will improve liquid and balloon embolization.

Keywords: *Flow Model, interventional, vascular, embolization, liquid, balloon*

Neuroimaging : MRI for Neurologist

Thursday, May 30th 2024
Ballroom B-C, JW Marriot Hotel, Surabaya

Guideline Imaging for Stroke, Focus on MRI Utility

Sri Andreani Utomo
Radiology Department, Dr. Soetomo General Academic Hospital/Faculty of Medicine, Airlangga University, Surabaya, Indonesia

The use of MRI in the selection of intravenous and endovascular reperfusion therapies continues to evolve and remains an active area of investigation. In recent years, there has been widespread adoption of PWI in acute stroke imaging. Ischemic and infarcted cerebral tissue will demonstrate reduced cerebral blood flow, reduce cerebral blood volume, and increase mean transit time of blood through the affected vascular territory.

Some studies have investigated 3DASL as a measurement of cerebral blood flow in the setting of acute ischemic stroke. Regions of cerebral infarction, as identified by DWI hyperintense signal, demonstrate decreased CBF using the ASL technique. By contrast, cerebral tissue surrounding the area of infarction and penumbra demonstrates increased CBF, which likely reflects hyperemia and collateral arterial flow toward the area of nfarction

DWI has been shown to improve lesion localization and detect the age of the infarction more accurately, which aids in clinical management. In hyperacute stroke patients, DWI showed much higher rates for detection of stroke than non-contrast CT. The absence of FLAIR hyperintense signal abnormality in the region of cerebral infarction may be useful in determining the age of infarction in patients with an unclear time of symptom onset.

The use of DWI–PWI mismatch criteria may identify patients who will benefit from early reperfusion with acute stroke therapies.

Keywords: *Acute infarction; DWI; 3DASL; DSC Perfusion, MRA*

MRI of Primary Brain Tumor

Melke J. Tumboimbela
RSUP Prof. dr. R.D. Kandou Manado

Brain tumors are a significant burden on people's health and on public healthcare, due to the poor prognosis of malignant subtypes (average five-year survival of 35%). Worldwide, 308,102 new cases of primary brain and central nervous system (CNS) cancers were diagnosed, and 251,329 people died from these malignancies in 2020.

Primary brain tumors comprise a diverse group of pathologic types derived from the various cells that compose the CNS. The clinical management of primary brain tumor is typically conducted by a team of health care providers, which most of these specialties depend on diagnostic imaging of the CNS to characterize tumor types and determine treatment options.

Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) represent the two crucial and frequently used imaging modalities. MRI is the leading imaging modality in patients with primary intra-axial brain tumors. CT has limited indications, mainly in emergency settings. MRI significantly contributes to diagnosis and plays a key role in therapy planning and in evaluating treatment response and/or recurrence. Brain tumor detection techniques are mainly used to identify MRI images of tumors from a database, which is considered a basic and obvious process. However, brain tumor segmentation techniques are used for localizing and isolating different tumor tissues inside MRI images. MRI provides excellent insight into brain pathology by allowing evaluation of the brain in multiple ways to expose different physiologic and anatomic changes.

Keywords: *primary brain tumor, diagnostic imaging, MRI*

Neuroimaging : TCD and CDU

Thursday, May 30th 2024
Bali - Banda, JW Marriot Hotel, Surabaya

Basic of Transcranial Doppler Spectral Interpretation

Girianto Tjandrawidjaja
Siloam Hospital Lippo Village – Tangerang

Getting to know the spectrum at the time of performing TCD will be very helpful to follow up at the time of examination and at the time of analyzing the test results. Under normal circumstances, the spectrum formed in TCD will have acceleration and deceleration phases with a PI of 0.5-1.2. Changes in the shape of the spectrum can occur in conditions of a nonpathological and pathological nature. Conditions that are nonpathological often occur from inappropriate device settings and from the operator while pathological conditions originate from diseases experienced by patients who are being examined. By recognizing the things mentioned above, it is hoped that misinterpretation of TCD examination results can be minimized.

Keyword: *spectrum, nonpathological, pathological*

Diagnosis of Right to Left Shunt using TCD in Cryptogenic Stroke

Aditya Kurnianto
Department of Neurology, Faculty of Medicine, Universitas Diponegoro
RSUP dr. Kariadi Semarang

Right to left shunt (RLS) is a significant risk factor for cryptogenic stroke, with Patent Foramen Ovale (PFO) being the most common cause of cryptogenic stroke due to cardiogenic emboli. Cryptogenic stroke accounts for 40% of all ischemic stroke types. Identifying the etiology of cryptogenic stroke can reduce the risk of recurrence and the prevalence of ischemic stroke. Cryptogenic stroke and PFO often affect young to middle-aged populations. Transesophageal Echocardiography (TEE) and Transcranial Doppler (TCD) are the diagnostic tools used to detect PFO. TCD has the advantage of being a non-invasive, low-cost, and easy-to-perform examination that can diagnose patients with cryptogenic stroke related to RLS. TCD with microbubbles can detect the degree of severity of RLS related to PFO. On the other hand, TEE has a sensitivity and specificity of 100% in autoptic studies, but it is a semi-invasive examination, and its sensitivity to RLS is still questionable. TEE can diagnose PFO, but it is not accurately diagnosed RLS, and it is not always feasible in subacute conditions. In this session, we will explore TCD as a diagnostic tool for RLS in cryptogenic stroke.

Keywords*: Transcranial Doppler, Cryptogenic Stroke*

Right to Left Shunt

Girianto Tjandrawidjaja
Siloam Hospital Lippo Village – Tangerang

There are several preparations that need to be done to perform the Right to Left shunt test. The first is to set the TCD machine with low gain and if it is possible the headset so that it can fix the probe used. In addition, it is necessary to make an air-saline liquid. Second, train the patient to perform valsalva maneuver so that the results of the examination can be obtained optimally. Finally, perform the examination within 5-10 seconds and make an interpretation of the results obtained.

Keywords: *equipment setting, valsava maneuver, interpretation*

TCD on Neurocritical Care (Vasospasm, ICP, ONSD and Brain Death)

Farida
Neuroimaging Department, Faculty of Medicine, Syiah Kuala University
DR. Zainoel Abidin General Hospital, Banda Aceh

Increased Intracranial Pressure (ICP) can cause brain damage through disturbance of cerebral blood flow and shift in the midline of brain that causes distortion and herniation of brain tissue. Transcranial doppler (TCD) is a non-invasive method as an emerging and promising method to evaluate raised ICP where invasive technique is not feasible. Evidence indicate that increase in the diameter of optic nerve sheath is an early manifestation of increase in intracranial pressure. Most clinical studies report dilatation of ONSD with varying threshold values. The average cut off point for ONSD is ≥ 5 mm, with sensitifity (75%-85%) and spesificity 100%.

TCD can also be used to described Cerebral Circulatory Arrest (CCA) that can be confirmed based on the bilateral recording of reverberant or inverted diastolic flow and systolic spikes in the anterior and posterior circulation. All of these findings must be demostrated by exploring through the temporal window , both anterior and posterior circulation.

Besides, evaluation of ICP, ONSD and brain death, TCD can also evaluate vasospasm. The changes in velocity on TCD have been corelated with vessel narrowing. The recent guidelines have mentioned TCD as a reasonable technique for monitoring the development of vasospasm.

Transcranial doppler (TCD) is a simple technique, non invasive, bedsite technique and can be done repeatedly in to evaluate ONSD, vasospasm and brain death. Routine use of daily TCD not only makes mechanistic sense buat can also positively impact clinical outcomes.

Keywords: *ICP, Vasospasm, TCD, ONSD*

Intracranial Artery Stenosis: Diagnosis and Management

Sita Setyowatie
Dep. Neurology Faculty Medicine of Universitas Airlangga RSUD dr. Soetomo Surabaya – Universitas Airlangga Hospital

Intracranial artery stenosis (ICAS), which narrows brain arteries, is a main cause of ischemic stroke. Preventing recurrent strokes and improving patient outcomes require accurate ICAS diagnosis and management. ICAS can be diagnosed using non-invasive imaging procedures like MRA, CTA, and transcranial Doppler ultrasound and invasive methods like DSA. ICAS management involves medical and interventional methods. Medical treatment includes intensive risk factor control, including antihypertensive, antiplatelet, and lipid-lowering medicines, as well as smoking cessation and nutrition changes. In ICAS patients with recent symptoms, dual antiplatelet treatment (DAPT) with aspirin and clopidogrel reduces stroke risk. Patients with severe stenosis or who have failed medical treatment are candidates for percutaneous transluminal angioplasty and stenting. The SAMMPRIS trial showed that rigorous medical management prevents recurrent strokes better than stenting, emphasizing the importance of patient selection for interventional interventions.Future study should improve diagnostic criteria, imaging, and treatment procedures based on risk profiles and stenosis characteristics. Neurologists, radiologists, and interventional specialists must collaborate to optimize ICAS care and patient outcomes.

Keyword: *Intracranial artery stenosis, ischemic stroke, diagnostic, management*

Stroke: New Concept of Acute Vision Loss

Suroto
Faculty of Medicine Universitas Sebelas Maret

Deteroration of eye vascularization may cause Acute Visual Loss, due to retinal or optic nerve acute ischemia. According to AHA ASA definition, ischemic stroke is an episode of neurological dysfunction caused by focal cerebral, spinal or retinal infarction. While most people think of strokes affecting the brain, they can also affect the eye.

Retinal Artery Occlusion (RAO) is a cardiovascular problem disguised as an eye problem, and is a warning sign of other vascular issues, so ongoing follow-up is very important to prevent a future stroke, heart attack, or other vascular events. On the other hand, the risk of having a RAO increases with age and in the presence of cardiovascular risk factors such as hypertension, hyperlipidemia, diabetes mellitus, smoking and obesity.

Many practitioners may not recognize RAO as a form of stroke resulting in patients receiving delayed testing and treatment. Management of such patients is often in the outpatient clinic instead of the emergency department. Treatment with iv rtPA, a thrombolytic drug that is also used to treat brain strokes, may be effective.

Other condition also often called "eye stroke" are Retinal Vein Occlusion (RVO) and Ischemic Optic Neuropathy (ION). Because of the potential for future strokes or even heart attacks, patients should undergo urgent screening and treatment of vascular risk factors.

Keywords*: Acute Vision Loss, stroke, new concept*

A Closer Look At Vascular Related Visual Loss

Ni Nengah Rida Ariarini
Neurology Department, Faculty of Medicine, Universitas Indonesia

Acute visual impairment represents one of the most common emergencies in neurology. The most common non-traumatic cause is related to vascular lesions. These visual disturbances can involve the entire visual network, from the retina, optic nerve, to the occipital cortex. Disorders of each visual network structure have different characteristics, as do the blood vessels that supply them. Therefore, it is of great importance to recognise each characteristic of the visual disorder so that the blood vessels involved can be considered.

In this topic, visual disturbances related to vascular lesions are categorized into three categories: 1. transient monocular visual loss; 2. persistent monocular visual loss; and 3. persistent binocular visual loss. The first group will discuss vascular transient monocular visual loss (v-TMVL), also known as amaurosis fugax. The second group will discuss retinal artery occlusion (RAO) and ischemic optic neuropathy (ION). The third group will discuss visual disturbances in the optic chiasm, optic tract, corpus geniculatum laterale (CGL), optic radiation and occipital cortex due to vascular lesions. The clinical characteristics and management options will be discussed in each case.

In the concluding section of this topic, we will present a summary of the clinical approach to visual impairment due to vascular lesions. This approach begins with a history, a physical examination, and an algorithm for diagnosis. Therefore, it is expected that the clinician will possess a useful knowledge base in clinical practice.

Keyword : *Acute visual loss, ischemic optic neuropathy, retinal artery occlusion, transient visual loss, cortical blindness*

The Role of Transcranial Doppler, Carotid Duplex and Ocular Sonography for Acute Visual Loss Evaluation

Cep Juli
Neuroimaging Subdivision, Neurology Department, Medical Faculty, Universitas Padjadjaran/Hasan Sadikin General Hospital, Bandung, Indonesia

Acute vision loss is the reduction of visual acuity or visual field, developing over a few minutes to a few days. The spectrum of visual dysfunction resulting from ischemic stroke is varied and large. Visual symptoms can occur from changes at any point in the retinofugal pathway included in the retina. Acute retinal arterial occlusion (RAO) events are classic causes of acute painless monocular vision loss. RAO is most strongly associated with an internal carotid artery stenosis and rare case caused by carotid dissection. Embolism from carotid artery plaques are recognized as the most common etiology of RAO. The diagnosis of RAO is made by identifying classic clinical findings of sudden such as painless vision loss, a relative afferent pupillary defect, funduscopic findings indicative of retinal hypoperfusion and typical evaluation performed urgently for patients with acute retinal ischemia including transcranial Doppler (TCD), carotid Duplex (CD) and ocular sonography (OS). They can evaluate patients with acute visual loss due to large vessel disease mainly stenosis and cardiac embolism such as atrial fibrillation. Key parameters for TCD, CD and OS waveforms are peak systolic velocities (PSV), end diastolic velocities (EDV), mean flow velocity (MFV), pulsatility index (PI), resistance index (RI) and other components of the Doppler spectrum such as bruit, spectral narrowing, embolic signals, the changes in the systolic flow acceleration (A blunted signal), collateralization of flow (flow diversion) and a branch occlusion.

Keywords: *Transcranial Doppler, Carotid Duplex, Ocular Sonography, Acute Visual Loss*

Neurointerventional Management in Acute Visual Loss

Subandi
Medical Faculty of Sebelas Maret University

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. Some Studies reported that neurointervention management, namely intraarterial thrombolysis and mechanical thrombectomy, it is a further option that can be performed within 24 hours of onset.

Keyword *: Stroke of the eye - blindness - intravenous thrombolysis, intraarterial thrombolysis/mechanical trombectomy .*

Avoiding Misdiagnosis of Isolated Vertigo, Is HINTS Enough?

Kiki Mohammad Iqbal
Neurology Department, Faculty of Medicine, University of Sumatera Utara

Isolated vertigo is a condition in which clinical vertigo is found without other focal neurological deficits. It's about 4-6% of cases of acute vestibular syndrome spontaneously come to the Emergency Room, but around 3% of patients come with complaints isolated vertigo turns out to be part of the symptoms of stroke, and 35% of stroke patients are not detected.

In spontaneous acute vestibular syndrome, a HINTS examination is required, which is an abbreviation for Head Impulse test, nystagmus and test of skew. The HINTS examination can differentiate peripheral disorders (such as vestibular neuritis) from central disorders (such as vertebrobasilar stroke). The HINTS examination is sensitive in assessing central abnormalities in the first 24-48 hours after onset compared to Magneting Resonance Imaging (MRI) examinations.

In several central conditions, Head Impulse test (HIT) examination will be found positive which should indicate the presence of a peripheral lesion but the abnormality originates centrally. For this reason, examination with HINTS Plus (hearing loss) is needed. The HINT Plus examination is used in patients who have complaints of acute hearing loss which is added with the results of the examination interpretation HIT positive. When hearing impairment is found with positive HIT examination, the cause of vertigo is central, but if normal hearing is found with positive HIT examination, the cause of vertigo comes from the peripheral.

Keywords: *isolated vertigo, HINTS and HINTS Plus*

Sudden Hearing Loss in Isolated Vertigo : Diagnosis and Management

Achmad Junaidi
Department of Neurology, Faculty of Medicine, Universitas Sriwijaya

Sudden sensorineural hearing loss (SSHL) accompanied by isolated vertigo presents a diagnostic challenge due to its diverse etiologies and unclear clinical manifestations. Vertigo can occur due to peripheral or central vestibular disorders. Vertigo is a common symptom of vestibular dysfunction, its role in SSHL remains uncertain. Distinguishing vertiginous symptoms from other forms of dizziness, such as lightheadedness, is crucial.

Etiologies of sudden hearing loss with vertigo are unclear but they may be multifactorial. Several factors such as trauma, inflammatory conditions, as well as vascular-related condition; whereas acute audio vestibular loss is common with ischemic stroke in the territory of the anterior inferior cerebellar artery (AICA).

Diagnosis typically involves a comprehensive evaluation, including a detailed medical history, physical examination, and imaging studies. The HINTS examination provides the earliest collection of physical examination findings developed to reliably rule out a central cause of hearing loss from a peripheral cause. Additional examinations namely MRI, MRA, head CT scan or brain CT angiography may have important roles in detecting vascular pathologies, particularly in the cerebellar artery.

The therapeutic management is based on the etiology, which include corticosteroids, anti platelet / anti coagulant , thrombolitik iv, vasodilators, normovolemic hemodilution therapy and hyperbaric oxygen therapy.

In conclusion, sudden sensorineural hearing loss with isolated vertigo presents a complex clinical scenario requiring a thorough diagnostic approach and tailored treatment strategies.

Keywords: *sudden hearing loss, vertigo, stroke*

Pulsatile Tinnitus: Diagnosis and Neurointerventional Management

Ashari Bahar
Division of Neurointervention and Endevascular Treatment, Neurology Departement of Faculty of Medicine Hasanuddin University

Pulsatile tinnitus can disturb patients and is also a sign of a neurological disease that is potentially devastating and life-threatening. It could be a symptom of a good condition or a more serious problem. Careful diagnostic evaluation of pulsatile tinnitus is crucial in providing optimal treatment and guiding appropriate treatment strategies. Once the vascular cause of pulsatile tinnitus has been established, attention should be focused on the patient's risk of hemorrhagic stroke, ischemic strokes, or blindness, as well as the risk of available treatment options, to guide decision-making.

