ABSTRACT

'FOSTERING ASEAN COLLABORATION TO ADVANCE NEW TECHNOLOGIES FOR NEUROLOGISTS DURING **COVID-19** PANDEMIC'

Young Investigator Award

P01
Acute Effect of Air Pollution on Ischemic Stroke and Hemorrhagic Stroke Admission: Time-Stratified Case-Crossover Study in Khon Kaen, Thailand

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Background / Introduction

Stroke is the third leading cause of death worldwide and first leading cause of death in Southeast Asia. In Thailand, stroke is the third leading cause of death after ischemic heart disease and road injuries, as is in Khon Kaen. Previous study found that the short-term exposure to PM10, sulfur dioxide (SO2), and nitrogen dioxide (NO2) was significantly associated with increased ischemic stroke risk. Nevertheless, there is still a lack knowledge on stroke in Thailand.

Objectives

To investigate the association and the acute effects of gaseous pollutants, particulate matter on stroke admission in Khon Kaen, Thailand.

Methods and Material

This study applied the time-stratified case-crossover (ts-CCO) study design to estimate the association of short-term lag periods exposure of gaseous pollutants and air pollution and number of hospital admissions for acute stroke. Data was acquired from Thailand's National Health Security Office (NHSO) and Khon Kaen Meteorological Center between 1st January 2015 and 31st December 2016.

Results

This study found positive and significant association between short-term exposure to all ambient and gaseous air pollutants; PM2.5, PM10, CO, NO2, SO2, O3 and acute hemorrhagic stroke in those aged under 45 years in Khon Kaen, Thailand. No evidence of association between

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ambient and gaseous air pollutants and the relative risk of acute ischemic stroke were found in any age group.

Conclusion (s)

Short-term exposure to CO, NO2, SO2, O3, PM2.5, PM10 was significantly associated with increased acute hemorrhagic stroke risk in young adults under 45 years.

Keywords

1. Air pollution
2. Gaseous pollutant
3. Hemorrhagic stroke
4. Ischemic stroke

P02
Predictors of Hospital Outcome among Patients with Posterior Reversible Encephalopathy Syndrome

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Background / Introduction

Posterior reversible encephalopathy syndrome (PRES) is usually precipitated by certain illness. Although the clinical outcome is usually benign, life-threatening conditions leading to unfavorable outcome can occur.

Objectives

We aim to identify the predictors of unfavorable outcome (modified Rankin score (mRs) 3-6) among patients with PRES.

Methods and Material

This retrospective cohort recruited PRES patients diagnosed by computed tomography or magnetic resonance imaging of the brain between October 2006 and May 2019. The clinical and radiological characteristics, precipitating cause, treatment, hospital complications and hospital outcome (mRs) were compared between independency (mRs0-2) group and dependency or dead (mRs3-6) group. In the univariate analysis, factors with $p<0.05$ were selected for multivariate logistic regression analysis to identify any independent factor of unfavorable outcome.

Results

Of 136 PRES patients, 22.79% had unfavorable outcome with mortality rate of 7.35%. None of the patients die of increased intracranial pressure. Comparing between groups, the group with unfavorable outcome experienced higher rate of epileptic seizure (67.74% vs 44.76%), impaired consciousness (90.32% vs 30.48%), intracerebral hemorrhage (16.13% vs 4.76%) and had infectious

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cause (29.03% vs 5.71%). The medical complications were significantly more frequent in the unfavorable outcome group. The predictors of unfavorable outcome included initially impaired consciousness (adjusted odd ratio (aOR) 10.851, p=0.011, 95%C.I. 1.718-68.530), acute kidney injury (aOR 9.940, p=0.010, 95%C.I. 1.714-57.663) and developing sepsis as a complication (aOR 32.945, p=0.001, 95%C.I. 4.444-244.219).

Conclusion (s)

Approximately one-fifth of the patients with PRES had unfavorable outcome in this cohort. Medical complications especially acute kidney injury and sepsis may contribute to dependency or death.

Keywords

1. Posterior reversible encephalopathy syndrome
2. Clinical outcome
3. PRES
4. Predictors
5. Unfavorable outcome

P03
Factors Influencing Clinical Outcomes in Autoimmune Myopathy

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Background / Introduction

Idiopathic inflammatory myopathies (IIM) are heterogeneous autoimmune muscle diseases which can be classified into five subgroups. Each subgroup has different clinical and laboratory findings and treatment outcome.

Objectives

The objective of this study is to identify factors influencing clinical outcome in Thai patients with IIM.

Methods and Material

This is a retrospective cohort study. All IIM patients at Ramathibodi Hospital between January 2009 and December 2020 were recruited. All relevant clinical factors were retrospectively reviewed. Primary outcome was clinical response at 12 months after treatment which was assessed by Total Improvement Score (TIS) (0-100). The quantitative muscle strength at baseline and 12 months after treatment were measured by Manual Muscle Testing 8 version (MMT8) score (0-80). Univariate and multivariate analysis were used to identify the associations between clinical factors and the primary outcome.

Results

There were 38 patients in this study. The median age was 57.5 (17.0-88.0) years, 71.1% were female. There was an increasing number of IIM patients with significant clinical response after treatment at 1, 3, 6 and 12 months (23.7%, 55.3%, 63.2% and 68.4% respectively). Factors associated with significant improvement from multivariate

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analysis were shorter time from symptom onset to treatment, symmetrical proximal muscle weakness pattern, and manual muscle testing score (MMT8) at baseline. Factors that associated with clinical response at 12 months were shorter time from symptom onset to treatment and MMT8 change after treatment.

Conclusion (s)

Our study showed the significant clinical response of IIM treatment depends on early diagnosis and treatment as well as the clinical muscle strength improvement during treatment regardless of subtype of IIM or treatment regimen. Up to 6-12 months after treatment, about 70% of patient in this study had significant clinical response, therefore chronic immunotherapy should be maintained for at least 6-12 months.

Keywords

1. Autoimmune myopathy
2. Idiopathic inflammatory myopathy
3. Thailand
4. Factors

P04
Predictors of 2-Year Seizure Free among the Patients with Cerebral Arteriovenous Malformation

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Background / Introduction

Cerebral arteriovenous malformation (AVM) can produce various neurological symptoms. Seizure is considered as one of the chronic symptoms affecting the quality of life.

Objectives

We aim to identify the predictors of being 2-year seizure free.

Methods and Material

Cerebral AVM patients diagnosed by magnetic resonance angiography or cerebral angiography who has the last follow up between January 2002 And 31 November 2020 were retrospectively reviewed. We compared clinical, radiological characteristics, treatment and seizure control outcome between the patients who achieved and did not achieve 2-year seizure freedom. The factors with $p<0.05$ in the univariate analysis were entered into the multivariate logistic regression analysis to determine independent factors of remaining seizure free for 2 years.

Results

Of 372 Cerebral AVM patients, 105 (28.23%) experienced seizure. There were no significant difference in seizure semiology, clinical presentations, mode of treatment and AVM obliteration achievement between the two groups. The seizure-control group had the smaller cerebral AVM diameter (median(IQR) 32 (20.25-44.00) vs 40 (32.00-50.00) millimeters, p=0.027) and less number of anterior cerebral artery feeding vessel (45.00% vs 68.00%, p=0.045). In the multivariate logistic regression

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analysis, cerebral AVM diameter less than 3 centimeters was an independent predictor of achieving 2-year seizure freedom (adjusted odd ratio(aOR)=3.166, p=0.043, 95%C.I. 1.039-9.651) while the diagnosis of epilepsy prior to the diagnosis of cerebral AVM was a poor prognostic factor (aOR=0.143, p=0.012, 95%C.I.=0.013-0.654).

Conclusion (s)

The cerebral AVM diameter less than 3 centimeters was an independent predictor of achieving 2-year seizure freedom while the diagnosis of epilepsy prior to the diagnosis of cerebral AVM was a poor prognostic factor.

Keywords

1. Cerebral AVM
2. 2-year seizure free
3. Predictor of seizure

P05

The Differences and Three-Year Survival of the Patients with Primary Central Nervous System Lymphoma with and without HIV Infection

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Background / Introduction

Primary central nervous system lymphoma (PCNSL) is a rare cerebral tumor. It accounts for 4% of all primary brain tumors and is associated with a poor prognosis. This study aimed to investigate the differences in the initial clinical characteristics and overall 3-year survival between PCNSL patients with and without HIV infection.

Objectives

1. To compare the different characteristics between HIV-positive and HIV-negative PCNSL patients.

2. To identify the factors associated with 3-year overall survival of pathological-proven PCNSL patients.

Methods and Material

This retrospective study enrolled all PCNSL patients who had brain tissue pathology study confirmed diffuse large B-cell lymphoma (DLBCL) in Songklanagarind Hospital from January 2006 to December 2016. Comparison of the initial clinical characteristics between alive and dead PCNSL patients at 3 years after diagnosis of PCNSL was performed. The differences in demographic data, clinical characteristics, treatment between HIV and non-HIV PCNSL patients were further analyzed, and Kaplan Meier (KM) survival curve was used to demonstrate the 3-year survival between the groups ($p<0.05$).

Results

There were 55 cases of PCNSL patients in the study period. Twelve patients had positive HIV

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serology. Overall at 3 years, 34 patients were dead, 10 of which had positive HIV serology. There was no significant difference in the clinical characteristics between PCNSL patients who were alive and dead at 3 years. However, the PCNSL patients with HIV infection had lower age of onset, higher serum LDH level, and lower survival at 3 years after diagnosis.