Keywords: *Pulsatile tinnitus, Endovascular*

Neurorestoration & Neuroengineering : Translating The Advancement of Transcranial Magnetic Stimulation Protocols on Details into Daily Neurological Cases

Thursday, May 30th 2024
Oasis, JW Marriot Hotel, Surabaya

Transcranial Magnetic Stimulation (TMS) in Motoric Stroke and Spasticity Problem

Tugas Ratmono
Medical Faculty of Achmad Yani University, Cimahi, Indonesia

In the worldwide and also in Indonesia, the prevalence of stroke was still increase in number. Stroke is one of the leading caused of the disability and due to the big problem for patients and their family. The patients had many impacts like weakness, sensory loss, difficult on speech and swallowing, cognitive impairment and depression that motoric and spasticity problem were the most common after stroke. The many modalities implementation for faster on function recovery after stroke focused on weakness and spasticity recovery were found in healthcare services. In the neurorestorative view, neuromodulation with repetitive transcranial magnetic stimulation (rTMS) was rapidly developed and shown the promising modality for improving the problem of stroke impacts. The study of rTMS for motoric and spasticity recovery after stroke also increasing in number and was shown the effectiveness. The mechanism of action of TMS for stroke recovery still developed on research for the clear understanding. Recently, in Indonesia, TMS used for stroke patients was very wide developed in healthcare services and studies for motoric and spasticity improvement were published from many centers. In other side, the knowledge, skill and competence are needed to give the quality and safety in management of brain disfunction used the noninvasive brain stimulation for patients after stroke.

Keywords*: stroke, motoric, spasticity, rTMS*

Transcranial Magnetic Stimulation (TMS) in Patients Aphasia and Dysphagia Post-Stroke

Ruhaya Fitrina
Rumah Sakit Otak Dr. Drs. M. Hatta Bukittinggi

Stroke is the second-leading cause of death and the third leading cause of disability in the world, and patients with stroke often suffer from functional impairments and deficits. Motor weakness, sensory dysfunction, speech disturbances, dysphagia, unilateral neglect, cognitive dysfunction, and emotional impairment in post-stroke patients will need long- term rehabilitation.

The use of TMS for aphasia and dysphagia post stroke rehabilitation has aroused wide interest. Growing evidence has verified their effectiveness in modulating cortical excitability, facilitating functional reorganization, and improving speech and language performance. LF-rTMS was applied to the right- hemisphere regions to suppress cortex activation during language-related tasks and to encourage left-hemisphere activation around the lesion. HF-rTMS, however, is used to promote activation of the remaining left hemisphere region or the right hemisphere region.

Dysphagia, or difficulty swallowing, can result from stroke-related lesions in the cortical hemispheres, subcortical control circuits, or brainstem. HF- and LF-rTMS can be used for the treatment of post-stroke dysphagia, a specific therapy that promotes cortical reorganization to accelerate the natural stroke rehabilitation process. Commonly used frequencies are 10 Hz and 1 Hz. The commonly used stimulation modes are high-frequency, high-frequency ipsilateral combined with low-frequency contralateral stimulation. Bilateral high-frequency stimulation of the motor cortex is most effective for post-stroke dysphagia.

Both LF- and HF-rTMS contribute to improved language outcomes in subacute and chronic post-stroke aphasia and dysphagia. The use of TMS in the rehabilitation of post-stroke aphasia and dysphagia cannot be separated from accompanying neurorehabilitation exercises, speech, and swallowing therapy.

Keywords*: rTMS, aphasia, dysphagia, post-stroke*

Exploring the Efficacy of Transcranial Magnetic Stimulation in Parkinson's Disease

Amanda Tiksnadi
Departement of Neurology, Dr Cipto Mangunkusumo Hospital - Universitas Indonesia Hospital - Faculty of Medicine Universitas Indonesia

Transcranial Magnetic Stimulation (TMS) has emerged as a promising non-invasive neuromodulation technique in the management of Parkinson's Disease (PD). This abstract provides a comprehensive review of the current literature on the efficacy of TMS in PD. TMS offers a unique opportunity to modulate cortical excitability and synaptic plasticity, targeting key brain regions implicated in PD pathology such as the primary motor cortex, supplementary motor area, and dorsolateral prefrontal cortex.

Several studies have demonstrated the potential of repetitive TMS (rTMS) protocols in ameliorating motor symptoms, including bradykinesia, rigidity, and tremor, in PD patients. Furthermore, TMS combined with neuroimaging techniques has enabled researchers to elucidate the underlying neurophysiological mechanisms of TMS-induced effects in PD. Moreover, studies exploring the long-term effects and optimal stimulation parameters of TMS in PD are shedding light on its potential as a therapeutic intervention.

However, challenges remain, including the need for large-scale randomized controlled trials to establish the efficacy of TMS as a standalone treatment or adjunct therapy in PD management. Moreover, individual variability in treatment response, optimal stimulation parameters, and the precise mechanisms underlying TMS-induced effects warrant further investigation.

In conclusion, TMS holds promise as a non-invasive neuromodulation technique for alleviating motor symptoms and possibly modifying disease progression in PD. Continued research efforts are crucial to refine TMS protocols, identify patient-specific predictors of treatment response, and establish its place in the clinical armamentarium for PD management.

Keywords: *TMS, Parkinson's Disease*

Neuronavigation Role in Transcranial Magnetic Stimulation

Deby Wahyuning Hadi
Neurology Department Airlangga University – Dr. Soetomo General Hospital, Surabaya

Transcranial magnetic stimulation (TMS) has emerged as a valuable tool in both clinical neurology and basic neuroscience research, offering insights into brain function and therapeutic interventions for various neurological and psychiatric disorders. However, the efficacy and precision of TMS procedures heavily rely on accurate targeting of cortical regions, which poses challenges due to anatomical variability and imprecise stimulation techniques. Recent studies have investigated various approaches to enhance the accuracy and precision of TMS targeting, particularly through the utilization of neuronavigation systems.

Studies have demonstrated that neuronavigation systems can improve the accuracy of TMS coil placement, resulting in more precise targeting of desired brain regions and better clinical outcomes. Furthermore, the combination of TMS with neuroimaging techniques, such as functional magnetic resonance imaging, has shown promise in improving the localization of TMS stimulation sites. By incorporating individual MRI images into neuronavigation systems, researchers can achieve high anatomical accuracy. Despite the promising findings, challenges remain in optimizing TMS targeting techniques and addressing methodological limitations. Variability in sulcal morphology and interindividual differences in brain functional localization pose challenges in accurately localizing stimulation sites, particularly within the dorsolateral prefrontal cortex and primary motor cortex (M1).

In conclusion, the integration of neuronavigation systems with neuroimaging techniques holds promise in enhancing the accuracy and efficacy of TMS procedures for both research and clinical applications. Further research is warranted to replicate findings in larger samples, explore simpler targeting methods, and optimize TMS protocols for individualized treatment approaches.

Keywords: *neuronavigation, transcranial magnetic stimulation, neuroimaging*

Clinical Diagnostic Utility of Transcranial Magenetic Stimulation on Neurological Disorders

Fadil

Dep. Neurology Faculty Medicine of Universitas Airlangga RSUD dr. Soetomo Surabaya

Clinical applications for transcranial magnetic stimulation (TMS) include neurological illness. It maps cortical motor areas and measures corticospinal excitability, assessing motor and cognitive function. TMS is non-invasive and objective than neurological tests. Motor threshold and cortical excitability are assessed by TMS to identify and treat neurological issues. TMS's neural activity modification makes it diagnostic. Using a magnetic field to generate electrical currents in the cortex, TMS can selectively activate or inhibit neural networks to reveal brain activity. The control of neural activity influences synaptic plasticity, neurotransmitter release, and cognitive and motor activities. TMS can identify neurological disease processes and therapeutic targets by revealing aberrant neural networks or cortical excitability patterns. TMS clinical usage in neurology is promising but limited. TMS accuracy and reliability can be affected by brain architecture, stimulation parameters, and comorbidities. TMS ethics, especially off-label use and risks, must be considered. Research is improving TMS technology despite these constraints. Future directions include more accurate stimulation, neuroimaging, and TMS in combination with other therapies to improve patient results.Transcranial magnetic stimulation can detect brain function and pathology, making it a promising neurological diagnostic tool. TMS can improve neurology diagnosis and patient care provided researchers and clinicians understand its clinical uses, neurophysiological principles, and challenges.

***Keyword**: transmagentic stimulation, utility, neurological disease*

Neuroepidemiology : Developing Patient Registries and Research Network in Neurological Diseases

Thursday, May 30th 2024
Oasis, JW Marriot Hotel, Surabaya

Basic of Epidemiology and The Importance of Patient Registry in Health Service

Rizaldy Taslim Pinzon
Neurology Department
Bethesda Hospital/ Duta Wacana Christian University School of Medicine

Epidemiology is defined as "the study of the distribution and determinants of health related states or events in specified populations, and application of this study to control of health problems". Epidemiology is the study of how often diseases occur in different groups of people and why. Epidemiological information is used to plan and evaluate strategies to prevent illness and as a guide to the management of patients. Medical registries defined as "a data base of identifiable persons containing a clearly defined set of health and demographic data collected for a specific public health purpose". Medical registries provide highly reliable data, challenged hierarchically only by randomized controlled trials. Medical registries have evolved from calculating basic epidemiological data (incidence, prevalence, mortality) to diverse applications in disease prevention, early diagnosis and screening programs, treatment response, health care planning, decision making and disease control programs. In this review we discuss the basic concept of epidemiology for providing basic good medical registry development. Medical registries allowing access to quality, non-biased data, that can reliably be used for a multitude of purposes that span from general medical practice to research and policies making. In everyday medical practice the impact of medical registries provide practitioners with relevant, "real-world", information on disease evolution in the general population and the quality of care, allowing informed decision making for the patients benefit.

Keywords: *Epidemiology, Data, Quality, Registry*

What Are Needed in Developing Registry?

Rusdy Ghazali Malueka
Departemen Neurologi FK-KMK UGM/KSM Saraf RSUP Dr. Sardjito, Yogyakarta

A patient registry is an organized system that uses observational study methods to collect uniform data (clinical and other) to evaluate specified outcomes for a population defined by a particular disease, condition, or exposure. It serves one or more predetermined scientific, clinical, or policy purposes. Patient registries serve as invaluable repositories of real-world data, capturing diverse patient populations and their longitudinal health trajectories. They play a crucial role in advancing clinical research and therapeutic development, as well as enhancing disease surveillance and public health monitoring efforts. Planning is an important part of developing a registry, and it consists of 9 steps: 1) Articulate the Registry Purpose; 2) Determine if the registry is the right option; 3) Identify and collaborate with key stakeholders; 4) Assess feasibility; 5) Build a registry team; 6) Establish a Governance and Oversight Plan; 7) Consider the scope of data and the scientific rigor; 8) Define the data set, patient outcomes, and target population, 9) Develop a study protocol and project plan. A registry should be evaluated periodically to see whether the objectives have been met or whether changes are needed to reach the stated purpose.

***Keywords**: Patient registry, developing registry*

Defining Research Network: Experience from Neuroinfection Working Group

Sofiati Dian
Department Neurology Faculty of Medicine Universitas Padjadjaran

The establishment of research networks is a pivotal strategy in advancing the understanding and management of complex diseases, particularly within research activities. Given the complexity of contemporary global issues, sharing knowledge and resources through collaboration is essential. Leveraging insights from the neuro-infection working group, this paper provides valuable perspectives on the practical steps and effective strategies involved in delineating research networks.

Our presentation delves into our experiences in defining the structure and objectives of the research network, outlining methodologies employed to identify potential members, and detailing the implementation and maintenance of cross-institutional collaborations. Additionally, we shed light on the challenges encountered in constructing and sustaining a viable research network while highlighting the benefits it offers in accelerating knowledge dissemination and enhancing disease management in the domain of neuro-infections.

Collaborative approaches are crucial for studying complex phenomena. However, challenges exist, indicating that to ensure effective research collaboration and build trust and understanding with practitioners at various levels in the healthcare system, it is necessary to allocate sufficient time, provide venues for interaction, and develop skills in project management and communication.

Keywords: *network, collaboration, research, working group, neuro-infections*

Neurorestoration & Neuroengineering : Basic Training qEEG

Thursday, May 30th 2024
Oasis, JW Marriot Hotel, Surabaya

Basic Brain Dynamics and Brain Function

Jumraini Tammasse
Divition of Neurorestroasi-Neuroengineering, Neurology Departement of Faculty of Medicine Hasanuddin University

The human brain is an incredibly complex and efficient entity, whose operation depends on a complicated network and intricate interactions between its components. This document explores various aspects of brain dynamics—from brain wave synchronization affecting cognitive function to neural plasticity that allows the brain to adapt to experiences. It emphasizes how structural and functional changes in the brain occur in response to external and internal stimuli, making brain plasticity fundamental in the processes of learning and memory. Furthermore, neurological disorders affecting brain function such as stroke, epilepsy, and neurodegenerative diseases like Alzheimer's and Parkinson's are also reviewed. Recent research, utilizing advanced neuroimaging techniques, further unveils the dynamics of the brain and provides new insights into how the brain processes information and regulates behavior. The balance between the integration and segregation of information by the brain, which supports adaptive behavior, continues to highlight the complexity and adaptability of the human brain.

Keywords: *Brain Dynamics, Neural Plasticity, Brain Wave Synchronization*

Neuroanatomy & Neurophysiology of EEG Recording

Wardah Rahmatul Islamiyah
Dep. Neurology Faculty of Medicine Universitas Airlangga – Universitas Airlangga Hospital – Dr. Soetomo Hospital Surabaya

Proficient interpretation and application of electroencephalography (EEG) in clinical practice and research requires a thorough understanding of the neuroanatomy and neurophysiology that underlie EEG recording. This abstract summarizes a workshop training session that focuses on understanding the complexities of EEG recording. The session explores the basic principles of neuroanatomy, explaining the structural arrangement of different brain regions and their importance in producing electrical activity that can be measured using EEG.

Participants will investigate the cortical layers, neural networks, and subcortical structures that are crucial in determining EEG patterns. In addition, this course will explain the neurophysiological foundation of EEG recording, clarifying the biophysical principles that control the production and transmission of electrical impulses in the brain. This article aims to clarify the process of neural activity, from synaptic potentials to action potentials, and how it is reflected in EEG waveforms.

Participants will acquire knowledge on electrode placement, signal acquisition, and artifact recognition, which are crucial for improving the quality of EEG recordings, through interactive seminars and practical demonstrations. Furthermore, the discussions will include the importance of EEG in diagnosing neurological illnesses, monitoring brain activity, and guiding treatment actions. In addition, this article will cover current developments and advancements in EEG recording, such as quantitative EEG (qEEG), source localization techniques, and the integration of EEG and fMRI. This will promote a comprehensive comprehension of modern EEG approaches.

Keywords: *EEG, Neuroanatomy, Neurophysiology, Clinical application, Health Service*

Good qEEG Recording Assessment

Yetty Hambarsari
Neurology Department, Faculty of Medicine Universitas Sebelas Maret
Dr. Moewardi Regional General Hospital

Electroencephalography (EEG) measures electrical patterns commonly referred as brain waves on the head surface which reflect cortical activity. Quantitative EEG (qEEG) is a procedure analyzing EEG activity from multi-electrode recordings whose patterns often called as "brain mapping." This multi-channel EEG data is processed with various algorithms, analyzed statistically, and compared with normative database (population of the same age considered as neurotypical). Preparation for qEEG is very important because it will affect brain waves and their patterns analysis. EEG data are usually contaminated with artifacts produced by eye blinks, eye movements, muscle activity, ECG pulse, and electrode. Removal of artifacts from raw EEG is essential to correctly analyze the EEG and obtain clinical information regarding pathology process. Some medical equipment uses automatic artifact removal algorithms combining several methods i.e., Independent Component Analysis (ICA) and Standardized Artifact Rejection Algorithm (SARA) which can separate EEG data into neural activity and artifacts. Automated report generators should only be used on raw EEG recordings which are free of artifacts since it cannot differentiate well between artifacts and real brain waves. Topographic maps display EEG data in the form of color-coded Z scores. EEG activities in the range of Z-score +/-1.0 are considered within normal limits and Z score of +/-1.5 or greater are evaluated to determine whether they are clinically significant when placed in the context of the patient's history and current problems. Preparation and removal of brain waves from artifacts greatly influence qEEG analysis.

***Keywords**: qEEG, recording, assessment*

Processing of EEG Data into QEEG

M. Hasnawi Haddani
RSUP DR. Moh. Hoesin Palembang/ Universitas Sriwijaya

Quantitative Electroencephalography (qEEG) is a procedure that processes the recorded EEG activity from a multi-electrode recording using a computer. QEEG as a mathematical process of digital EEG dEEG to be able to identify not only brain waves, amplitude, location, but also to identify coherence, namely the quality of communication between 13 parts of the brain, phase (speed of thinking) and network integration. QEEG is an electrophysiological assessment using computerized mathematical analysis to convert raw brain wave data into frequencies with different ranges. It begins with preprocessing steps to mitigate artifacts and noise inherent in EEG recordings. Techniques such as filtering, artifact rejection, and referencing are employed to enhance the signal quality. Quantitative analysis, based on frequency, amplitude and coherence in various conditions or when the patient performs tasks and statistically compared with normative basic data according to age to assess the abnormality profile from the quantitative pattern of brain waves.

QEEG results will be displayed as Z-scores¸ which represent standard deviations from the mean and range from –3 to +3. Correlation analyses examine the relationships between qEEG metrics and clinical variables, cognitive performance measures, or behavioral outcomes, elucidating potential biomarkers or predictors of interest. Interpreting qEEG data involves a multifaceted approach that integrates preprocessing, feature extraction, advanced analysis techniques, statistical testing, and machine learning algorithms. By systematically analyzing and interpreting qEEG data, researchers can gain deeper insights into brain function and dysfunction, identify biomarkers of neurological disorders, and develop personalized interventions for clinical applications.

Keyword: *qEEG, Z-score, digital EEG, EEG*

Nurse Workshop : Dedicated for Neurocathlab Nurse, Stroke Nurse and HCU/ICU Nurse

Thursday, May 30th 2024
Oasis, JW Marriot Hotel, Surabaya

Understanding Stroke in Emergency Room: Large Vessel and Small Vessel

Sigit Dewanto
RS Grha Kedoya

Stroke is the sudden disruption of blood flow in the brain's blood vessels, typically caused by a blockage or hemorrhage. Blockages in the brain's blood vessels are classified into two types: Large Vessel Occlusion and Small Vessel Occlusion. Risk factors for stroke include hypertension, diabetes mellitus, high cholesterol, atrial fibrillation, lack of physical exercise, smoking, and genetic factors. For strokes caused by small vessel occlusion, the focus is on managing risk factors, whereas strokes caused by large vessel occlusion require more aggressive treatment aimed at opening the blocked vessel. In the emergency room, it is crucial to quickly identify the type of stroke and provide initial treatment, such as oxygen administration, intravenous access, and thrombolytic drugs. Effective collaboration between medical staff, including both nurses and doctors, is essential for optimal management to achieve the best possible outcomes.