Conclusion (s)

PCNSL patients with HIV infection have a worse overall survival at 3 years after diagnosis. Extensive surveillance and close follow-ups for PCNSL relapse and opportunistic infections related to HIV infection are suggested.

Keywords

1. Primary central nervous system lymphoma
2. HIV infection
3. Survival

P06
Predictors of Seizure in Patients with Cerebral Venous Thrombosis among Thai Population

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Background / Introduction

Cerebral venous thrombosis (CVT) is a potentially fatal venous occlusive condition in the brain. Seizure usually lead the patient to neuroimaging which result in early diagnosis. The majority of current evidence regarding the predictor of developing acute symptomatic seizure in CVT are in Caucasian population.

Objectives

We aim to define the independent factors contributing to acute symptomatic seizure (ASS) among cerebral venous thrombosis (CVT) patients.

Methods and Material

This is a retrospective cohort study recruiting patients diagnosed with CVT admitted hospital between 2002 and 2020. The demographic data, clinical presentations, seizure characteristic, neuroimaging findings and clinical outcomes were compared between the seizure and non-seizure group. The factors with p-value < 0.05 in univariate analysis were entered into multiple logistic regression analysis for determining the independent predictors of ASS.

Results

Among 180 CVT patients, the incidence of ASS was 38.33 %. Most seizures presented as an initial symptom. Focal onset with secondary generalized tonic clonic seizure was the most common seizure semiology (82.61%). Recurrent serial seizures accounted for 56.52% and 8.70% developed non-fatal status epilepticus. Intracerebral hemorrhage (adjusted odd ratio [aOR] 6.570,

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p=0.001, 95% C.I. 2.246 to 19.213) and dependency status at admission (aOR 3.317, p=0.036, 95% C.I. 1.080 to 10.175) were the independent predictors of ASS, whereas isolated increased intracranial pressure (aOR 0.049, p<0.001, 95% C.I. 0.010 to 0.238), isolated headache (aOR 0.103, p=0.002, 95% C.I. 0.024 to 0.447), straight sinus (aOR 0.027, p=0.007, 95% C.I. 0.002 to 0.371) and cavernous sinus thrombosis (aOR 0.500, p=0.012, 95% C.I. 0.005 to 0.525) showed preventive effect.

Conclusion (s)

Intracerebral hemorrhage and dependency status at admission were the independent predictors of seizure, whereas isolated increased intracranial pressure, isolated headache, straight sinus and cavernous sinus thrombosis showed preventive effect.

Keywords

1. Cerebral venous sinus thrombosis
2. Seizure
3. Predictor
4. Mortality

P07
The Association between Developing Parkinson's Disease and β-Adrenoceptor Acting Agents Use: A Systematic Review and Meta-analysis

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Background / Introduction

Parkinson's disease (PD) ranks the second most common neurodegenerative disease. Aside from genetic predisposition, many external factors such as traumatic brain injury and exposure to substances including pesticides also contribute to PD's pathogenesis. Many previous studies observed the association between the use of β-adrenoceptor acting agents and risk of PD.

Objectives

To conduct systematic review and meta-analysis to summarize whether the use of β-agonist and β-antagonist agents were associated with risk of PD.

Methods and Material

We independently searched for published studies from EMBASE and MEDLINE databases from inception to February 2021. This meta-analysis included 9 case-control studies and 1 cohort study meeting the eligibility criteria, with a total of 380,105 participants.

Results

Overall β-antagonists use appeared to be associated with increased PD risk with an odd ratio (OR) of 1.2 (95% CI 1.07–1.34). Propranolol and metoprolol had a statistically significant association with higher risk of PD: pooled OR was 1.67 (95% CI 1.22–2.29) and 1.07 (95% CI 1.03–1.1), respectively. On the other hand, β-agonists conferred significant inverse association with PD risk with OR of 0.88 (95% CI 0.85–0.92). Salbutamol unexpectedly showed no statistical significance in reducing the

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risk of PD with a pooled risk ratio of 1.0 (95% CI 0.87–1.16).

Conclusion (s)

Overall β-antagonists, including propranolol and metoprolol, were associated with an increased risk of PD, in contrast to β-agonists, which were associated with decreased risk.

Keywords

1. β-Adrenoceptor acting agent
2. β-antagonist
3. β-agonist
4. Parkinson's disease
5. Risk factors

Young Investigator Award

P08
Intravenous Thrombolysis in Hyperacute Stroke in Stroke Ready Hospitals without Neurologists: Beneficial Effects in Serial NIHSS and mRS Improvements

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Background / Introduction

Limited evidence has suggested the consistent benefits of intravenous thrombolysis (IVT) in hyperacute stroke even when administered by non-neurologists.