Keywords: *Stroke, Emergency room, Large and Small vessel*

How to Deal with Stroke: Nurses to Know Before, During, and After Thrombolysis

Rodhiyan Rakhmatiar, MD
Saiful Anwar General Hospital / Faculty of Medicine Universitas Brawijaya

Stroke is a significant medical emergency that requires prompt and effective management to minimize long-term damage and improve patient outcomes. Thrombolysis is a critical treatment option for eligible stroke patients. By understanding the importance of timely diagnosis and treatment, as well as the key aspects of stroke management before, during, and after thrombolysis, we can provide optimal care for stroke patients and improve their outcomes.

Recognition and Initial Assesment before thrombolysis consist of identify stroke symptoms, perform a rapid neurological examination and order diagnostic imaging to confirm the diagnosis and rule out intracerebral hemorrhage. During the preparation, verify that the patient meets eligibility criteria, provide medication as needed to manage blood pressure an blood glucose and also obtain informed consent from the patient or their family. When administering the thrombolytic agent, carry out monitor vital signs, monitor for bleeding, provide supportive care and assess for neurological deterioration. After the thrombolysis, continue to monitor the patient for signs of bleeding, neurological deterioration and othe complication. Educate the patient and their family about the importance of follow up care, including rehabilitation and ongoing management of any underlying medical conditions.

Effective stroke management involves prompt identification, rapid intervention, and meticulous post-treatment care. Emergency nurses play a vital role in each phase of stroke care, particularly in the administration and monitoring of thrombolysis. By staying informed and vigilant, you can significantly improve outcomes for stroke patients.

Keywords: *Stroke, thrombolysis, nurse care*

Bleeding During and After Thrombolysis: What to do

Hernawan
Department of Neurology Margono Soekarjo Hospital, Faculty of Medicine General Sudirman University

Hemorrhage at different sites within 24 hours of thrombolysis was counted, including intracranial hemorrhage and peripheral hemorrhage (hemorrhage of the gums, oral mucosa, skin and mucosa, nose, digestive system, and urinary system). Symptomatic intracranial hemorrhage (sICH) is the most feared complication of intravenous thrombolytic therapy in acute ischemic stroke. sICH is an uncommon but severe complication of systemic thrombolysis. The occurrency proportion of hemorrhage transformation after acute ischemic stroke ranges from 8.5 to 30%, in which 2.1–9.4% are symptomatic. Atrial fibrillation, blood pressure, use of aspirin, NIHSS, platelet count, IV antihypertensive drugs can predict sICH event. The diagnosis of intracranial hemorrhage during intravenous thrombolysis or within 24 hours after thrombolysis was based on head CT/ MRI examination when the patient's clinical symptoms were aggravated. Scale Standarised Nursing Observations for Stroke/ SNOBS can be used to monitor durante and after intravenous thrombolysis. Stop thrombolysis immediately and contact a neurologist in case of severe headache, loss of consciousness or peripheral hemorrhage occurs. CT scan of the head immediately. Blood pressure should always be measured every 15 minutes for the first 2 hours, every 30 minutes for the next 6 hours and then every 1 hour to 24 hours after thrombolysis. Perform SNOBS examination on patients every 15 minutes during thrombolysis infusion, every 30 minutes for the next 6 hours and every 1 hours for 24 hours after thrombolysis administration. Agent that potential for benefit in all sICH are cryoprecipitate, aminocaproic acid and tranexamic acid.

Keywords: *stroke, intracranial hemorrhage, peripheral hemorrhage, SNOBS*

Common Complication in Early Stroke: Dysphagia and Pneumonia

Tommy Rachmat Setyawan
Neurointervention & Cerebrovascular Division, Neurology Dept., Dr. Sardjito General Hospital, Yogyakarta

Stroke is one of the leading causes of disability and mortality worldwide. Patients with stroke have various clinical conditions, including hemiparesis, loss of dexterity, functional limitations, gait disturbance, cognitive impairment, dysarthria, spasticity, neglect, and dysphagia.

Dysphagia is one of the most significant risk factors in the development of pneumonia. Patients with dysphagia have a higher risk of aspiration, leading to an increased risk of acquiring pneumonia. Early detection and proper management of dysphagia, including adequate nutritional management and successful swallowing rehabilitation, may help prevent malnutrition and pneumonia in stroke patients.

Early pneumonia prevention is essential to reduce serious respiratory complications, such as respiratory failure, lung abscess, necrosis, sepsis, and death after stroke. The Gugging Swallowing Screen (GUSS) test is simple, valid, and reliable test to detect early aspiration as it has high sensitivity and specificity. It is easy, rapid, and suitable noninvasive tool to grade the severity of dysphagia.

Keywords: *acute ischemic stroke, dysphagia, aspiration pneumonia*

Role of Neurorestoration in Acute Stroke to Prevent Complication

Agus Darmawan
RS Kharitas Bhakti Pontianak

Acute stroke is a medical event that requires immediate attention as it can cause irreversible damage to the brain and various serious complications. Neurorestoration, a concept related to the restoration or repair of impaired brain function, has become a focus of research and therapy in the management of acute stroke. Studies have shown that neurorestorative efforts undertaken immediately after stroke can play a crucial role in preventing or reducing the impact of complications that may arise.

The role of neurorestoration in reducing the risk of acute post-stroke complications is crucial. The benefits of neurorestoration can speed up the recovery process, improve cognitive and motor function, and reduce long-term disability. Neurorestoration encompasses several different things, including pharmacological therapy, physical rehabilitation, and the use of advanced technologies such as virtual reality and transcranial electrical stimulation.

The importance of prompt and comprehensive treatment in providing neurorestorative interventions to acute stroke patients and timely and targeted neurorestorative therapies can help minimize the adverse effects that may arise after stroke, as well as improve patients' quality of life and long-term prognosis.

Other roles of neurorestoration in acute stroke and its application in clinical practice can help optimize the management of stroke patients and reduce the burden caused by post-stroke complications.

Keywords: *acute stroke,neurorestoration, prevent complication*

Groin Hematoma: Risk Factors and How to Prevent and Handle Complication

Nyoman Angga Krishna Pramana
RSUP Prof. I.G.N.G. Ngoerah

Femoral access remains the primary vascular route used in neurointerventional procedures. Groin hematomas is one of the main complications of femoral access, especially in long neurointerventional procedures and using large femoral sheaths. This presentation aims to elucidate the risk factors, prevention strategies, and management approaches for groin hematomas, with a focus on enhancing patient outcomes in clinical settings.

The groin region's complex anatomy makes it susceptible to hematoma formation, especially under certain conditions such as anticoagulation therapy or invasive procedures. Identifying high-risk patients is crucial for implementing targeted preventive measures.

Preventive strategies are paramount and include techniques such as using ultrasound guidance during procedures to minimize vascular injury. Early detection plays a critical role in effective management, with signs such as localized swelling and pain serving as primary indicators. The management of groin hematomas involves a spectrum of approaches ranging from conservative measures, such as rest and compression, to surgical intervention in severe cases.

Complications from untreated or poorly managed hematomas can be severe, leading to further morbidity. This presentation will discuss these complications, supplemented by case studies that highlight successful management and prevention of groin hematomas. Through a comprehensive review of current practices and clinical evidence, this presentation will provide valuable insights into reducing the incidence and impact of groin hematomas in medical practice.

Keywords: *Groin Hematoma, femoral access, neurointervention*

Common Complications during Neurointevention Procedures: (Dissection, Bleeding, Infarction, Contrast Encephalopathy)

Ignatius Letsoin
PERDOSNI Papua, Pokja Neurointervensi

Neurointerventional procedures are procedures in the field of neurology practice that use catheters and radiology to diagnose and treat disorders related to the central nervous system such as treatment of aneurysms, acute ischemic stroke, etc. It usually involves a minimally invasive procedure. Nurses are an integral part of the multidisciplinary team caring for a patient eligible for various procedures. In the interventional laboratory, nursing collaborates with radiology technologists and interventionalists to ensure patient safety and monitor for intraprocedural complications. Because it is invasive it is associated with various complications. These include local complications at the puncture site, technical complications such as failure of transfemoral or radial catheterization, systemic complications such as headaches, allergic reactions, as well as nephropathy and encephalopathy due to contrast agents. The most common complications are groin hematoma due to puncture, thromboembolism, and air embolism from catheters and wires resulting in cerebral ischemia. The main concerns are complications at the puncture site, including bleeding, retroperitoneal hematoma, pseudoaneurysm, arteriovenous fistula, or arterial dissection and neurological complications in the form of cerebral ischemic lesions.

Every step in any neurointerventional procedure carries risk, and a thorough understanding of potential complications is fundamental to maximizing safety. Therefore, in the interventional laboratory, nursing collaborates with radiology technologists and interventionalists to ensure patient safety and monitor for intraprocedural complications. Every procedure carried out must apply a proactive approach to dealing with complications with certainty, even before the procedure begins.

Keywords: *Neurointerventional; Cerebral Angiography; Complications; Iatrogenic Diseases*

Understanding Hemostasis and Drugs in Neurointerventional Procedure

Hermanto Swatan
Mitra Keluarga Waru Hospital, Sidoarjo, East Java, Indonesia

Hemostasis is a bodily mechanism to stop the bleeding process. The hemostasis process includes vasoconstriction, platelet activation, and coagulation. This entire process functions to form a thrombus that will stop the bleeding. There are various drugs that either inhibit or trigger hemostasis. Drugs that inhibit hemostasis include groups such as anticoagulants (heparin, direct thrombin inhibitors, direct factor Xa inhibitors, and warfarin), antiplatelets (aspirin, GPIIb/IIIa inhibitors, ADP inhibitors, and PDE/adenosine uptake inhibitors), and thrombolytics (streptokinase). On the other hand, drugs that trigger blood clotting include coagulation factors, vitamin K, and antiplasmins (tranexamic acid, aminocaproic acid). Various drugs related to hemostasis play an important role in neurointerventional procedures.

Keywords: *drugs, hemostasis, neurointerventional procedure*

Preparation of Neurointervention Instrumentation in Cathlab

Beny Riliant
Neurointervention Division, Mahar Mardjono National Brain Center Hospital, East Jakarta, Indonesia

Preparation of both equipment and patients is a crucial in all interventional procedures, including thrombectomy, coiling, embolization, and carotid stenting. The aim of thorough preparation is to maximize work efficiency, ensure precise management, and minimize complications. In thrombectomy procedures, the type of primary technique whether aspiration or stent retriever is of paramount importance, each having its advantages and disadvantages. In coiling procedures, the type and size of the coil are critical determinants of success. In addition, it must be considered whether the procedure will utilize a simple coil or a stent-assisted coil for wide-neck aneurysms. For embolization procedures, it is essential to comprehend the type of material being used along with its density or concentration. In carotid stenting procedures, the type and size of the stent used are essential factors for achieving successful recanalization and favorable outcomes.

Keywords: *Neurointervention, Cathlab, Thrombectomy, Coiling, Embolization*

Thrombectomy & Devices: Understanding and How to do

Ricky Gusanto Kurniawan
Rumah Sakit Pusat Otak Nasional Mahar Mardjono Jakarta

Mechanical thrombectomy (MT) devices attempt to restore circulation through the initially blocked artery in order to save the brain that is ischemic but has not yet entirely infarcted. Recanalization has increased the probability of a satisfactory end functional outcome more than four times in large series and randomized trials. MT devices are in two varieties: Aspiration catheters, which have a high inner distal diameter and are flexible. A tiny access catheter is placed into the patient after a guide wire. The aspiration catheter is then directed to the proper location using the access catheter. When the clot is reached, it is divided into tiny fragments so that a pump or manual suction can be used to aspirate it through the catheter. Stent Retriever: The purpose of stent retrievers, which feature an extending wire mesh tube, is to remove the clot entirely. A delivery catheter is used to insert the retriever, and once it is, the mesh expands. After becoming lodged in the expanding mesh, the clot is removed from the catheter. Both kinds of tools might be utilized in some circumstances to get rid of the clot.

Keywords: *Mechanical Thrombectomy, Thrombectomy device, Aspiration catheters, Stent Retriever*

Embolization AVM/DAVFs and Devices: Understanding and How to Do

Deddy Andaka
Department of Neurology, Siloam Hospitals Bali, Indonesia

Arteriovenous malformation (AVM) and dural arteriovenous fistulas (DAVFs) pose significant challenges in neurointerventional procedures. Endovascular embolization, preferred as a primary treatment due to its minimally invasive nature and favorable healing outcomes, necessitates a thorough understanding of pathophysiology, anatomy, and the available equipment.

Comprehensive knowledge of the vascular architecture of AVM and DAVFs is crucial for effective embolization. This includes a detailed understanding of feeder arteries, draining veins, the nidus, and fistula points, often requiring advanced imaging modalities such as magnetic resonance angiography (MRA) and digital subtraction angiography (DSA).

The selection of appropriate embolic agents and devices is critical, as the field has rapidly evolved from traditional liquid embolic agents to advanced coils and flow diverters. Proper device selection and preparation are essential to minimize complications during the procedure.

This paper provides an overview of embolization techniques for AVM and DAVFs, aiming to equip practitioners with the knowledge and skills necessary for optimal patient care.

Keyword: *embolization, AVM, DAVFs*

Symposium Plenary : Neurological Guideline, Fellowship Program, Stroke Certification and Advanced Stroke Treatment

Friday, May 31st 2024
Ballroom A-B-C, JW Marriot Hotel, Surabaya

Guideline is Not Fit for All : Adapting Global Guideline to Indonesian Context

Dodik Tugasworo
RSUP Dr Kariadi Semarang

Adapting global healthcare guidelines to local contexts is crucial to ensure relevance and applicability. In Indonesia, it is essential to modify global guidelines to address specific challenges and considerations. To tailor the guidelines effectively, a collaborative effort may be required involving local stakeholders, healthcare professionals, policymakers, and communities. Healthcare providers can improve the quality of stroke care in Indonesia by educating themselves about the AHA/ASA stroke guidelines, adapting to the local context, facilitating multidisciplinary collaboration, establishing data collection and monitoring systems, implementing quality improvement initiatives, and engaging patients and the community. By following these steps, healthcare providers can improve the quality of stroke care, enhance patient outcomes, and reduce the overall burden of stroke in Indonesia.

Keywords : *stroke, guideline, treatment*

Fellowship and Subspecialist Program in Neurology: Current Position and Future Direction

Syahrul
Chairman of Indonesian Neurology Collegium

The Indonesian Collegium of Neurology as the organizer of the neurology specialist fellowship program has been accepting fellowship participants since January 2023. Neurology specialist doctor fellowships programs are held at main teaching hospitals that have organized neurology specialist doctor education programs or hospitals that have the capacity and capability that are deemed feasible by the Indonesian Neurology Collegium in terms of human resources, number and variety of cases, as well as supporting facilities and infrastructure for administering the fellowship program. The hospital providing the neurology specialist fellowship which has implemented a collaboration charter with the Indonesian Neurology Collegium. Currently there are eighteen neurology specialist fellowship programs organized by the Indonesian Neurology Collegium which include the Neurointervention, Stroke and Blood Vessels, NO NOT, Neuroimaging, Pain, Headache, Nerobehavior, Neurointensive, Neuroinfection and Neuroimmunology, Neurotrauma, Clinical Neurophysiology, Epilepsy and EEG, Sleep Disorders, Oncology Neurology, Neurological Disorders in Children, Neurorestoration and Neuroengineering Fellowship. Meanwhile, the Neurology Subspecialty program is currently being prepared for its implementation. It is hoped that the Neurology Subspecialist program will begin to be held in 2025. There are eight Neurology Subspecialty Programs that will be held, namely the Neurology Subspecialty Program Neurovascular, Pain, Neurodegenerative, Neurocritical and Intensive, Epilepsy and Clinical Neurophysiology, Neurooncology, Neuropediatrics and Neurorestoration Neuroengineering. The Indonesian Neurology Collegium will collaborate nationally and internationally to develop various standards for fellowship and subspecialist program in neurology.

Keywords : *Current Position, Future Direction, Indonesian Neurology Collegium, Neurology Fellowship, Neurology Subspecialist*

Symposium 1 : Anti thrombotic and Bleeding complication in Acute Stroke

Friday, May 31st 2024
Ballroom A, JW Marriot Hotel, Surabaya

Preventing and Treating Gastrointestinal Bleeding in Patients Who are Taking Anti-Platelet Agents, Role of Potassium-Competitive Acid Blocker (P-CAB)

Mursyid Bustami
RSPON Prof Mahar Mardjono Jakarta

Antiplatelet therapy stands as a cornerstone in cardiovascular treatment, providing crucial protection against ischemic events while navigating the challenge of major bleeding complications. Gastrointestinal (GI) bleeding emerges as a significant concern, influenced by diverse factors including age, antiplatelet agents, NSAIDs, and Helicobacter pylori infection. Proton-pump inhibitors (PPIs) have conventionally served as frontline therapy to mitigate GI complications, yet their delayed onset and variable efficacy necessitate exploration of alternative strategies. Vonoprazan, a novel potassium-competitive acid blocker, has emerged as a promising solution to address GI protection in the context of cardiovascular treatment. Offering rapid, potent, and sustained inhibition of gastric acid secretion independent of an acidic environment, vonoprazan presents distinct advantages over traditional PPI therapy. Clinical investigations have underscored its efficacy in preventing gastroduodenal mucosal lesions induced by antiplatelet agents and reducing peptic ulcer recurrence rates in patients necessitating long-term antiplatelet therapy. Moreover, vonoprazan demonstrates a favourable long-term safety profile compared to PPIs and exhibits no adverse interactions with antiplatelet agents. Its ability to enhance GI protection while maintaining antiplatelet efficacy positions vonoprazan as a valuable adjunctive therapy in cardiovascular treatment paradigms.

Keywords: *antiplatelet, GI bleeding, vonoprazan*

Gut Microbiome: New Insight in Stroke Treatment and Prevention

Kiking Ritarwan
Department of Neurology, Faculty of Medicine, Universitas Sumatera Utara, Adam Malik General Hospital Medan

Major advances have been made in stroke treatment and prevention in the past decades. However, the burden of stroke remains high. Emerging evidence suggests that the microbiota-gut-brain axis plays a role as a central regulator of the immune system after an acute ischemic stroke. Dysbiosis possibly exerts systemic harmful effects with the development of the systemic inflammatory response after an ischemic stroke. The gut-brain axis has been shown to play a vital role in the prognosis and recovery of ischemic stroke (IS), which is associated with gut microbiota dysfunction and changes in the gastrointestinal system and epithelial barrier integrity.

Natural medicine is widely used in clinical practice and has prominent advantages in the treatment of IS involving multiple processes and targets. The potential use of the gut microbiota and derived metabolites as a promising therapeutic opportunity for stroke prevention, diagnosis, and treatment is explored.

Keywords*: Gut Microbiota, gut brain-axis, inflammation, Ischemic Stroke (IS), targeted prevention and treatment*

Symposium 2 : Opening the Door: Neuroprotection and Post Stroke Pain

Friday, May 31st 2024
Ballroom B, JW Marriot Hotel, Surabaya

Not All Ischemic Stroke are Similar: Precision Medicine, Treating Stroke by the Subtype

Aldy Safruddin Rambe, Avie Hanindya Dwiyanti Rambe
Neurology Department, Medical Faculty, Sumatera Utara University/Adam Malik Hospital, Sumatera Utara.

Ischemic stroke is the main cause of death and the most common cause of acquired physical disability worldwide. Recent demographic changes increase the relevance of stroke and its sequelae. Pain after stroke is complex and is neuropathic in origin, producing insistent pain in the patients. As of now, there is only a limited number of patients are eligible for the current time-sensitive stroke treatments. New neuroprotective approaches are urgently needed. Neuroprotection is defined as an effect resulting in the preservation, recovery, or regeneration of the nervous system, its cells, structure, and function by inhibiting the pathogenic cascade. In the last decade, numerous agents showed promising neuroprotective potential in preclinical studies. Unfortunately, none of them have been successfully transferred to daily clinical routines. Neuroprotective agents, including NA-1, Sovateltide, 3K3A-APC, HUK, minocycline, and Edaravone, showed robust results in preclinical stroke settings and are already transferred to clinical trials. It is common to experience post-stroke pains, affecting up to 50% of stroke survivors, with the majority experiencing pain on a daily basis. Clinicians should actively inquire about pain in stroke survivors, and should consider a multimodal approach to therapy incorporating interventions in addition to pharmacological and non-pharmacological treatments.

Keywords: *Ischemic Stroke, Neuroprotection, Post Stroke Pain*

Neuroprotectant After Recanalisation (Thrombolysis and Thrombectomy)

Ismail Setyopranoto
Department of Neurology Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada University / KSM Saraf RSUP Dr Sardjito Yogyakarta

Treatment for acute ischemic stroke should be initiated as soon as possible in all patients. However, the therapeutic window in which benefits may be realized may differ among patients depending on biological and process factors including age, stroke severity, rate of stroke progression, and the effectiveness of reperfusion. At present, recanalization of the blocked cerebral arteries is the mainstay of emergency treatment. Although thrombolysis, occlusion, endovascular thrombectomy, or both are a definitive treatment for acute ischemic stroke, too often, the extent of reperfusion is incomplete or delayed, permitting ischemic damage to progress even in patients receiving reperfusion therapies.

Improved outcomes from reperfusion therapies could be fulfilled by a neuroprotectant, typically a drug that enhances the resilience of the brain to ischemia by inhibiting critical elements of ischemic cell damage and preserving neurons, as well as other elements of the neurovascular unit. The window for reperfusion appears to be dictated largely by favorable tissue status, but the window for neuroprotection may depend on other factors.

Several studies have demonstrated the use of neuroprotection in improving outcomes and mitigating the persistent symptoms and impairments seen after stroke treatment. Although blood pressure regulation takes the lead in post-stroke optimization, preliminary neuroprotection studies on various cellular agents, free radical agents, and neurotransmitter agents may allow for a multi-pronged approach to healing ischemic injury from various mechanisms.

Keyword: *acute ischemic stroke, recanalization, reperfusion, neuroprotectant*

Central Poststroke Pain: Emerging Concept in Combination of Pregabalin And Citicoline

Dessy Rakhmawati Emril[1] Sekplin A. S. Sekeon[2]
[1]Staff of Neurology Department, Faculty of Medicine, University of Syiah Kuala/RSUD dr. Zainoel Abidin, Banda Aceh, Indonesia
[2]Faculty of Medicine, Sam Ratulangi University, Manado, Indonesia

Central post-stroke pain (CPSP) is a highly disruptive consequence of stroke and significantly impacts quality of life. Recent epidemiologic studies have brought new information about the prevalence and burden of CPSP. The incidence of CPSP is quite variable depending on the type and anatomic location of stroke. In hemorrhagic strokes that occur in the thalamus, the incidence reaches 9% to 32%. Whereas strokes in the brainstem, the incidence is in the range of 12% to 29%]. But in general, the incidence of CPSP is estimated at 2% to 8% of all stroke patients. Preclinical studies have demonstrated the efficacy of Pregabalin and Citicoline in neuropathic pain, using animal models simulating the pathophysiology of neuropathic pain and evaluating treatment outcomes. Both Pregabalin and Citicoline have shown efficacy in reducing the degree of pain and neuroplastic changes, respectively.Pregabalin has been shown to reduce pain hypersensitivity, decrease neuronal hyperexcitability, and inhibit the release of neurotransmitters involved in pain physiology.Animal studies have shown a significant reduction in mechanical allodynia and thermal hyperalgesia after Pregabalin administration in rat models.This supports the efficacy of Pregabalin as an analgesic in cases of neuropathic painPregabalin shows potential in use for cases of CPSP. The results of the RCT of Pregabalin in the management of CPSP showed that Pregabalin provided improvements in pain status for up to 8 weeks compared to placebo. Although the primary outcome of the pain scale did not show a significant difference, which was explained as a result of the high placebo effect that affected the final statistical results.The efficacy of Citicoline has been reported in a clinical trial on peripheral diabetic polyneuropathy.In the study involving 300 research subjects, where all subjects were divided into three groups namely:ligustrazine and Citicoline combination, ligustrazine monotherapy and Citicoline monotherapy. After four weeks of therapy, symptom improvement and EMG recordings showed more marked improvement in the combination group. This indicates the potential benefit of Citicoline in the management of these peripheral neuropathic conditions. Pregabalin and Citicoline combination therapy can be considered as one of the potential therapeutic strategies for CPSP cases, with the support of preclinical and clinical studies that show a possible synergistic effect on pain improvement and functional recovery.Studies addressing their mechanisms of action suggest complementary actions of Pregabalin and Citicoline on excitatory neurotransmission, neuroprotection, and neuroplasticity.This confirms the potential for strengthened efficacy with the combination therapy.

Keywords**:** *Central Post-Stroke Pain,* Pregabalin, Citicoline

Symposium 3 : Stroke Effect on Cognitive Function : Treatment and Neurorestorative Approach

Friday, May 31st 2024
Ballroom C, JW Marriot Hotel, Surabaya

Enhancing Cognitive Functioning in Neurological Disorders: A Cognitive Restoration Program Utilizing Neurology Music Therapy

Amanda Tiksnadi
Department of Neurology, Dr Cipto Mangunkusumo Hospital, Jakarta

Neurological disorders often present with cognitive impairments that significantly impact patients' quality of life. In recent years, there has been increasing interest in non-pharmacological interventions aimed at enhancing cognitive function. One such approach is the Cognitive Restoration Program (CRP) incorporating Neurologic Music Therapy (NMT).

CRP with NMT is founded on the principles of neuroplasticity, utilizing music-based interventions to target specific cognitive domains, including attention, memory, executive function, and emotional processing. NMT techniques such as rhythmic auditory stimulation, melodic intonation therapy, and therapeutic singing are tailored to individuals' cognitive profiles and neurological deficits.

Emerging evidence suggests that CRP with NMT yields promising outcomes in various neurological conditions, including Parkinson's Disease, stroke, traumatic brain injury, and dementia. Studies have reported improvements in cognitive function, psychosocial well-being, and quality of life following participation in CRP with NMT interventions. Neuroimaging studies have elucidated the neurobiological mechanisms underlying the therapeutic effects of music-based interventions, highlighting their potential to enhance neural connectivity, promote neuroplasticity, and mitigate disease-related neurodegeneration.

Despite these promising findings, challenges such as standardization of intervention protocols, variability in patient responsiveness, and the need for larger scale randomized controlled trials remain. Future research endeavours should focus on elucidating the optimal dosage, duration, and timing of CRP with NMT interventions, as well as identifying patient-specific predictors of treatment response.

In conclusion, CRP with NMT represents a promising avenue for enhancing cognitive functioning and overall well-being in individuals with neurological disorders. Continued research efforts are warranted to further establish its efficacy, refine intervention protocols, and integrate it into holistic care approaches for neurological restoration program.

Keywords: *Neurology Music Therapy, Cognitive Restoration Program*

Recent Approaches of MLC 901: A Neurorestorative Approach for Stroke Recovery

Dodik Tugasworo
RSUP Dr Kariadi Semarang

When recovering from a stroke, MLC 901 is a natural health supplement that may help improve outcomes when used alongside physical therapy, occupational therapy, and medication. MLC 901 is made from natural ingredients and has been studied for its potential to support cognitive function in stroke recovery. It is important to understand that MLC 901 cannot be used as a standalone treatment. MLC 901, also known as Ketas, is a natural health supplement made from botanical sources that has been extensively researched for its neuroprotective and neuroregenerative properties. Recent research has shown that MLC 901 (Ketas) has the potential to promote neural repair and regeneration, leading to improved functional outcomes and quality of life for stroke patients. It is important to note that individual responses to MLC 901 may vary, and further research is necessary to understand its effectiveness in stroke recovery fully. By targeting pathways related to neuroplasticity, neuroprotection, and inflammation in the brain, MLC 901 may offer a comprehensive approach to stroke rehabilitation, addressing both the acute and chronic stages of recovery. Clinical trials are currently exploring the full potential of MLC 901 as a promising neurorestorative therapy for stroke survivors.

Keywords *: MLC 901, Ketas, stroke, outcome*

Brain Stimulation in Post Stroke Cognitive Impairment: Which Modality is The Best

Deby Wahyuning Hadi
Neurology Department Airlangga University – Dr. Soetomo General Hospital, Surabaya

Non-invasive brain stimulation (NIBS) has emerged as promising therapeutic approach for addressing various aspects of post-stroke recovery, particularly cognitive impairment and motor deficits. A comprehensive review of recent literature reveals a growing body of evidence supporting the efficacy of different NIBS techniques in improving cognitive function and facilitating neurorehabilitation among stroke survivors. Network meta-analyses and systematic reviews have demonstrated the potential benefits of interventions such as transcranial magnetic stimulation (TMS), transcranial electrical stimulation (tES), transcranial focused, ultrasound stimulation (tFUS), and several other brain stimulation devices in enhancing cognitive outcomes and motor recovery post-stroke.

The findings suggest that NIBS holds promise as an adjunctive treatment modality in stroke rehabilitation programs, offering opportunities to optimize recovery trajectories and enhance functional outcomes. However, further research is warranted to elucidate optimal stimulation parameters, treatment protocols, and long-term effects. Moreover, the integration of NIBS with other rehabilitative strategies, such as cognitive training or pharmacotherapy, may offer synergistic benefits in promoting neuroplasticity and functional recovery post-stroke.

Overall, the studies reviewed underscore the importance of continued investigation into the therapeutic potential of NIBS in post-stroke care, with implications for clinical practice and future research directions. By leveraging advances in neuromodulation techniques and refining treatment approaches, clinicians and researchers can contribute to the development of personalized, evidence-based interventions that address the diverse needs of stroke survivors and optimize their long-term outcomes. This underscores the significance of adopting a multidisciplinary approach to stroke rehabilitation, integrating innovative interventions and leveraging emerging technologies to improve patient outcomes and quality of life.

***Keywords**: brain stimulation, stroke, cognitive impairment*

Symposium 4 : Hot Issues & recent Guideline Neurovascular 2024

Friday, May 31st 2024
Ballroom A, JW Marriot Hotel, Surabaya

Intracerebral and Cerebellar Hemorrhages: Evidence Up To May 2024

Yudhi Adrianto
Departemen Neurologi FK Unair

Hemorrhagic stroke is a significant global public health threat and a severely morbid and often deadly condition. Stroke requires high-quality, fast, and precise management to prevent and avoid disability and death. The 2024 various guideline update presents an evidence-based approach to preventing, diagnosing, and managing patients with intracerebral and cerebellar hemorrhages. Care pathways for acute stroke result in the rapid identification of ICH, but its acute management can prove challenging because no individual treatment has been shown definitively to improve its outcome Many recommendations from the previous spontaneous intracerebral and cerebellar hemorrhage guidelines have been updated with new evidence, and new recommendations have been created when supported by published data. It also identifies knowledge gaps and areas of care in need of further research.

Keywords : *Intracerebral hemorrhage, Cerebellar hemorrhage, Stroke management*

Stroke Risk in COVID-19 Infection: After Vaccination and After Recovery

Ahmad Rizal Ganiem
Neurology Department of Hasan Sadikin Hospital

Disease mechanisms that happen in COVID-19 infection suggest a relationship between COVID-19 and stroke. Many factors have been associated with an increased risk of stroke, mainly hypercoagulability, endothelial dysfunction, and the severe inflammatory response known as the cytokine storm.

Studies have shown that individuals with COVID-19 are at an increased risk of stroke compared to those without the virus. Moreover, strokes associated with COVID-19 tend to be more severe and have worse outcomes. However, whether COVID-19 can be considered an independent risk factor for stroke is still a topic of debate among researchers; especially because COVID-19 often occurs in individuals with underlying health conditions or predisposing risk factors, such as older age, hypertension, diabetes, and obesity. These comorbidities are well-established risk factors for stroke independent of COVID-19. It is presumed that COVID-19 is likely interacts with pre-existing risk factors and further elevates the overall risk of stroke in affected individuals.

COVID-19 vaccination could indirectly lower the overall stroke risk by reducing the risk of severe illness, hospitalization, and death due to COVID-19, and also by modulating the inflammatory response. Although current evidence suggests that vaccination may lower stroke risk, further evidence is needed to come to conclusions.

***Keywords**: COVID-19, risk factor, stroke*

Sleep, Brain Health and Stroke: New Scientific Evidences and Recommendation 2024

Fidiana
Airlangga University Hospital Surabaya

Sleep is a basic human need which also plays a crucial role in overall health. Some of the functions of sleep include energy conservation, energy recovery, memory consolidation, and regulation of immune function. In recent years, new theories have developed regarding other sleep functions, including the glymphatic system, ontogenetic hypothesis, and synaptic homeostasis. Brain health is also thought to be related to sleep function. Several sleep disorders such as Obstructive Sleep Apnea (OSA), insomnia, REM sleep behaviour disorder are also closely related to the incidence of stroke, cardiovascular risk factors, dementia, and Parkinson's disease.

Several important clinical examinations to detect subclinical changes in brain health or silent infarcts which can be detected include imaging (MRI), neurofilament light chain (NfL) examinations from the blood, as well as markers from cerebrospinal fluid. Current research supports early detection of disorders such as obstructive sleep apnea, and adequate treatment can improve brain health.

In studies of post-stroke patients, it was found that many sleep disorders occurred, including insomnia, hypersomnia, obstructive sleep apnea, which were associated with worse cognitive and functional outcomes, as well as increased stroke recurrence and mortality. Patients with Alzheimer's dementia who experience sleep disturbances tend to experience more severe neuropsychiatric symptoms and cognitive dysfunction, poorer quality of life, greater caregiver burden, and higher mortality.

The American Heart Association (AHA) states that reducing the prevalence of OSA can prevent brain disorders. Continuous Positive Airway Pressure (CPAP) therapy in OSA patients has also been proven to improve neurological function, quality of life, depression, language and cognition.

Keyword: *Sleep disorders, brain health, glymphatic system, dementia, stroke*

Symposium 5 : Nutrition as One of The Keys to Stroke Outcome Optimization

Friday, May 31st 2024
Ballroom B, JW Marriot Hotel, Surabaya

Diagnosis and Management of Dysphagia to Improve The Clinical Outcome of Stroke Patients

Catur Ari Setianto
SMF Neurologi FK UB/ RS Saiful Anwar, Malang

Stroke is a leading cause of morbidity and mortality, and dysphagia, a common complication, can contribute to malnutrition, which in turn affects stroke outcome. This paper reviews the prevalence, risk factors, and management of dysphagia-related malnutrition in stroke patients. A prospective study on 49 stroke patients showed that dysphagia was associated with malnutrition, and 49% of stroke survivors admitted to a rehabilitation unit were malnourished. Dysphagia increases the risk of aspiration pneumonia, dehydration, and decreases quality of life. Early identification and management of dysphagia and malnutrition are crucial for stroke recovery and preventing complications. Nutritional interventions should be tailored to patient's needs, considering factors such as consciousness level, depression, oral hygiene, reduced mobility, arm or facial weakness, fatigue, vision, speech, and language impairment, cognitive deficits, increased metabolic demands, and poststroke weight status. Enteral feeding is the preferred method if the gut is functional and there are no contraindications. Regular weight monitoring during rehabilitation is essential to avoid weight loss. Consulting with a clinical dietitian is also important for nutritional assessment and monitoring.