Objectives

We explore the safety and effectiveness of IVT among multi-ethnic Asian stroke patients when administered by physicians in acute stroke ready hospitals (ASRHs) without neurologists.

Methods and Material

We conducted a multi-centre, periodic cross-sectional study involving analysis of real-world data. All available ASRHs in Malaysia were included. Clinical data of consecutive patients (January 2014 – May 2021) who received IVT within 4.5 hours from stroke onset was collected through review of medical records. Patients who received other reperfusion therapies within 90 days following IVT were excluded. Post-IVT NIHSS and mRS trends were analyzed using Friedman test, followed by Wilcoxon signed-rank test continually and post-hoc test with Bonferroni correction for multiple comparisons. Univariate and multivariate regression models were employed to identify the factors associated with various clinical outcomes following IVT.

Results

Eighty-three multi-ethnic Asian adults (mean age: 56.4±12.6 years, median NIHSS: 12 (9-16) at presentation) were included. IVT conferred both short term (significant improvements in NIHSS for

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up to 7 days) and longer term (significant improvements in mRS for up to 3 months) benefits, on top of the fair efficiency of service delivery (median door-to-needle time: 93 (60-125) minutes) and safety profile (acceptable rates of haemorrhagic complications). Forty-one (49.4%) patients recorded favorable functional outcomes with mRS≤1 at 3 months post-IVT. Such improvements were associated with younger age and shorter door-to-needle time, yet not significantly influenced by gender nor ethnicity. Factors associated with poor functional outcomes, intracranial haemorrhages, and mortality include older age and longer door-to-needle time.

Conclusion (s)

Despite a multitude of multifaceted challenges/limitations in logistics, healthcare facilities, and human resources, it is still possible, provided with concerted efforts to work within the confines of these limitations, in addition to strict adherence to evidence-based protocol, to provide beneficial stroke thrombolysis service safely and fairly efficiently, even in resource-limited non-stroke centres without neurologists.

Keywords

1. Stroke
2. Thrombolysis
3. Stroke ready hospitals
4. NIHSS
5. mRS

P09
The Effect of Darkness on Gait Parameters in Patients with Parkinson's Disease

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Background / Introduction

Falling in patients with Parkinson's disease (PD) mostly occurs at the nighttime. The effect of darkness on gait abnormalities that might contribute to falling in PD has never been explored.

Objectives

To determine the effect of darkness on gait parameters in PD and compare to controls.

Methods and Material

34 PD patients and 8 age-matched healthy controls were recruited in the study. Gait parameters were objectively assessed by the electronic walkway system (GAITRite®). Participants were asked to walk in two situations; the dark situation with the light intensity below 20 lux and the bright situation with the light intensity above 100 lux. Outcomes including normalized walking velocity, stride length, step length, double support time, and cadence were compared between bright and dark situations in each group. The percentage of differences in gait parameters between bright and dark situations were also compared between patients and controls

Results

PD patients had significantly decreased normalized velocity ($p<0.01$), shorter stride length ($p<0.01$) and step length ($p<0.01$) but increased double support time ($p<0.01$) in the dark compared to the bright situation. In contrast, healthy controls showed significantly increased normalized velocity ($p <0.01$) and cadence ($p = 0.01$) with decreased

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double support time (p = 0.04) in the dark situation. The percentage of differences in gait parameters between bright and dark situations were opposite in PD compared to controls.

Conclusion (s)

Our study demonstrated that gait abnormalities were worse in the dark compared to bright situations in PD, highlighting the important effect of darkness in these patients.

Keywords

1. Parkinson's disease
2. Light
3. Dark situations
4. Bright situations
5. Gait parameter

P10
A Clinical Score for Predicting In-Hospital Mortality and Clinical Outcomes of Status Epilepticus in Adults: The Comparative Retrospective Cohort Study

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Background / Introduction

There are four validated scoring systems including Status Epilepticus Severity Score (STESS), modified STESS (mSTESS), Epidemiology-Based Mortality Score in Status Epilepticus (EMSE), and Encephalitis- Nonconvulsive Status Epilepticus-Diazepam Resistance-Image Abnormalities-Tracheal Intubation (END-IT) available for clinical outcomes and in-hospital mortality prediction in status epilepticus (SE) patients. None of them has been comparatively evaluated in Thais.

Objectives

To compare the sensitivity and specificity of SE prognostic scores including STESS, mSTESS, and END-IT for predicting in-hospital mortality of SE patients. We excluded EMSE due to its limitations to predict outcomes for non-convulsive status epilepticus (NCSE).