Keywords : *dysphagia, malnutrition, management, rehabilitation*

Optimalization of Post Stroke Nutrition and Other Modalities in Improving Stroke Recovery

Jumraini Tammasse
Departemen Neurologi Fakultas Kedokteran Universitas Hasanuddin

Malnutrition, often exacerbated by dysphagia and cognitive impairments following a stroke, can significantly hinder functional and cognitive recovery, thereby increasing mortality rates. Effective nutritional management includes thorough screening for malnutrition, detailed nutritional assessments, and appropriate supplementation. The guidelines suggest individualized nutritional interventions rather than a one-size-fits-all approach, emphasizing the need for a tailored management plan based on each patient's specific nutritional status. This approach aims to improve overall recovery, reduce hospital stays, and decrease mortality by addressing both macronutrient and micronutrient needs effectively. The insights presented offer evidence-based strategies for enhancing nutritional care in stroke patients, fostering better recovery outcomes.

Keywords: *Post-stroke nutrition, Dysphagia, Nutritional management*

Role of Nutrition for Improving Quality of Life after Acute Stroke A Genomic and Artificial Intelligence Approach for Personalized Management

Eko Arisetijono
Comprehensive Stroke Clinic, Neurology Departement
Saiful Anwar General Hospital/ Medical Faculty of Universitas Brawijaya

Stroke is a leading cause of death and disability worldwide, affecting millions of people every year. Stroke survivors often face long-term impairments in their physical, cognitive, and emotional functioning, which can reduce their quality of life and increase their risk of secondary complications. Therefore, practical strategies for stroke recovery and prevention are urgently needed.

One of the emerging fields of research in stroke recovery is the role of nutrition in modulating the brain and muscle function and neuroplasticity of stroke survivors

Stroke patients who are malnourished are more likely to die or have poor recovery of function. To prevent malnutrition, many stroke rehabilitation guidelines advise checking these patients' nutritional status.

Using genomic (nutrigenomic and neurogenomic) and artificial intelligence will meet the individuals need of nutrition for supporting neurorestoration after stroke

***Keyword**: Stroke, Nutrition, Neurorestoration, Genomic, Artificial Intelligence*

Symposium 6 : An Atypical Stroke & Neuropathy in Stroke

Friday, May 31st 2024
Ballroom C, JW Marriot Hotel, Surabaya

Stroke Misdiagnosis and Atypical Presentation as Movement Disorders

Dr. dr. Muhammad Hamdan, Sp.N(K)
Neurology Department Medical Faculty Universitas Airlangga/Dr. Soetomo General Academic Hospital Surabaya, Indonesia

Stroke can be associated with various types of movement disorders. However, movement disorders are rare and transient in acute stroke and, as permanent consequences, more often occur in a delayed manner. approximately 10% of strokes are misdiagnosed, and even primary care physicians or family doctors may fail to diagnose a stroke. Among stroke patients who experienced atypical symptoms (general weakness, mental status changes, changes in gait, and dizziness) 64% were not detected, whereas only 4% of patients with typical symptoms (facial drooping, focal weakness, aphasia, and dysarthria) were not detected. In a study of 56 patients with abnormal movements after stroke, 3.7% of 1,500 stroke patients experienced movement disorders. Some abnormal movements, such as dystonia, chorea, athetosis, tremor, myoclonus, seizures, jerking movements, trembling of limbs, and asterixis, can sometimes manifest early in a stroke. This condition can lead to initial misdiagnosis, increased prehospital delays, and delays in treatment. The clinical course of post-stroke movement disorders varies, but several trends are apparent according to the type of abnormal involuntary movement that occurs. The latency interval for post-stroke movement disorders was shortest in chorea (4.3 days) and longest in parkinsonism (117.5 days). Transient hemichorea-ballism can develop even before a stroke in the form of a transient ischemic attack and can be a warning sign. Post-stroke restless legs syndrome can appear a week after the onset of the stroke (average 1.8 days). Physical and occupational therapy have become options. Physical therapy is beneficial for hypokinetic and hyperkinetic movement disorders, such as vascular parkinsonism and dystonia, which are associated with postural deformities and balance problems. Physical and rehabilitative therapy can be applied to movement disorders after stroke.

Keywords: *Stroke, Atypical Stroke, Movement Disorder*

Neuropathies Before and After Stroke: The Effect on Improvement and Functional Status

Fadil

Dep. Neurology Faculty Medicine of Universitas Airlangga RSUD dr. Soetomo Surabaya

Stroke patients' rehabilitation and performance are greatly affected by pre-existing and stroke-induced neuropathies. Pre-existing neuropathies can worsen stroke outcomes and delay rehabilitation. Central post-stroke discomfort and peripheral nerve injury impede motor and sensory skills, slowing recovery. Neuropathies before stroke often impair baseline ability, making independence difficult. Post-stroke mobility, coordination, and daily activities may be worse for some patients. Post-stroke rehabilitation is complicated by stroke-induced neuropathies include hemiplegic shoulder pain, carpal tunnel syndrome, and stiffness. A multimodal strategy is needed to treat stroke neuropathies. Pre-existing neuropathies can be treated early to improve stroke recovery. Pharmacological, physical, and surgical treatments for neuropathic pain after stroke are essential. Rehabilitation therapies for neuropathic diseases should include nerve stimulation, adaptive devices, and focused exercises to improve neuroplasticity and function. Future research should examine how neuropathies and stroke recovery interact to identify optimal treatments for both disorders. Neuropathy and stroke interactions can be understood to create comprehensive treatment programs that improve stroke survivors' functional outcomes and quality of life.

Keywords*: neuropathies, stroke, functional status, recovery*

Symposium 7 : Eye and Cortical Blindness

Friday, May 31st 2024
Ballroom A, JW Marriot Hotel, Surabaya

Insight into Neuro Ophthalmology Manifestation in Myasthenia Gravis

Ni Putu Witari
RSUP Prof. I.G.N.G. Ngoerah

Myasthenia Gravis (MG) is an autoimmune disease characterized by fluctuating voluntary (skeletal) muscle weakness, worsening with activity and improving with rest. This weakness is caused by impaired neuromuscular transmission due to the presence of antibodies against postsynaptic muscle membrane components and subsequently causing structural damage to the membrane.

Neuro Ophthalmological manifestations of MG can include ocular symptoms referred to as ocular MG. Ocular MG is a clinical manifestation of MG that only involves the levator palpebra superior muscle, extraocular muscles and orbicularis oculi muscle. Ocular MG may be the only clinical manifestation of MG in 15% of patients.

Extraocular muscle paralysis, in the initial phase occurring in 50%-70% of cases and eventually developing in 90%, can take the form of diplopia due to weakness of a single extraocular muscle. Nevertheless, most patients present first with symptoms of diplopia due to multiple extraocular muscle paralysis in different combinations. the possibility of MG should be considered when ophthalmoparesis does not fit a specific pattern. Lateral rectus muscle paralysis can mimic N.VI paresis. Ophthalmoplegia is rare and mostly occurs in chronic diseases. Paralysis of the orbicularis oculi muscle, often occurs later in the course of the disease.

Certain eye signs are typical of MG, including: Ptosis, Fatigable Ptosis Test (Wartenberg Test), Curtain Sign (enhanced ptosis), Cogan Lid Twitch, Ice Pack Test, and Sleep Test. Other typical non-ocular examinations for MG include: Tensilon (Edrophonium Chloride) Test, Neostigmin (Prostigmin) Test and Repetitive Nerve Stimulation and Single Fiber Electromyography

Keywords: *Myasthenia Gravis, Ophthalmology Manifestation*

Unraveling The Abnormal Spontaneous Eye Movement

Eva Dewati
Neurology Department FKUI-RSCM

Abnormal spontaneous eye movement can cause visual symptoms like blurred vision, oscillopsia. Thera are two types of abnormal spontaneous eye movement, pathological nystagmus and saccadic intrusions

Nystagmus is repetitive, to-and-fro movements of the eyes that are initiated by slow phases. At bedside examination, nystagmus are divided into horizontal, vertical and torsional. Jerk nystagmus has slow phase in one direction followed by fast phase in the opposite direction It is important to evaluate nystagmus and look for the etiology of nystagmus.

Saccadic intrusions is an abnormal saccade away from fixation, followed by a corrective saccade, both of movements are fast

Therapy of nystagmus depends on underlying cause and characteristic of nystagmus

***Keywords** : pathological nystagmus, type of nystagmus, treatment*

Cortical Blindness: Diagnostic and Treatment

Raden Andi Ario Tedjo
RSUD Dr Moewardi / Sebelas Maret University

Cortical blindness (CB) is defined as loss of vision without any ophthalmological causes and with normal pupillary light reflexes due to bilateral lesions of the striate cortex in the occipital lobes. Cortical blindness is a part of cerebral blindness, defined as loss of vision secondary to damage to the visual pathways posterior to the lateral geniculate nuclei. The patient may present with visual loss, dimness of vision, or visual field defect. Complete physical examination, including neurological and ophthalmological examination, is required. An important thing to remember is that pupillary light reflex remains intact in cortical blindness, so do the extraocular movements. There is no relative afferent pupil defect (RAPD) in cortical blindness. A visual field defect may be noted on confrontation perimetry. The anterior segment and posterior segment findings are usually unremarkable. The clinical features vary according to the location of the lesion. Incomplete cortical blindness is much more common than a complete one. Other features of visual cortex lesion include Anton's syndrome, Riddoch phenomenon, Balint's syndrome and formed visual hallucinations. Apart from standard management of the cause, which in most cases is stroke, the major part of treatment is visual training and rehabilitation. Three common modes of interventions are restitution therapy, compensation therapy, and substitution therapy.

Keywords: *cortical blindness, cerebral blindness, visual training, visual rehabilitation*

Symposium 8 : Hyperacute Stroke and Hot Issues Neurovascular

Friday, May 31st 2024
Ballroom B, JW Marriot Hotel, Surabaya

Interventional Neurology Indonesia: Past and Future (Point of View from First Head of Working Group)

Hasan Sjahrir
Department of Neurology, Faculty of Medicine, Universitas Sumatera Utara

Neurointervention (NI) division is :a subspecialty field of medicine highly specialized skills using interventional procedure to offer minimally invasive therapies for disorders of the brain and spine. In the United States recorded specialists who carry out this field come from neurosurgery, vascular surgery, radiology, and neurology

The Division of Neurointervention has become a leading referral center for neurovascular care Because of insufficient number of interventionists to perform emergent neurointerventional procedures in the clinical setting of acute ischemic stroke, we wish that more neurologists get interested in and receive training in the neuroendovascular therapy.

Neurologists, in particular, those who have added expertise in emergent work-up and care of stroke are in an advantageous position to take up stroke-related intervention. They can thus play the combined role of a clinician and interventionist.

***Keywords** : subspecialty, neurointervention, stroke ischaemic, neurovascular care*

The Importance of Measuring Blood Vessel Diameter and Troubleshooting during AIS Neurointerventional Procedures

Gamaliel Wibowo Soetanto
RS Santo Borromeus Bandung

Results from 6 recent randomized trials of mechanical thrombectomy using predominantly stent retriever devices (MR CLEAN, SWIFT PRIME, EXTEND-IA, ESCAPE, REVASCAT, THRACE) support COR I, LOE A recommendations for a defined group of patients as described in the 2015 Guidelines. HERMES Collaboration showed treatment effect in the subgroup of 188 patients not treated with IV alteplase (cOR, 2.43 [95% CI, 1.30–4.55]); therefore, pretreatment with IV alteplase has been removed from the prior recommendation. The HERMES pooled patient-level data also showed that mechanical thrombectomy had a favorable effect over standard care in patients ≥80 years of age (cOR, 3.68 [95% CI, 1.95–6.92]). In a meta-analysis of 5 RCTs (MR CLEAN, ESCAPE, EXTEND-IA, SWIFT PRIME, REVASCAT), there was favorable effect with mechanical thrombectomy over standard care without heterogeneity of effect across patient age subgroups (for patients <70 and ≥70 years of age: OR, 2.41 [95% CI, 1.51–3.84] and 2.26 [95% CI, 1.20–4.26], respectively). Most of studies about mechanical thrombectomy, was done within 6-6.5 hours. Although the benefit of thrombectomy in large vessel occlusion in acute ischemic stroke undoubtful, but the risk of haemorrhage has to be considered also. PROMISE study reported that ADAPT technique as frontline therapy was not inferior to stent retriever. ADAPT technique showing good result in reducing haemorrhagic complication as reported in initial experience Penumbra RED reperfusion catheter in INSIGHT study. This study also reported that penumbra aspiration catheter can be used in all kind of clots. Mechanical thrombectomy operator has to master access technique as well as navigation skill in order to retrieve the clot as fast as possible. Penumbra catheters could provide all range of catheter to do the job.

Keyword : *acute ischemic stroke, ADAPT, Penumbra*

Symposium 9 : Towards a Better Understanding of Indonesian Data

Friday, May 31st 2024

Ballroom C, JW Marriot Hotel, Surabaya

Factors Affecting the Delay of intravenous Thrombolysis in Hyperacute Ischemic Stroke Patients

Lisda Amalia

Department of Neurology, Medical Faculty, Universitas Padjadjaran/RSUP dr.Hasan Sadikin Bandung, Indonesia

Intravenous thrombolysis with r-tPA is the gold standard procedure in managing acute ischemic stroke recommended by the World Stroke Association, which is performed by injecting the drug r-tPA (Alteplase) intravenously. Patients who are candidates for r-tPA recipients are screened according to inclusion and exclusion criteria based on standard operating procedures and existing guidelines. In general, the preparation time to achieve thrombolysis is divided into two, namely the time from onset to hospital admission (onset-to-door-time [ODT]) or pre-hospital and from the time the patient enters the emergency room until the thrombolysis drug is administered (door-to-needle time [DNT]) or in-hospital. If this time can be shortened, the efficacy of thrombolysis can increase. The potential causes of delayed thrombolytic therapy are numerous and can be divided into two categories, namely pre-hospital and in-hospital factors, from symptom onset to treatment administration. Prehospital factors contribute relatively more to the delay. Many delays are multifactorial, ranging from factors related to the patient, transportation, and referral systems to delays in and out of the hospital.

***Keywords**: delay, factors, hyperacute ischemic stroke, intravenous thrombolysis*

Correlation of Neutrophil Lymphocyte Ratio and Cognitive Functions in Acute Ischemic Stroke

Abdul Muis

Department of Neurology, Dr.Wahidin Sudirohusodo Hospital/ Faculty of Medicine, Hasanuddin University

Introduction*: Ischemic stroke is an episode of neurological dysfunction caused by focal cerebral, spinal or retinal infarction. One-third of stroke patients has post stroke cognitive impairment (PSCI), however early cognitive impairment in acute stroke has received little attention in most clinical practice.*

Objective: *To determine the correlation of neutrophil lymphocyte ratio (NLR) and cognitive functions in acute ischemic stroke patients.*

Methods: *A Cross sectional study of patients diagnosed with acute ischemic stroke based on history, physical examination and head CT scan without contrast at days 1-3 from onset was conducted. The subjects of research were aged from ≥ 18 years until 65 years which hospitalized in Dr. Wahidin Sudirohusodo hospital and Hasanuddin University hospital and received a same standard treatment for all subjects. Blood samples were taken in the periods of day 1-3 from onset simultaneously with assessed cognitive functions using Montreal Cognitive Assessment Indonesia Version (MoCA-INA). MoCA-INA scores of all subjects categorized in to normal if the score ≥26, and cognitive impairment if the score less than 26.*

Results: *From 102 subjects included within the study revealed 74 subjects (72.55%) had cognitive impairment and normal cognive function for the rest. We performed ROC curve analysis for 70 subjects and revealed AUC RNL 93.3%, cut off RNL 2.25, sensitivity 73.47%, specificity 100%. Subjects with NLR ≤2.25 (34 subjects or 48.6%) had 13 (38.2%) with cognitive impairment and 21 (61.8%) normal cognitive functions. The rest subjects or36 (61.8%) with NLR >2.25 (51.4%) had cognitive impairment for all subjects (100%)*

Conclusion: *There is a significant correlation of NLR and cognitive functions assessed with MoCA-INA. The higher NLR values, the lower the MoCA-INA scores.*

Keywords: *Ischemic Stroke, Neutrophil Lymphocyte Ratio, Cognitive Functions*

Symposium 10 : Ethics and Law

Saturday, June 1st 2024

Ballroom A, JW Marriot Hotel, Surabaya

Essential Legal Aspects in Neurology Daily Practice

Johan Akbari

Law Departement of PERDOSNI

The relationship between doctors and patients is based on law and elements of trust, resulting in the doctor's medical efforts to treat the patient. it is an inseparable form of legal protection and ethics. Law is a guideline set by the government to maintain the health system, while ethics is a rule of professionalism that includes non-maleficence, autonomy, justice, and beneficence set by professional organizations. The regulation aims to protect the rights and obligations of doctors and patients in the practice of health. In daily practice, neurologists are also inseparable from the application of law and ethics. In Indonesia, neurologists are bound by a regulation that regulates the health system, which was established by the Indonesian Association of Neurologists. Not only in Indonesia, but other countries also have legal aspects in medical practices. The regulation of legal aspects in Indonesia has similarities with Singapore which focuses on the health care system and qualifications of practitioners, while the UK and the Netherlands currently prioritize the rights and freedoms of patients in treatment. Therefore, this article will discuss the crucial differences in neurology health practices in Indonesia, Singapore, the Netherlands, and the United Kingdom which aims to provide an in-depth understanding of health policy, to provide guidelines for developing practical guidelines for neurology in Indonesia in the future.

***Keywords**: Legal, ethic, neurology, Indonesia, Singapore, England, Netherlands*

Symposium 11 : Neuroimaging : from Vessel to Neuromuscular

Saturday, June 1st 2024

Ballroom B, JW Marriot Hotel, Surabaya

Symptomatic Carotid Artery Stenosis: Algorithm Management from Recent Guidelines

Cep Juli

Neuroimaging Subdivision, Medical Faculty

Universitas Padjadjaran/Hasan Sadikin General Hospital, Bandung, Indonesia

Symptomatic carotid artery disease is a significant cause of ischemic stroke, and these patients are at high risk for recurrent vascular events. Patients with symptoms of stroke or transient ischemic attack attributable to a significantly stenotic vessel should be treated with intensive medical therapy. Intensive medical therapy is a combination of pharmacologic and lifestyle interventions consistent with best-known practices as follows: initiation of antiplatelet agent or anticoagulation if medically indicated, high potency statin medication, blood pressure control, healthy diet, exercise, and smoking cessation. There can also be a role for mechanical restoration of the lumen by endarterectomy or stenting in selected patients with high-grade atherosclerotic stenosis of the extracranial carotid artery. The literature has shown a stronger benefit of revascularization of extracranial symptomatic disease among certain subgroups of patients with greater than 70% stenosis. Many patients with carotid stenosis can undergo revascularization safely and effectively by either endarterectomy or stenting. Further, patients who have extracranial culprit lesions should be considered for revascularization with either carotid endarterectomy or carotid angioplasty and stenting depending on several factors including the patient's anatomy, age, gender, and procedural risk. Endarterectomy is generally recommended for patients with high-grade symptomatic carotid stenosis. Stenting is considered an option for patients at high risk of complications with endarterectomy. Based on current evidence, patients with symptomatic intracranial stenosis should be managed with intensive medical therapy, including the use of dual antiplatelet therapy with aspirin and clopidogrel for the first 90 days following the ischemic event.

Keywords: *Symptomatic carotid stenosis, management recent guidelines*

Neurosonology for Neuromuscular Disease

Rivan Danuaji
RSUD Dr Moewardi / FK UNS Surakarta

Neurological diseases, especially neuromuscular disease (NMD), are increasingly encountered in daily practice. Many cases of NMD cannot be properly enforced due to the limitations of existing modalities. Neurophysiological examination is a mainstay in determining the diagnosis of NMD, however, it often does not find the etiology of the NMD cases faced by patients. MRI is an important solution for viewing the anatomy of NMD disorders, and is still one of the best diagnostic tools. Unfortunately, MRI is expensive and not all have this modality. Ultrasound with its technological developments, affordable costs and repeatability, and non-invasiveness, is currently the center of attention in the management of NMD. Neuromuscular ultrasound (NMUS) is becoming a standard element in the evaluation of peripheral nerve and muscle disease it provides dynamic, structural information that can refine a diagnosis or identify a structural etiology. NMUS can improve patient care for those with mononeuropathies, polyneuropathy, motor neuron disease and muscle disorders. At this National Scientific Meeting (PIN), we will present how Neuromuscular Ultrasound is used in daily practice, the existing evidence base and the available guidelines for several cases of NMD. It is hoped that colleagues will be able to understand the advantages of neuromuscular ultrasound so that they can provide services to patients more effectively and efficiently.

***Keywords**: Neuromuscular disease, Neurosonology, USG, efectiveness, daily practice*

Symposium 12 : SAH and Neurointervention Point of View

Saturday, June 1st 2024

Ballroom C, JW Marriot Hotel, Surabaya

New Antiplatelet Agent in Neurointerventional Procedures : From Stenting, Stent Assisted to Flow Diverter

Ahmad Sulaiman Alwahdy

Fatmawati General Central Hospital, neurology Departement, Interventional Neurology Subdivision, Jakarta, Indonesia

Antiplatelet therapy (APT) before, during and after in neurointerventional procedures, plays a major role, limiting the risk of thromboembolic events (TEE). Neurointerventional procedures not only for carotid artery stenting (CAS) but have expanded to include stent-assisted coiling and flow diversion, to widen the treatment spectrum for more complex aneurysm morphologies. Clopidogrel combined with aspirin is the mostly used as a first-line choice of dual APT (DAPT). DAPT should target the best balance between controlling the TEE risk and safety avoiding hemorrhagic complication. However, clopidogrel is a prodrug that some patients may not convert into an active metabolite, therefore, individual responses to clopidogrel are varied and hyporesponse is commonly reported leading to a 10% to 30% resistance rate. To minimize any complications related to procedures, the Society of NeuroInterventional Surgery (SNIS) guideline update, recommend platelet testing can be useful to guide local practice, and specific approaches to using the numbers demonstrate marked local variability (Class IIa, Level B-NR).

Several antiplatelet agents have been studied in a neurointerventional setting for both prophylaxis and in the setting of intraprocedural thrombotic complications. DAPT with another agents such as ticagrelor, tirofiban, or prasugrel are reported effective and safe alternatives to clopidogrel. However, further clinical trials are needed to evaluate different antiplatelet regimens with various devices to establish highest-level evidence-based guidelines and recommendations. Knowledge of these antiplatelet agents is important for the practicing neurointerventionist to ensure the proper application of these agents.

Keywords: *Antiplatelets; Neurointervention; Stent; Flow Diverter*.

Target Coil, Smooth and Stable from Frame to Finish

Bambang Tri Prasetyo
Neurointervention Division, National Brain Center Hospital, Prof. Dr. dr. Mahar Mardjono, Indonesia

Despite the recent surge in the utilisation of flow diverters and adjunctive devices, detachable coils continue to be the primary method employed during endovascular interventions for intracranial aneurysms (IAs). The initial detachable coil to receive approval from the Food and Drug Administration (FDA) for the purpose of treating intracranial aneurysms is the Guglielmi detachable coil (GDC). Following the completion of the randomised international (ISAT trial) and coiling vs. clipping (BRAT) clinical trials, advancements in coiling technology have persisted, enabling the treatment of intracranial aneurysms with greater safety and comprehensiveness through the use of gentler and more compact coils. Several reports have raised concerns about the possibility of thromboembolic events caused by air bubbles and electrothrombosis after the electrolytic detachment of the GDC, despite the confirmed safety and effectiveness of the device. The Target coil (Stryker Neurovascular, Fremont, CA, USA) introduced in 2010 represents the most recent advancement in GDC coils, featuring a gentler distal push wire, a more supportive proximal wire, and smaller, softer coil diameters. It was anticipated that this new advanced coils will produce less bubbles during detachment compared to the conventional GDCs, given the Target coil (Stryker Neurovascular, Fremont, CA, USA) has the same electrolytic detachment mechanism. It has been suggested that, as coiling nears completion, target coils produce less microcatheter kickback. The TARGET Registry revealed occlusion rates of complete or near complete closure in over 90% of aneurysms throughout follow-up, accompanied by low rates of retreatment. The Target® 360° (Stryker Neurovascular, Fremont, CA) coil was specifically engineered with a higher quantity of random breaks compared to other coils. This unique design enables it to adapt and fit into various lobes within intricate aneurysms. A single study demonstrated that Target® 360 Ultrasoft™ coils (Stryker Neurovascular, Fremont, CA) were sufficient for the successful treatment of small aneurysms.

Keywords: *coil, intracranial aneurysm, target*

Shifting Trends in Aneurysm Treatment from Previous Surgery Candidates to Endovascular

Ashari Bahar

Divisi Neurointervensi dan Terapi Endovaskular, Departemen Neurologi, Fakultas Kedokteran Universitas Hasanuddin/KSM Neurologi RSUP Dr. Wahidin Sudirohusodo Makassar.

Major clinical trials have demonstrated an expanding role for coil embolization of ruptured aneurysms since the advent of GDCs in the early 1990s. The last twenty years have seen a transition in the treatment of both ruptured and unruptured cerebral aneurysms from microsurgical to endovascular methods. All aneurysm locations saw a substantial switch in treatment from surgical to endovascular methods, except middle cerebral artery aneurysms. Positive results from clinical studies, developments in endovascular technology, and the growing expertise of endovascular professionals all support this.

Keywords: *Aneurysm, Endovascular*

Symposium 13 : Neuro-otology: Diagnosing from Vestibular Origin

Saturday, June 1st 2024

Ballroom A, JW Marriot Hotel, Surabaya

The Higher is The Better: Symptomatic of Vertigo

Aih Cahyani

Departemen Neurologi FKUP/RSHS

Pharmacological management of vertigo using histamine analogues, betahistine, effective as a symptomatic therapy supported by clinical evidence, which has been used at dosage of 16-48 mg per day. In studies using experimental animals, more higher dosage shown to accelerate the recovery of postural and locomotor disorders after neurectomy. Then next question: is betahistine can also facilitate vestibular compensation in humans, especially in patients with uncompensated unilateral vestibulopathies. Some trial related reports the use of high doses of betahistine.

Despite the considerable limitations of an open, non-masked trial, particularly in Menie`re's disease (MD), a higher dosage of betahistine-dihydrochloride and a long-term treatment seems to be more effective than a low dosage and short-term treatment. The studies also showed that the effect of betahistine was concentration-dependent: the higher the concentration, the higher the increase of inner ear blood flow. This correlates with the dose dependence found in the trial.

Another study, Effects of high-dose betahistine on intractable dizziness in patients with uncompensated unilateral vestibulopathy (2023) gave results support vestibular compensation in some patients.

High-dosage betahistine dihydrochloride between 288 and 480 mg/day in patient with severe Meniere's diseases in a case series (2011). Results improved in some cases

High-dose betahistine made a vestibular compensatory improvement effect in some cases of intractable unilateral vestibulopathy, as well as in some cases of Meniere's disease that do not respond to low doses.

Keywords: *High dose betahistine - unilateral vestibulopathy-meniere's disease-Outcome*

Vestibular Migraine: Symptomatic of Vertigo

Andi Kurnia Bintang
Department of Neurology, Faculty of Medicine, Universitas Hasanuddin, Makassar, Indonesia

Vestibular migraine (VM) is known as an episodic recurrent vertigo or dizziness syndrome, which occurs in patients with a current or previous history of migraine. As a case that is often under-recognized, VM has various clinical manifestations, including both vestibular and auditory symptoms. Clinical vertigo can precede, during, or after a migraine attack. In fact, these two symptoms (vertigo and migraine) can stand alone. Various terms are used to describe the form of vestibular symptoms, such as spinning, unsteady, lightheaded, foggy, floating, etc. Based on ICVD, vestibular symptoms in VM are categorized as spontaneous vertigo, positional vertigo, head motion-induced vertigo/dizziness, and visually induced vertigo. Auditory symptoms include aural fullness, phonophobia, tinnitus, and otalgia. Enforcement of diagnostic criteria is based on the IHS Classification Committee and the Committee for Classification of Vestibular Disorders of the Bárány Society. Divided into definite and probable categories. In its management, there are important points for treating VM, namely modification of diet and behavior (including avoiding trigger factors), abortive and prophylactic therapy, and vestibular rehabilitation exercises.

Keywords: *vestibular migraine, clinical manifestation, treatment*

Vestibular Migraine and Recurrent Vertigo of childhood

Cempaka Thursina
Div Neurootologi-Neurooftalmologi FKKMK UGM;RSUO Dr Sardjito Yogyakarta

Vertigo in children is a multifaceted condition that can significantly impact their quality of life. The most frequent are Benign Paroxysmal Vertigo of Childhood (BPPVC) and Vestibular Migraine (VM). Prevalence about 3% (4 – 8/10 yo), 24–56% of childhood vertigo. Between 2–10. 6% of school age children. Recent advancements in the classification and diagnostic criteria for pediatric vestibular disorders, such as vestibular migraine of childhood (VMC), probable vestibular migraine of childhood (PVMC), and recurrent vertigo of childhood (RVC), have significantly improved our understanding and management of these conditions. The final approved diagnostic criteria were the product of an accord between the IHS Classification Committee and the Committee for Classification of Vestibular Disorders of the Bárány Society. The pathophysiology remains incompletely understood, with various proposed theories including genetic predisposition, neurochemical dysregulation, and pro-inflammatory mechanisms derived from classical migraine pathophysiology. Vestibular migraine is primarily diagnosed based on clinical symptoms due to the challenges associated with interpreting vestibular function test results. Treatment strategies combine pharmacological interventions, including antivertiginous and antiemetic drugs for acute symptom relief, with prophylactic measures aimed at reducing episode frequency and severity. Equally crucial are lifestyle modifications and other nonpharmacological therapies, such as vestibular rehabilitation and cognitive-behavioral approaches, which play a pivotal role in providing comprehensive care and enhancing the quality of life for affected children.

***Key words**: Vestibular migraine, recurrent vertigo, childhood.*

Symposium 14 : Antiplatelet Treatment and ESUS

Saturday, June 1st 2024

Ballroom B, JW Marriot Hotel, Surabaya

The Role of Neurogenomics and Artificial Intelligence for Prevention and Management of Stroke in Young Adults : A Review of Current and Future Perspectives

Eko Arisetijono
Comprehensive Stroke Clinic
Neurology Department
Saiful Anwar General Hospital/Medical Faculty of Universitas Brawijaya

Young adults, defined as those between 18 and 45 years old, account for about 10% of all stroke cases and face unique challenges in terms of diagnosis, treatment, and recovery. Stroke in young adults can have devastating consequences, such as cognitive impairment, physical disability, psychological distress, and reduced quality of life. Moreover, stroke in young adults can have significant social and economic impacts, as it affects people in their most productive years of life. The importance of personalized approaches in the prevention and management of stroke in young adults. Utilizing genomics for stroke can aid in profiling the individual risk of stroke, while employing AI can enhance the precision of predicting stroke risk and guiding tailored management strategies based on individual characteristics. This integrated approach allows for real-time monitoring and guidance, ensuring a more effective and personalized care plan for each individual.

Keyword: *Stroke at Young Adult, Neurogenomic, Artificial Intelligence, Integrated Approach*

Management of Embolic Stroke of Undetermined Sources (ESUS)

Mohammad Saiful Ardhi
Dep. Neurology Faculty Medicine of Universitas Airlangga RSUD dr. Soetomo Surabaya

Embolic stroke of unknown origin (ESUS) is a subtype of ischemic stroke characterized by an embolic infarction with no identifiable cardiac or atherosclerotic cause despite thorough investigation. Because of its diverse underlying causes, the optimal treatment for ESUS remains unclear. ESUS treatment currently emphasizes antithrombotic medication. According to the NAVIGATE ESUS and RE-SPECT ESUS investigations, DOACs are no more efficacious than aspirin in decreasing stroke recurrence. This shows that patient-specific risk indicators should guide treatment rather than a generic approach. Current treatment strategies for ESUS focus on antithrombotic therapy. Recent studies such as NAVIGATE ESUS and RE-SPECT ESUS have shown that direct oral anticoagulants (DOACs) do not significantly reduce the incidence of recurrent stroke compared with aspirin. This suggests that a one-size-fits-all treatment approach may not be effective and highlights the need for individualized treatment based on patient-specific risk factors. In addition to antithrombotic therapy, comprehensive treatment also includes actively modifying vascular risk factors, such as: B. Controlling high blood pressure, lowering blood lipid levels, and promoting healthy lifestyle changes. Advanced diagnostic techniques, such as long-term cardiac monitoring for undetected atrial fibrillation and high-resolution imaging for subclinical atherosclerosis, are critical to identify hidden sources of embolism.Biomarkers and genetic profiles will be used in future studies to classify and treat ESUS. Neurologists, cardiologists, and hematologists must work together to develop individualized treatment strategies. Understanding the complex causes of ESUS will improve prevention and treatment, reduce stroke recurrence, and improve patient outcomes.

Keyword: *Embolic stroke, unknown origin, ESUS, management*

Symposium 15 : Cerebral Vascular Malformation: Adult and Pediatric

Saturday, June 1st 2024

Ballroom C, JW Marriot Hotel, Surabaya

Cerebral Vascular Malformation in Pediatric patients: EVOH vs Glue (NBCA), Sharing Clinical Cases

Dr. Hoang Van Huong, Le Dinh Cong

Vietnam National children's hospital

Cerebral vascular malformations in children. A rare occurrence in this age group, present with diverse morphologies including vein of Galen malformation, cerebral arteriovenous malformation, pial arteriovenous fistula, and dural sinus malformation. The selection of embolic materials (such as glue or EVOH) is crucial in determining the treatment's efficacy.

Enumerate the attributes and applications of Glue (N-butyl cyanoacrylate, NBCA) and ethylene-vinyl alcohol copolymer (EVOH). Provide criteria for the selection of suitable embolic agents for each type of vascular anomaly based on flow characteristics. Discuss the procedural approach for preparing a glue and Lipiodol mixture tailored for managing highly vascular malformations with rapid blood flow using Glue (NBCA). Present clinical cases treated with the described techniques.

Selecting suitable embolic materials for the management of cerebral arteriovenous malformations in pediatric patients enhances the overall treatment efficacy.

Keywords: *Cerebral vascular malformations, Ethylene-vinyl alcohol copolymer (EVOH), N-butyl cyanoacrylate (NBCA)*

Management of Brain AVM: Global Perspective and Current Practice in Indonesia

Achmad Firdaus Sani
Dep. Neurology Faculty of Medicine Universitas Airlangga –
Dr. Soetomo Hospital Surabaya

Brain arteriovenous malformations (AVMs) represent a significant clinical challenge due to their potential for intracranial hemorrhage and neurological deficits. This presentation provides a comprehensive analysis of the management of brain AVMs from a global perspective, with a particular focus on current practices in Indonesia. The management strategies for brain AVMs vary widely across different regions, influenced by available resources, expertise, and healthcare infrastructure. This study reviews the latest global approaches to diagnosing and treating brain AVMs, including advancements in imaging technologies, microsurgical techniques, endovascular therapies, and radiosurgery. Special attention is given to the role of multidisciplinary teams in optimizing patient outcomes through tailored treatment plans.

In Indonesia, the management of brain AVMs faces unique challenges due to disparities in healthcare access, limited availability of advanced medical technologies, and variations in clinical practice standards. This presentation highlights the current state of AVM management in Indonesia, based on recent data and expert opinions. It examines the prevalence of brain AVMs, common treatment modalities, and outcomes. Furthermore, the presentation discusses efforts to improve AVM management in Indonesia, including initiatives to enhance medical training, increase access to advanced treatment options, and implement national guidelines for standardized care.

By comparing global practices with the Indonesian context, this presentation identifies gaps and opportunities for improvement. It underscores the importance of international collaboration and knowledge exchange in addressing these gaps and advancing the field of AVM management. The findings aim to inform policymakers, healthcare providers, and researchers about the critical areas for development and investment, ultimately contributing to better patient care and outcomes in Indonesia and beyond.