Methods and Material

This was a single-center, retrospective cohort analysis, conducted from Jan 2014 to Dec 2019 at Ramathibodi Hospital. The participants were diagnosed with SE and underwent continuous electroencephalography (EEG) monitoring. Patients with postanoxic SE, incomplete data, no EEG data were excluded. Prognostic scores were calculated. ROC curves and optimal cutoff values for each score were assessed. The performances of the values were compared.

Results

A total of 119 patients were included. Mean age was 59.76 years with the total of 58 (48.7) men

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and 61 (51.2) women. The worst SE types were 47 (39.4%) generalized convulsive SE, 65 (54.6%) NCSE in coma, and 7 (5.8%) others. AUCs were similar for STESS (0.551; 95%CI, 0.442-0.661), mSTESS (0.583; 95%CI, 0.475-0.691) and END-IT (0.532; 95%CI, 0.425-0.640) for prediction of in-hospital mortality. However, the capacity of these 3 scores was still unsatisfactory for in-hospital mortality prediction due to low AUCs. The optimal cut-off values were 4 for STESS, 5 for mSTESS, and 4 for END-IT with mSTESS optimal values showed the best performance from high PPV, NPV and sensitivity.

Conclusion (s)

STESS, mSTESS and END-IT demonstrated similar results for predicting in-hospital mortality. Further studies on prognostic scores are suggested to facilitate the better clinical treatment decisions.

Keywords

1. Status epilepticus
2. Prognostic score
3. STESS
4. mSTESS
5. END-IT

P11
Evaluation of Clinical Impact of Pharmacogenomics Testing for Carbamazepine Prescription

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Background / Introduction

The association between HLA-B*15:02 and carbamazepine (CBZ)-induced Stevens Johnson Syndrome (SJS), and toxic epidermal necrolysis (TEN) has been well-documented in Thais. Although, the knowledge and research about pharmacogenomics testing in Thailand have been growing tremendously for years, there is no research focusing on the implement of HLA-B*15:02 genotype results to everyday clinical practice.

Objectives

To evaluate the clinical impact of HLA-B*15:02 testing for antiepileptic drugs (AEDs) prescription and predictions of AEDs-induced cutaneous adverse drug reactions (cADRs) in Thais.

Methods and Material

From June 2010 to January 2020, a retrospective observational cohort study was performed by retrieving data from electronic medical records. Patients with HLA genotyping (n=903) results were enrolled. After excluding non-eligible patients, the remaining patients (n=384) were identified. The relationships between the HLA genotyping results and carbamazepine (CBZ) prescription were analyzed. The ADRs and alternative AEDs used were obtained. Descriptive statistics were used to summarize the relevant data.

Results

A total of 384 patients were included in this study. The number of HLA genotyping tests per year increased significantly after the announcement from Department of Medical Sciences Thailand with pilot

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study to prevent SJS/TEN using pharmacogenomics testing. 5 of 70 patients with HLA CBZ risk alleles were prescribed with either CBZ or oxcarbazepine (OXC) but no cADR was reported. 189 of 314 (60.19%) patients without HLA CBZ risk alleles were prescribed with CBZ/OXC; 21 of which had cADRs. Alternative AEDs prescribed instead of CBZ/OXC included levetiracetam, sodium valproate, lamotrigine, gabapentin, phenytoin, topiramate, lacosamide, perampanel, and clobazam, respectively.

Conclusion (s)

HLA genotyping can guide physician in CBZ and other AEDs prescription. CBZ/OXC prescription requires cADR monitoring. Although HLA-B*15:02 is significantly associated with CBZ-induced SJS/TEN in Thais, it cannot predict other cADRs.

Keywords

1. Carbamazepine
2. HLA-B*15:02
3. HLA genotype
4. Pharmacogenomics
5. Pharmacogenetics

P12
Newly Diagnosed Neuromyelitis Optica Spectrum Disorders in Setting of Newly Diagnosed Human Immunodeficiency Virus Infection: First Thailand Report

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Background / Introduction

Neuromyelitis Optica Spectrum Disorders (NMOSD) are autoimmune disorders of central nervous system primarily affecting optic nerve and spinal cord. Many patients present with long extensive transverse myelitis (LETM) and positive serum anti-AQP-4 antibody. A number of NMOSD patients have associated systemic autoimmune disorders but nowadays there have been increasing reports of NMOSD associated with Human Immunodeficiency Virus (HIV) infection.

Objectives

To describe clinical and radiographic features of a young man who had newly diagnosed Neuromyelitis Optica Spectrum Disorders (NMOSD) in setting of newly diagnosed Human Immunodeficiency Virus (HIV) infection.

Methods and Material

Case report including details of history, physical examination, laboratory and spinal magnetic resonance imaging (MRI) results.

Results

A 24 year-old man with no underlying disease, presented with one month history of low back pain and tingling sensation in both feet which progressed ascendingly to his abdomen. Four days prior to admission he developed paraparesis of both legs, brief intermittent leg jerking and inability to control urination and defecation. Spinal MRI result was consistent with LETM from C5 to T8 spinal level. CSF analysis showed lymphocytic pleocytosis with high protein level. Due to history of multiple sexual

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partner, he was tested for HIV infection and the result was positive. Serum test for anti-AQP-4 antibody was positive. The final diagnosis was NMOSD with presumed acute HIV infection. He was then treated with pulse methylprednisolone intravenously for five days. Unfortunately the improvement was only slight.

Conclusion (s)

Neuromyelitis Optica Spectrum Disorders (NMOSD) associated with HIV infection might be a new disease entity. We suggest that anti-AQP-4 antibody testing should be done in all long extensive transverse myelitis (LETM) patients that also have HIV infection.

Keywords

1. Neuromyelitis Optica Spectrum Disorders
2. Human Immunodeficiency Virus
3. Neuroimmunology

P13
Spinal Cord Infarction Following Trans-arterial Chemoembolization of Hepatocellular Carcinoma: A Case Report

Background / Introduction

Hepatocellular carcinoma (HCC) is one of the most common gastrointestinal cancers with various interventions for treatment in different stages. Transarterial chemoembolization (TACE) is employed as a salvage treatment for the intermediate stage of HCC. Spinal cord infarction (SCI) is one of the rare but detrimental complications, causing severe disability.

Objectives

To report a case of spinal cord infarction following transarterial chemoembolization.

Methods and Material

Case presentation: A 63-year-old man presented with a progressive course of HCC involving hepatic segment 4b and 3 including lateral chest wall mass. He underwent the sixth TACE, selected at both hepatic arteries and right ninth intercostal artery. Immediately after the procedure, the patient experienced poorly localized lower back pain and numbness below the umbilicus to both feet. Then, he reported urinary retention and paraplegia after six hours from the intervention. Magnetic resonance imaging showed hyperintense lesions on T2-weighted images at anterior and central part of the 9th to 10th thoracic spinal cord level.

Results

The patient received conservative treatment with substantial improvement of motor weakness in two months.

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Conclusion (s)

SCI after TACE is disastrous but preventable. Preventive measures should be done in all TACE cases by avoiding intervening intercostal arteries or its collateral areas and monitoring of motor weakness, numbness, and bowel-bladder involvement, especially within the first 24 hours following the operation.

Keywords

1. Spinal cord infarction
2. Spinal cord injury
3. Transarterial chemoembolization
4. Hepatocellular carcinoma

P14
Cost Effectiveness of Epilepsy Surgery in Drug-Resistant Epilepsy

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Wongsakorn Rojanavijitkul

Background / Introduction

Epilepsy surgery is a cost-effective treatment for surgically eligible drug-resistant epilepsy (DRE) patients. In ASEAN countries, the evidence to support this strategy is sparse due to a limited number of publications focusing on the cost-effectiveness of epilepsy surgery. Furthermore, epilepsy surgery is underutilized in ASEAN countries and developing countries.

Objectives

This study aimed to demonstrate the cost-effectiveness of epilepsy surgery in drug-resistant epilepsy (DRE) patients by comparing relevant data and costs between anti-epileptic drugs (AEDs) treatment group and epilepsy surgery group.

Methods and Material

From January 1, 2014 to September 30, 2018, a retrospective cohort study was performed by retrieving Ramathibodi Electronic Medical Records of epilepsy patients (n=4,400). After exclusion, a number of 132 DRE patients were eligible for analysis and further divided into medical treatment group (n=44) and epilepsy surgery group (n=26). The cost-effectiveness, seizure reduction, seizure freedom, and changes in numbers of AEDs usage were analyzed. Chi-square test and independent samples t-test were used in this study.

Results

Overall cost at 2-year follow-up was not significantly different between medical treatment group (267,505.59±151,241.8) and surgical group

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(267,557.39 ±124,743.03), p = 0.999. At 2-year follow-up, there was no significant change in the number of seizures per month in both groups (30.98±70.12 in medical treatment and 7.12±18.34 in surgical treatment, p=0.094). Incident rate ratio in medical treatment group compared to surgical treatment group was 17.0178 (95%CI, 16.561-17.486, p < 0.001). Comparing to baseline, the trend for a reduction in numbers of AEDs usage, and urgent hospital visits were noted in surgical group.

Conclusion (s)

Epilepsy surgery is cost-effective in increasing chances of seizure freedom during two-year follow-up, and probably resulted in a greater reduction in the numbers of AEDs usage and urgent hospital visits. Therefore, epilepsy surgery should be recommended for surgically eligible DRE patients.