Keywords *: Global Practices, AVM Management, Indonesia Healthcare*

Symposium 16 : Cerebrovascular Disease and Migrain : A Link

Saturday, June 1st 2024

Ballroom A, JW Marriot Hotel, Surabaya

Is Refractory and Status Migraine A Cerebrovascular Disease? Potential Interventional Treatment

Nasrul Musadir

Lecturer in Neurology Departement of Syiah Kuala University/Zainoel Abidin Hospital

Migraine is a condition of episodic and recurrent headache and is considered a syndrome that is also triggered by certain conditions such as sensitivity to light, sound, and movement. Migraines often have associations with other neurological symptoms in a variety of situations. Every year about one billion people worldwide experience migrants and compared to the elderly and men, migrants are generally more prevalent among young adults and women. The various complexities and mechanisms of migraine development remain unclear. Several things are thought to be responsible for the occurrence of migraine such as social and biological factors, such as hormonal imbalances, genetic and epigenetic influences, as well as cerebrovascular diseases, and autoimmune.

Treatment of migraine, both in acute and non-acute phases among others with pharmacological and non-pharmacological. But until now, therapy for migraine continues to be challenged both in terms of misdiagnosis and non-optimal treatment.

The relationship between migraine and various cerebrovascular events continues to receive attention and development. Even migraines are considered a risk factor for cardiovascular diseases. The relationship between the two is thought to be on changes in blood flow; Where there is insufficiency of blood flow to the brain and heart as a result of various risk factors. Various evidence shows that migraine sufferers with aura have a higher tendency to have a stroke.

Given the association between migraine and risk factors and cerebrovascular events, it represents an opportunity to develop migraine therapy through endovascular neurointerventional procedures and is a potential enabler in the future.

***Keywords** : Endovascular, Intervention, Migrain*

Link of Stroke and Hemiplegic Migraine: New Update and Evidences

Pepi Budianto
Universitas Sebelas Maret

Due to shared pathophysiological mechanisms and a genetic predisposition, the relationship between hemiplegic migraine and stroke has received increased attention. Newer revisions and discoveries have begun to elucidate these complicated interactions. Aura symptoms of hemiplegic migraine, with temporary weakness or paralysis on one side of the body, and presentation suggest common paths with ischaemic stroke between vascular dysfunction and neuroinflammation. In addition, potential genetic susceptibility factors have been identified by genomic studies that connect hemiplegic migraine with stroke. Variants of genes linked to endothelial dysfunction, coagulation cascades, and ion channel dysregulation were identified in both diseases implying a common genetic background. Advancing the understanding of these genetic connections may evolve into targeted therapeutic interventional strategies, yielding customized interventions for hemiplegic migraine and stroke. In conclusion, the evolving landscape of research underscores the intricate relationship between hemiplegic migraine and stroke, highlighting shared pathophysiological mechanisms and genetic vulnerabilities. These insights have profound implications for clinical management, risk assessment, and preventive measures aimed at mitigating the burden of both conditions.

Keywords*: hemiplegic migraine, stroke*

Treatment for Migraine Prevention: Clinical Utility and Patients Preference and Selection

Isti Suharjanti
Department of Neurology, Dr. Soetomo General Hospital/ Faculty of Medicine, Universitas Airlangga

Migraine is a common brain disease, classified as the second most debilitating condition and has the third highest prevalence of all medical conditions. Chronic migraine is a disabling neurological disorder that imposes a considerable burden on individual and socioeconomic outcomes. Chronic migraine is defined as headaches occurring on at least 15 days per month with at least eight of these fulfilling the criteria for migraine. Chronic migraine typically evolves from episodic migraine as a result of increasing attack frequency and/or several other risk factors that have been implicated with migraine chronification.

For many patients, the abortive treatment of the acute attack with simple analgesics or triptans is insufficient to taper the burden of the disease, as these medications are ineffective in at least 30% of attacks, may be poorly tolerated, and may even worsen the migraine if over- used. Besides ineffective acute medication, physicians' decision to start preventive therapy is based on attack frequency, headache days, severity of attacks, and impact on the patient's quality of life. Thus, more than a third of the patients qualify for prophylactic treatment

Recent advances in the field of migraine research have resulted in newly available treatment options. Among them are the anti- calcitonin gene-related peptide-receptor (anti-CGRP/R) monoclonal antibodies (mAbs). The four available anti-CGRP/R mAbs were the only disease- specific preventive agents that have the potential to change the migraine therapeutic background until now

Keywords: *Anti-CGRP, Chronic, Migraine, Preventive, Treatment*

Symposium 17 : Antithrombotic and Bleeding Related to Anticoagulant

Saturday, June 1st 2024

Ballroom B, JW Marriot Hotel, Surabaya

The Efficacy and Safety of Oral Thrombolytics for Ischemic Stroke Clinical Trial Outcomes

Syahrul

Department of Neurology, Faculty of Medicine, Syiah Kuala University/RSUD Dr. Zainoel Abidin Banda Aceh

Ischemic stroke is a major cause of morbidity, disability and death due to neurological disorders in various countries throughout the world. Research on the efficacy and safety of using oral thrombolysis has been carried out, unfortunately clinical data shows inconsistent results. Thrombolysis is the dissolution of a thrombus (blood clot) due to various chemical and physical agents. Meanwhile, fibrinolysis is the breakdown of fibrin in blood clots due to natural processes or various chemicals. DLBS1033 (lumbrokinase) has been widely used for therapy in acute ischemic stroke patients. Some theories about the mechanism of action of DLBS1033 include dissolving fibrinogen and fibrin directly, converting plasminogen to plasmin and increasing the activity of endogenous t-PA to dissolve fibrin clots. DLBS1033 can also dissolve blood clots and be an effective tool for the treatment and prevention of ischemic stroke. The efficacy of DLBS1033 plus aspirin is more effective in reducing the recurrence of ischemic stroke than aspirin alone and does not increase the incidence of major bleeding. DLBS1033 also benefited from a greater reduction in NIHSS values and a greater increase in the Barthel Index compared with single-dose clopidogrel and aspirin. DLBS1033 with aspirin was shown to provide better improvements in NIHSS and BartheI Index than aspirin alone, with similar side effects. DLBS1033 was also proven to improve neurological clinical outcomes better than standard therapy with aspirin alone, safe hemostatic profile (PT, aPTT, and INR) compared with clopidogrel and aspirin.

Keywords: *DLBS1033, Efficacy and Safety, Ischemic Stroke, Oral Thrombolytics*

Gastroprotection Against Antiplatelet Therapy in Ischemic Stroke Patients

Ismail Setyopranoto
Department of Neurology Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada University / KSM Saraf RSUP Dr Sardjito Yogyakarta

Antiplatelet therapy is a cornerstone for the treatment of stroke ischemic. However, it raises the risk of bleeding in the upper gastrointestinal tract. The risk significantly increases if two antiplatelet agents are used, and it becomes even greater if an anticoagulant is also prescribed. Antiplatelet is used across a wide spectrum of cerebrovascular diseases include stroke ischemic. A concomitant proton pump inhibitor (PPI) treatment is often prescribed in these patients, as gastrointestinal complications are relatively frequent. On the other hand, a potential increased risk of cardiovascular events has been suggested in patients treated with PPI; in particular, it has been discussed whether these drugs may reduce the stroke ischemic protection of clopidogrel, due to pharmacodynamic and pharmacokinetic interactions through hepatic metabolism.

In patients treated with antiplatelet therapy with an increased risk of gastrointestinal bleeding, use of PPIs should be considered mandatory, In other cases, the decision to use PPIs in patients treated with antiplatelet agents should be based on risk-benefit ratio, assessing both neurological and gastroenterological risks in order to balance them. Validated therapies to prevent bleeding risk from VKAs and DOACs are not available. Recent studies seem to demonstrate a benefit of the PPI treatment also in patients taking antiplatelet.

Several guidelines or position papers by various American, Asian, European, and Italian, Societies of Neurology. Cardiology, Gastroenterology, Pharmacology, and General Practitioners deal with gastroprotection in patients taking antiplatelet and/or oral anticoagulant treatment.

Keywords: *Antiplatelet therapy, Ischemic stroke, Gastroprotection*

Hemorrhagic Stroke Related Anticoagulant: Prevention and Treatment

Abdul Gofir

Department of Neurology, Sardjito General Hospital, Yogyakarta / Faculty of Medicine, Public Health, and Nursing, University of Gadjah Mada

Intracerebral hemorrhage (ICH) is associated with high mortality and the risk of recurrent strokes. The incidence of ICH among anticoagulant users ranges from 0.6% to 1.0%, with anticoagulant-related ICH being more severe and leading to higher mortality rates than spontaneous ICH. Risk factors for ICH in anticoagulant users include advanced age, hypertension, genetic predisposition, anticoagulant intensity, history of stroke, and concomitant antiplatelet use. Clinicians should assess bleeding risk using scores such as HAS-BLED, HEMORR2HAGES, or ATRIA before prescribing anticoagulants. Despite the risks, anticoagulants are strongly recommended for patients with atrial fibrillation at high risk for ischemic stroke, those with mechanical heart valves, or those at high risk for deep vein thrombosis and pulmonary embolism.

Recent evidence indicates that anticoagulants do not directly cause acute ICH but can exacerbate bleeding after a cerebral vessel rupture. Approximately one-third of ICH patients experience active bleeding within 6-12 hours of symptom onset, leading to early hematoma expansion. ICH expansion, occurring in up to 54% of cases, can continue up to 48 hours post-onset in anticoagulant-associated ICH, making the prevention of hematoma expansion a critical goal in acute ICH management. Immediate measures include blood pressure control and reversal of coagulopathy using agents such as vitamin K, direct thrombin inhibitors, and factor Xa inhibitors.

The decision to reinitiate anticoagulation after ICH remains controversial due to the balance between thromboembolism and hemorrhage risks. Factors such as patient age, renal function, drug interactions, hemorrhagic score calculations, hematoma characteristics, and minor bleeding presence should inform clinical judgment. Studies suggest that direct oral anticoagulants (DOACs) present a lower ICH risk compared to other anticoagulants.

***Keywords**: Intracerebral hemorrhage, anticoagulant, reversal coagulopathy, anticoagulant reinitiation*

Symposium 18 : Neurovascular Cases and Seizure

Saturday, June 1st 2024

Ballroom C, JW Marriot Hotel, Surabaya

Diagnosis and Treatment Post Stroke Epilepsy : Current Update

Wardah Rahmatul Islamiyah

Dep. Neurology Faculty of Medicine Universitas Airlangga – Universitas Airlangga Hospital – Dr. Soetomo Hospital Surabaya

Post-stroke epilepsy (PSE) is a complicated neurological disorder that has a substantial impact on patient outcomes and quality of life. This study offers a thorough and up-to-date overview of the current knowledge regarding the diagnostic and treatment methods for PSE. The diagnostic difficulties in PSE arise from its diverse manifestation and unpredictable time delay after a stroke. We examine current progress in neuroimaging methods, biomarkers, and clinical assessment instruments with the goal of enhancing early identification and precise diagnosis. The treatment techniques for PSE involve a comprehensive strategy that focuses on controlling seizures, protecting the brain, and promoting functional recovery. Pharmacological interventions, such as antiseizure medications (ASM), are fundamental treatments. However, recent research indicates the possible use of new ASM and customized treatment plans. In addition, we explore the changing field of non-pharmacological therapy, including neuromodulation techniques, rehabilitative therapies, and lifestyle adjustments. In addition, we explore the difficulties and possibilities in handling concurrent medical conditions linked to PSE, including as cognitive decline, mental problems, and cardiovascular concerns. Integrated care models that prioritize comprehensive patient management are crucial for maximizing long-term results and improving patient welfare. To summarize, this study highlights the ever-changing nature of PSE diagnosis and treatment approaches, emphasizing the significance of continuous research efforts and collaborative work in enhancing clinical practices and advancing patient-centered care.

Keywords: *post-stroke-epilepsy, diagnosis, treatment, health care quality*

Predictor of Early Seizure in Hemorrhagic Stroke

Ersifa Fatimah
Department of Neurology, Dr. Soetomo General Hospital/ Faculty of Medicine, Universitas Airlangga

Acute symptomatic seizures after stroke are not uncommon. The rate of seizures is significantly higher in patients with haemorrhagic than ischaemic stroke. Several risk factors for seizures have been described including cortical lesion, bleeding volume, midline shift, clinical severity, and MCA aneurysm in SAH. Early seizures resulted in worse functional outcome, increased risk of death, and associated with development of post stroke epilepsy. Identifying patient at risk for early seizure is important for rapid diagnosis and treatment initiation, and subsequently reduce seizure-related morbidity.

Keywords: *acute symptomatic seizure, hemorrhage stroke, predictor*

Refractory Status Epilepticus in Acute and Hyperacute Stroke

Fitri Octaviana
Neurology Department, Faculty of Medicine Universitas Indonesia
Dr. Cipto Mangunkusumo Hospital, Jakarta

Seizures can occur during hyperacute and acute stroke and considered as acute symptomatic seizures. Seizures lasting more than 5 minutes are referred to as status epilepticus. Seizures that persist despite first-line intravenous benzodiazepine and anti-seizure medication (ASM) are referred to as refractory status epilepticus (RSE). While super refractory status epilepticus (SRSE) is a seizure that still occurs even though the patient has received anesthetic agents for 24 hours or seizures re-occur after the patient is weaned from anesthetic drugs. The prevalence of seizures in acute stroke is approximately 2-3% and most of them is focal seizures (42.6%). Acute seizures in stroke are more common in hemorrhagic stroke than ischemic stroke. Seizures should be terminated as soon as possible because seizures can delay further stroke management such as r-TPA administration in ischemic stroke. The management of SE in stroke follows the SE algorithm. Frequently used second-line ASMs are valproate acid (VPA) and levetiracetam (LEV). Intravenous LEV is currently available in Indonesia. The use of LEV is preferred in patients with acute seizures in stroke because it does not have drug interactions with other drugs used during acute stroke.

Keywords: *refractory status epilepticus, acute stroke, anti-seizure medication*

Symposium 19 : Dyslipidemia and ICAD

Saturday, June 1st 2024

Ballroom A, JW Marriot Hotel, Surabaya

Limb Shaking Syndrome, ICAD, and Stroke : A Treatable Movement Disorder

Priya Nugraha

Department of Neurology, Universitas Airlangga, Dr. Soetomo Hospital, Surabaya, East Java, Indonesia

Limb Shaking Syndrome (LSS) is a rare neurological condition characterized by involuntary, rhythmic shaking or tremors of one or more limbs. Limb shaking syndrome attributed secondary to a postural change which commonly occurs in patients with atherosclerotic stenosis or occlusion cerebral arteries. Limb-shaking is often associated with underlying conditions affecting cerebral blood flow, such as stenosis or occlusion of the internal carotid artery (ICA), internal carotid artery dissection (ICAD) or other vascular abnormalities. The exact cause of this symptom remains uncertain, although hemodynamic compromise has been suggested to be associated with shaking movements. The "hypoperfusion theory" posits that decreased cerebral blood flow in critical brain regions due to carotid stenosis and orthostatism may explain limb shaking.

Imaging studies do not reveal a consistent lesion pattern, but they may indicate signs of small vessel disease, either bilaterally or in the hemisphere opposite to the affected limbs. Patients with limb shaking syndrome can be misdiagnosed with seizures because of the similar symptoms and stereoptypical movement. Electroencephalographic studies have failed to demonstrate epileptiform activity associated with LSS, although some patients may exhibit focal slow activity on the contralateral side.

Treatment for LSS aims to restore cerebral blood flow. Conservative treatment like antiplatelet therapy or more invasive interventions such as angioplasty or stenting had shown good outcome. Studies report the rapid disappearance of limb shaking following treatment, with no recurrence observed during the follow-up.

Keywords: *Limb Shaking Syndrome, ICAD, Stroke*

Intracranial Atherosclerotic Disease (ICAD)

Subandi

Neurology Department, Medical Faculty Sebelas Maret University

Ischemic stroke is currently still the main cause of stroke and around 20 to 25 percent is caused by intracranial artherosclerosis. Treatment between using medication alone or using neurointevention with balloons/stenting is still debatable. The SAMMPRIS study recommends that drugs therapy is preferred over endovascular intervention. In recent studies, many studies have been reported that selective intracranial ballooning and stenting provide better results in preventing stroke reccurence.

Keywords: *ICAD- medical therapy- endovascular*

Symposium 20 : Neuroprotection and Neurorepair in Stroke

Saturday, June 1st 2024

Ballroom B, JW Marriot Hotel, Surabaya

Neuroprotection and Neurorepair Updates

Paulus Sugianto

Depart. Neurology, Dr. Soetomo general Hospital / Faculty of Medicine, Airlangga University

Surabaya

Cerebrovascular disease is still the main cause of worldwide death and permanent disability. Riskesdas noted that the prevalence of stroke in Indonesia increased from 7 per 1000 population in 2018 to 10.9 per 1000 in 2018. The pathophysiology of stroke is the ischemic cascade which results in the formation of the core-penumbra area. The ischemic cascade has a complex process including oxidative stress, excitotoxicity, inflammation, and loss of neuronal function, all of which end in brain cell death. This process continued after reperfusion therapy was given. The development of neuroprotective agents can help stop the process that occurs. Neuroprotective and neurorepair agents are substances that can maintain the structure and function of existing neurons to prevent nerve cell damage or ongoing neurodegenerative processes. Existing neuroprotectant agents include Cytidine 5-diphosphate, phosphatidylserine, cerebrolysin, MLC601, edaravone, and so on. Cytidine 5-diphosphate and phosphatidylserine are long-studied neuroprotectant agents. These two agents organize the phospholipid membranes of cells, especially the brain, through the Kennedy cycle pathway, especially neuron cells. The stability of cell membranes helps accelerate long-term recovery after stroke. This agent provided better long-term results, quality of life, and cognitive function than if it was not given.