Keywords

1. Drug-resistant epilepsy
2. Epilepsy surgery
3. Cost-effectiveness

P15
Evaluation of Motion Perception in Cognitive Impairment Using Rama Motion Perimetry

Methiya Saeoueng,
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Background / Introduction

In Alzheimer's disease (AD), early treatments in preclinical and mild cognitive impairment (MCI) stages are critical in stoping the process of degeneration and provide the chance of therapeutic success.

Visuospatial and motion perceptions are located in dorsal stream of the extrastriate pathway, where amyloid plaques are found. Assessments of these functions might offer an alternative way to identify early AD.

Objectives

To evaluate motion perception in patients with Alzheimer's disease (AD) and other types of dementia.

Methods and Material

This was a single-center, cross-sectional study. The study included 31 patients with cognitive impairment (16 females [51.61%], age 53 – 84 years [mean 68], MoCA 10-27 [mean 21.52]) and 31 healthy controls (18 females [58.06%], age 53 – 86 years [mean 70], MoCA 25-30 [mean 27.45]) The cognitively impaired group was classified into dementia and MCI subgroups. All participants underwent cognitive examinations using Montreal Cognitive Assessment (MoCA) and RAMA motion perimetry tests. The primary outcome was percent correction in the motion perimetry.

Results

The mean motion perimetry percent correction of the cognitively impaired group was significantly smaller than that of the controls (the mean difference

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of -18.18, 95% CI - 30.24 to -6.12, p=0.004). The post-hoc analysis revealed that there was a statistically significant difference in percent correction in motion perimetry between the dementia and control groups (p-value=0.001); and between the dementia and MCI groups (p-value= 0.011). The multiple linear regression model showed that age (P=0.004) and MoCA scores (P<0.001) were significantly associated with percent correction in motion perimetry.

Conclusion (s)

Motion perception was affected in cognitively impaired patients, particularly in the dementia subgroup. There was a significant correlation between percent correction in motion perimetry and MoCA scores. Motion perimetry can serve as a potential biological marker for cognitively impaired patients. Further follow-up studies are required to clarify this matter.

Keywords

1. Alzheimer's disease
2. Mild cognitive impairment
3. Dementia
4. Motion perimetry

Oral Presentation

P16
Factors Affecting Epilepsy Surgery Outcomes and Post-Surgical Complications in Patients with Epilepsy in Resource-Limited Settings

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Atthaporn Boongird,
Arunee Singsnaeh

Background / Introduction

Access to presurgical evaluation and epilepsy surgery remains a considerable challenge worldwide, particularly in countries with resource-limited settings. Given unavailability of resources for comprehensive epilepsy care and limited number of epilepsy centers in Thailand, epilepsy surgery has been underutilized. To date, there is a paucity of data from Thailand about factors contributing to epilepsy treatment gap, epilepsy surgery outcomes and post-surgical complications.

Objectives

To investigate factors affecting epilepsy surgery outcomes and post-surgical complications.

Methods and Material

This is a retrospective cohort study. All adult and pediatric patients who underwent epilepsy surgery at Ramathibodi hospital between January 2015 and April 2019 were recruited. Logistic regression analysis was used to identify associations between factors and surgical outcomes. Kaplan-Meier curves were used to estimate the probabilities of unfavorable outcome.

Results

62 patients were enrolled. During the entire follow-up period, most of our patients were classified into Engel class I. Univariate analysis showed that the presence of psychiatric disorders, presurgical seizure more than 4 times/month and number of anti-epileptic drugs (AEDs) at 6-month visit, were associated with no seizure freedom (defined as Engel class II, II and IV altogether). Survival analysis

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based on age at onset, age at surgery and waiting time are 37, 54 and 25 years of age, respectively.

Conclusion (s)

Under resource-limited setting, the majority of patients who underwent epilepsy surgery had favorable outcome with rare occurrence of surgical complications. Number of AEDs at 6-month visit was the only factor that significantly affected the outcomes. Interestingly, a delayed referral time and unavailability of presurgical evaluation have deleterious impact on seizure outcomes. The longest waiting time to achieve seizure freedom were 10 years and 36 years in pediatric and adult patients, respectively. Therefore, epilepsy surgery has been underutilized and should be encouraged in proper surgical candidates.

Keywords

1. Epilepsy surgery
2. Resource-limited
3. Outcomes
4. Thailand

P17
Lymphomatosis Cerebri with Coexistent Anti-NMDA Receptor AntiBody: A Case Report

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Nanthaya Tisavipat,
Pornsuk Cheunsuchon,
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Background / Introduction

Lymphomatosis cerebri (LC) is a rare entity, and the diagnosis is usually delayed. The association between LC and humoral immunity has scarcely been reported.

Objectives

To illustrate the clinical, radiological and neuroimaging features of lymphomatosis cerebri associated with anti-N-methyl-D-aspartate (NMDA) receptor antibody.