Keywords: *Cytidine 5-diphosphate, Dementia, Ischemic stroke, Neuroprotective agents Phosphatidylserine*

Polypharmacy and Inappropriate Medication in Stroke Pharmacotherapy: How Neurologist Treat It

Pagan Pambudi
Department of Neurology, Faculty of Medicine and Health Science, Universitas Lambung Mangkurat/RSUD Ulin Banjarmasin

Polypharmacy and inappropriate medication use are often found in stroke patients and have negative consequences such as less than optimal functional outcomes, increased incidence of drug adverse event, increased hospital length of stay and costs. However, polypharmacy seems difficult to avoid in stroke patients where there are many underlying comorbidities that require pharmacotherapy. Neurologist as doctors responsible for patients need to manage polypharmacy and inappropriate use of medicines in order to achieve treatment goals, namely optimal functional outcomes and patient safety at an efficient cost.

Keywords: *Stroke, Polypharmacy, inapropiate medication*

Neuroprotectant Role in Post-Stroke Cognitive Impairment

Yudha Haryono

Dep. Neurology Faculty Medicine of Universitas Airlangga RSUD dr. Soetomo Surabaya

Post-stroke cognitive impairment (PSCI) is a common and largely disabling sequele of stroke, affecting up to one-third of all survivors. The search for effective treatments has emphasized the potential role of neuroprotectants in preventing cognitive decline. The principal modes of action include reduction in excitotoxicity, oxidative stress and inflammation, as well as upregulation in neurogenesis and synaptic plasticity. Neuroprotectants provide benefits by modulation of the neurovascular unit, up-regulation of blood-brain barrier integrity and creating a conducive environment for brain repair. Cognitive recovery as an unrealized target in early stroke has not led to better behavioral outcomes, thus combining neuroprotectants with rehabilitation strategies (e.g., cognitive training and physical therapy) could synergistically improve the full spectrum of cognitive function and quality of life for patients recovering from stroke. Although these studies show promise, there are still obstacles to overcome in order to achieve the same level of effectiveness in clinical settings. Further investigation should prioritize the identification of the most favorable timing, dosage, and combination treatments, as well as the comprehension of patient-specific variables that impact the efficacy of neuroprotective agents. In summary, neuroprotectants offer a hopeful approach to addressing post-stroke cognitive impairment (PSCI), as they have the potential to greatly enhance patient outcomes and decrease the long-term impact of stroke.

Keyword: *post-stroke, cognitive impairment, neuroprotentant*

Symposium 21 : Cerebrovascular, Atherosclerotic, Small vessel disease

Saturday, June 1st 2024

Ballroom A, JW Marriot Hotel, Surabaya

Cerebrovascular Disorders in Newborn

Mudjiani Basuki

Soetomo General Hospital

Cerebrovascular Disorders in Newborn (CDN) is an abnormal condition that affects the blood vessels of the brain immediately after the baby is born.

Causes of CDN include genetic disorders, pregnancy complications, birth trauma and infection.

Some cases of CDN that often occur include perinatal stroke, hypoxic-Ischemic Encephalopathy, Intraventricular Hemorrhage, AVM, Cerebral Sinovenous Thrombosis, Hereditary Hemorrhagic Telangiectasia, Neonatal Arterial Ischemic Stroke.

Diagnosis is based on clinical, ultrasound and MRI of the head. Multidisciplinary management of CDN as early as possible in the Pediatric Intensive Care Unit (PICU) to prevent disabilities.

Some complications that often occur are cerebral palsy, epilepsy, speech, cognition and behavior disorders.

Keywords: *CVDN – CVDN type – diagnostic – management – complications.*

The Role of Cobamamide in Lowering Homocysteine Level Associated Cerebrovascular Disease

Rizaldy Taslim Pinzon
Neurology Department, Bethesda Hospital/ Duta Wacana Christian University School of Medicine

The cerebrovascular disease has emerged as the leading cause of disability and the second leading cause of death worldwide. Ischemic stroke is one of the most common cerebrovascular diseases, constituting 85% of all strokes. Older age, gender, hypertension, diabetes mellitus, hypercholesterolemia, and smoking are the traditional risk factors for cerebrovascular disease. Among a variety of risk factors, studies have found that homocysteine (Hcy) is an independent risk factor and correlated with cerebral infarction due to intracranial small-vessel disease and extracranial vascular disease, including myocardial infarction and peripheral artery disease.

Homocysteine (Hcy) is a naturally sulfhydryl-containing amino acid and is closely linked with endothelial dysfunction and extracellular matrix proliferation that may cause vessel damage. Recent studies reported a possible association between hyperhomocysteinemia and thrombotic vascular events, including ischemic stroke. Our meta-analysis and systematic review indicate that ischemic stroke patients have significantly higher homocysteine levels than controls.

There is some evidence that, in patients with vascular disease, low B_{12} levels are not only associated with elevated tHcy but also with carotid plaque area. Previous studies have shown that B vitamins lower plasma homocysteine by substantial amounts and that this effect is greater in people with higher homocysteine and lower folate levels. Our review suggest that Cobamamide has potential role in lowering homocysteine level associated cerebrovascular disease.

Keywords: *Homocysteine, Cobamamide, Ischemic Stroke, B_{12}*

Symposium 22 : Quality Monitoring in Stroke

Saturday, June 1st 2024

Ballroom B, JW Marriot Hotel, Surabaya

Monitoring in Stroke : Indonesia Overview and Status

Adin Nulkhasanah

RS Pusat Otak Nasional Prof. Dr. dr.Mahar Mardjono Jakarta

An overview of the current status of stroke monitoring in Indonesia, highlighting various challenges and statistics related to stroke. It discusses the prevalence of stroke, the high disability rates, and the significant mortality rates associated with the condition. Additionally, the economic burden of stroke is emphasized, ranking third in healthcare financing after heart disease and cancer. The diagnostic process for stroke is detailed, underscoring the need for expert interpretation of imaging tests like MRI or CT-Scans. It also addresses the treatment gap in stroke care, particularly in the context of appropriate treatment like thrombolysis and thrombectomy. Challenges in stroke care in Indonesia are outlined, including issues with facility availability, healthcare insurance coverage, management in emergency departments, distribution and competency of healthcare professionals, time constraints, and the necessity for stroke management guidelines. The presentation further delves into the need for improved stroke care through initiatives like the Stroke Network Hospital Decision and the importance of comprehensive data collection for monitoring stroke cases in the country.

Keywords: *Stroke, Healthcare, Monitoring, Challenges*.

Quality Monitoring in Stroke

Ita Muharram Sari
National Brain Center Hospital Prof Dr dr Mahar Mardjono

Stroke still become a major public health burden, with the huge number of mortality and morbidity. Stroke care involves a comprehensive of services and needs effective stroke systems of care to ensure optimal patient outcomes. Performance measures vary from acute treatment, in-hospital management, and secondary stroke prophylaxis. Quality monitoring in stroke is important for the improvement of patient care. Work is needed to develop quality monitoring and improvement programs that can be performed in low and middle-income countries.

Keywords : *stroke, quality monitoring, treatment*

Symposium 23: Stroke: Diagnosis, Hyperacute and Neuroprotection

Saturday, June 1st 2024

Ballroom C, JW Marriot Hotel, Surabaya

Patient Selection and Management of Complication: Art of Thrombolysis

IB Kusuma Putra

Neurology Department, Faculty of Medicine Udayana University

Sanglah Hospital

Intravenous thrombolysis with recombinant tissue plasminogen activator (r-tPA) has been approved in the United States by the Food and Drug Administration (FDA) as well as in the ECASSS III trial in patients with hyperacute ischemic stroke with an onset of 3 to 4.5 hours. Advances in the treatment of ischemic stroke hyperacute relies on innovations in neuroimaging which play an important role in the diagnosis and prognosis of ischemic stroke, thereby enabling triage decisions in the emergency management of stroke patients in the form of thrombolysis or endovascular. Strict selection of patients for intravenous thrombolysis in the form of inclusion and exclusion criteria is this is very important in efforts to reduce ischemic stroke death and disability rates. Monitoring the administration of intravenous thrombolysis both during and after thrombolysis is very necessary to detect early complications that occur and can carry out immediate management. Some of the side effects of fibrinolytic agents with alteplase r-tPA can include bleeding, hypotension, allergic reactions, angioedema, anaphylactic shock and reperfusion injury . Intracranial bleeding is the most common complication.

Keywords: *Hyperacute Ischemic Stroke, Thrombolysis Selection, Management of Complications*

Symposium 24 : Beyond the Common Arterial Stroke and Risk Factor

Saturday, June 1st 2024

Ballroom C, JW Marriot Hotel, Surabaya

Retinal and Spinal Stroke :Management and Current Evidence in Reperfusion Era

Yovita Andhitara

RSUP dr Kariadi Semarang

Retinal and spinal strokes are acute ischemic events requiring immediate intervention. Central Retinal Artery Occlusion (CRAO) leads to sudden vision loss, while spinal strokes affect motor and sensory functions, potentially causing paralysis. The management of these conditions has evolved to include reperfusion strategies similar to those used for cerebral ischemia, with intravenous (IV) and intra-arterial (IA) thrombolysis being central to treatment.

For CRAO, the therapeutic window for thrombolysis with tissue plasminogen activator (tPA) is extremely narrow, generally within 4.5 hours of symptom onset, highlighting the need for prompt action. Clinical studies indicate that timely IV tPA administration can improve visual outcomes significantly, though it carries hemorrhagic risks. IA tPA, administered directly at the occlusion site, is an alternative when IV tPA is not suitable, though its efficacy and safety require further validation through controlled trials.

The evidence supporting thrombolytic therapy for spinal strokes is less robust due to the condition's rarity. However, initial reports suggest that IA tPA may offer benefits when used within a similar timeframe as for cerebral strokes. These findings highlight the need for more research to refine treatment protocols and establish comprehensive guidelines.

Effective management of retinal and spinal strokes in the reperfusion era depends on rapid diagnosis, timely therapy administration, and a multidisciplinary approach to patient care. This ensures the best possible outcomes for patients. Although reperfusion therapies have advanced the treatment of these strokes, ongoing research and protocol development are essential to improve access to these critical interventions and enhance clinical outcomes for diverse patient populations.

Keywords*: Retinal stroke, Spinal stroke, Central Retinal Artery Occlusion (CRAO), Thrombolysis*

Cupping Theraphy and Regulation of Stroke Risk factor

Hanik Badriyah Hidayati
Departemen Neurologi Fakultas Kedokteran Universitas Airlangga – RSUD Dr. Soetomo Surabaya

Stroke remains a global problem. The morbidity and mortality rates of stroke are high. Stroke prevention is an important step in reducing mortality and morbidity due to stroke. Stroke prevention is carried out by controlling stroke risk factors. Control of stroke risk factors is done through treatments and medications such as exercise, diet, and medication. Cupping, an alternative treatment, is used to control stroke risk factors such as hypertension, dyslipidemia, and high uric acid. Our paper will discuss the role of cupping in controlling stroke risk factors.

Keywords: *stroke, risk factors, hypertension, dyslipidemia, high uric acid*

Neoplastic Cerebral Aneurysm: Asssociation of aneurysm and Neoplasma

Djohan Ardiansyah
Neurology Division, Neurology Department, Universitas Airlangga/Dr. Soetomo Hospital Surabaya

Neoplastic Cerebral Aneurysms (NCAs) are greatly rare cases defined by infiltration of cancerous cells within an artery wall causing to aneurysm formation. NCAs caused by myxomas are mostly known, rarer etiologies have also been described and are typically had worse clinical outcomes. Those etiologies are choriocarcinomas, lung camcer, and other origins. NCAs from cardiac myxoma were probably multiple and rarely associated with intracranial bleeding but the remain etiologies were soliter and usually with bleeding. It is accurately difficult to detect NCAs because of smaller size, more complicated and distally located than non–oncotic aneurysms. Digital Substraction Angiography (DSA) has a superior way to examine rather than CT Angiography (CTA) and Magnetic Resonance Angiography (MRI), but optimal treatment decision remain unclear. The treatment is commonly done by surgical clipping but the prognosis always depends on the malignancies and treatment course of the primary cancer.

Keywords: *NCAs, DSA*

Symposium 25 : Stroke Prevention dan Stroke Unit

Sunday, June 2nd 2024

Ballroom A, JW Marriot Hotel, Surabaya

Trends in Oral Anticoagulation Therapy in Non-valvular Atrial Fibrillation (AF) Patients at High-risk Of Stroke: Clinical Practice and Guideline

Valentinus Besin

Faculty of Medicine, University of Surabaya

The prevalence of Atrial Fibrillation (AF) is on the rise worldwide. AF that is not associated with mitral stenosis or mechanical heart valve is classified as non-valvular AF. Patients with AF at high risk of stroke are pivotal to the development of guidelines for recommending oral anticoagulation therapy. Direct Oral Anticoagulants (DOACs) are prescribed for patients with non-valvular AF who have experienced an ischemic stroke or Transient Ischemic Attack (TIA), to mitigate the risk of subsequent stroke. Research has demonstrated that DOACs are either superior or equivalent to warfarin in preventing strokes in patients with non-valvular AF. However, warfarin's narrow therapeutic window, the need for frequent monitoring, and its numerous drug interactions complicate its routine use in daily practice. Furthermore, DOACs prescribed are associated with a lower risk of systemic embolism, ischemic stroke, major bleeding, and mortality compared to warfarin. Apixaban, a member of the DOAC family, has been particularly effective. It is associated with a reduced risk of ischemic stroke, major bleeding (including gastrointestinal bleeding), and mortality compared to warfarin, notably in Asian patients with non-valvular AF. Recent research supports the use of Apixaban as the preferred DOAC for patients with both dementia and chronic kidney disease who are also diagnosed with AF. However, the effectiveness of all DOACs may be affected by interactions with drugs that inhibit or induce cytochrome P450 (CYP) enzymes or permeability glycoprotein transporters, which can increase the risk of adverse effects. Extensive research and numerous guidelines are currently available to guide the clinical application of DOACs.

Keywords: *non-valvular, atrial fibrillation, oral anticoagulant, risk, stroke, apixaban*

Revisiting Stroke Unit in The Era of Reperfusion Theraphy: Current Status and Evidence

Abdulloh Machin
Dept Neurology Faculty of Medicine Universitas Airlangga
Universitas Airlangga Hospital-Dr.Soetomo General Hospital

Stroke unit is system of Care where multidisciplinary team of stroke specialist look after stroke patiens. Many evident show that stroke unit care for stroke patients have better outcome compare to general ward. Stroke unit have reduced odds of poor out come at median 1 year follow up (26 RCTs; n=5336; OR 0,77(95% CI 0,69-0,87). There are two kind of stroke center: primary stroke center and comprehensive stroke center. The main goal og stroke unit care are: reassess medical and neurological status, ascertain definite diagnosis, establish stroke type mechanism and aetiology, deliver hyperacute treatment, maintain vital function to physiological range, prevent complication, setection the risk factors, starting rehabilitation, performing clinical research, and to prepare organ donation. Stroke unit should detect potentian complication of stroke patients, that why all stroke patients should screened for dysphagia. There are growing evident to make reperfussion treatment faster is developing mobile stroke unit, mobile stroke unit can improve the thrombolysis treatment and impove out come. Mobil stroke unit is designing ambulance with CT scan that can perform iv trombolisis faster. Mobile stroke unit can reduced in hospital delay in acute stroke patients and improve out come of stroke patients.

***Key word**: stroke unite, thrombolysis, mobile stroke unit*

Symposium 26 : Certfication National Stroke Program and Social Media

Sunday, June 2nd 2024

Ballroom A, JW Marriot Hotel, Surabaya

Effective Communication and Professional Branding As Neurologist

Zicky Yombana

Neuro Care

For many years, communication problems in the world of health in general have not been resolved solutively. In fact, if we examine the daily duties of medical personnel, it is closely related to the relationship between people, prospective patients, patients and patients' families.

Communication is not just a technique of speaking but broader than that because the purpose of communication is to convey a message so that the recipient of the message gives feedback or changes his behavior. Communication is the first science that humans learn from birth, unfortunately deeper knowledge has not been done by everyone, especially those whose fields of work often interact with others.

Medicine and Communication are two sciences that depart from different roots but in the end complement each other in order to sharpen the analytical power of a doctor so that it can more precisely provide solutions to certain circumstances related to the health of patients, the environment and society.

The literacy of ordinary people about the world of medicine is still low, the number of pseudoscience treatments, false and misleading information circulating in the community has its own challenges for the world of medicine. Effective communication is able to dismiss this in order to improve the level of public health in general. How?

Doctors must be able to position themselves in the community so that if there is a health problem, the doctor is the first to be implied in the minds of the community, not other treatment methods that have not been scientifically proven. A doctor must be able to build professional branding in the community. How is scientific science approached humanistically?

Keywords : *Medicine, Communication, Professional Branding*

Faculty Dinner : Understanding Zoster beyond Disease Burden: Focus on Neurovascular complications and Prevention

Sunday, June 2nd 2024

Ballroom A, JW Marriot Hotel, Surabaya

Prevention of the common Herpes Zoster Complications: Perspective of a Neurologist

Isti Suharjanti

Department of Neurology, Dr. Soetomo General Hospital/ Faculty of Medicine, Universitas Airlangga

Herpes zoster (HZ) is an acute viral illness characterized by a vesicular rash with unilateral distribution, which can also result in severe complications such as post-herpetic neuralgia (PHN), ophthalmic zoster, stroke or other neurological complications. Currently, treatment options for HZ are only partially effective in limiting the acute phase, while the management of complications is complex and often unsatisfactory. The total burden of the disease and the high costs related to its diagnostic and therapeutic management led researchers to develop a new preventive approach through a live attenuated virus vaccine. The currently available vaccine, with a high antigen content, is safe, well tolerated and reduces the incidence of HZ, PHN and the burden of illness

Prevention is a key strategy against HZ and for this, the use of either Zoster Live Vaccine (ZVL) or Recombinant Zoster Vaccine (RZV) is paramount, many countries are preferentially recommending two doses of RZV in adults aged 50 years and older. Real-world data from effectiveness studies corroborate the evidence seen in the clinical trials for the RZV vaccine, with a vaccine effectiveness of approximately 85% that is maintained for close to ten years.

Keywords: *Complication, Herpes Zoster, Management, Preventive*

Thank You

for your participation