Methods and Material

Case report

Results

A 62-year-old woman presented with subacute dizziness and gait ataxia followed by diplopia, altered mental status, and spasticity of all limbs, which gradually developed over the 2-month period. MRI of the brain revealed multifocal lesions at bilateral subcortical white matter, deep gray structures, and brainstem. Oligoclonal bands and anti-NMDA receptor antibody were present in the CSF twice. She was initially treated with methylprednisolone followed by therapeutic plasma exchange, but her symptoms and radiologic findings still progressed. Stereotactic brain biopsy revealed perivascular and parenchymal infiltration by medium to large atypical lymphoid cells, and immunohistochemical staining confirmed the diagnosis of lymphomatosis cerebri. She was treated with high-dose methotrexate, cytarabine and dexamethasone. Unfortunately, her status was not suitable for further radiotherapy or

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chemotherapy. She was transitioned to comfort measure, and later died of pneumonia 6 months from disease onset.

Conclusion (s)

This is a report of distinctive coexistence of the rare central nervous system lymphoma variant and the anti-NMDA receptor antibody.

Keywords

1. Anti-NMDA receptor
2. Autoimmune encephalitis
3. Lymphomatosis cerebri
4. Lymphoma
5. Acute disseminated encephalomyelitis

P18
The Correlation of Orthostatic Hypotension and Cognitive Dysfunction in Patients with Parkinson's Disease: A Cross-Sectional Comparative Study

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Surat Tanprawate

Background / Introduction

Orthostatic hypotension and cognitive dysfunction are among the most troublesome non-motor symptoms associated with Parkinson's disease. Orthostatic hypotension and cognitive dysfunction are often co-existent, but it is unclear if the two are interrelated.

Objectives

These are twofold, firstly to investigate the possible association between orthostatic hypotension and cognitive dysfunction in patients with Parkinson's disease, and secondly to compare the outcomes of cognitive function tests in patients with Parkinson's disease with and without orthostatic hypotension in Chiang Mai University hospital.

Methods and Material

This cross-sectional comparative study included 49 patients with Parkinson's disease. Blood pressure was measured at rest in the supine position, then at 1 and 3 minutes after standing up. Cognitive function was assessed by using the Thai Mental State Examination (TMSE) and Montreal Cognitive Assessment (MoCA) Thai version.

Results

Orthostatic hypotension was objectively confirmed in 13 out of the 49 patients with Parkinson's disease (26.5%). The prevalence of cognitive dysfunction (defined by MoCA score < 25) was 38 out of 49 patients (77.6%). The prevalence of major cognitive dysfunction (defined by TMSE score <24) was 9 out of 49 (18.4%). There was no significant difference in cognitive dysfunction

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between the non-orthostatic and the orthostatic hypotension groups (P = 1.000). Median MoCA score was 20 in the non-orthostatic group (IQR 17.00-24.00) and 21 in the orthostatic group (IQR 16.00-24.00) (P = 0.874). Median TMSE score was 26 in the non-orthostatic group (IQR 24.50-28.00) and 26 in the orthostatic group (IQR 25.00-29.00) (P = 0.882).

Conclusion (s)

There was no correlation between orthostatic hypotension and cognitive dysfunction in PD patients. Cardiovascular autonomic dysfunction and cognitive impairment may progress independently. Prevalence of cognitive dysfunction in the study was very high, so this emphasizes the importance of cognitive dysfunction screening in Parkinson's disease patients.

Keywords

1. Parkinson's disease
2. Orthostatic hypotension
3. Cognitive function

P19
Metronidazole-induced Neurotoxicity: Case Illustration

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Background / Introduction

Metronidazole is a widely used antibiotic against infections caused by many bacteria and protozoa. Rarely, serious adverse effects affecting the nervous system have been reported. Herein, we reported a patient with metronidazole-induced neurotoxicity.

Objectives

To illustrate the clinical and radiological features of metronidazole-induced neurotoxicity.

Methods and Material

Case report

Results

A 69-year-old Thai man was diagnosed with emphysematous cholecystitis and abdominal wall abscess. Incision and drainage were performed, and metronidazole (1,500 mg per day intravenously, and subsequently 1,200 mg per day orally) was given with total duration of 4 weeks. After then, he experienced vertiginous sensation, and he developed slurred speech and gait instability in the subsequent few weeks. Neurologic examination revealed spastic dysarthria, hypertonia without reduction of motor power. Reduced pinprick sensation below knees, and impaired proprioception and vibration up to both ankles were also noted. He had also bilateral dysmetria, dysdiadochokinesia, rest and intention tremors. Romberg sign was positive. He walked with spastic gait and wide base. Other systemic examination was unremarkable. Brain magnetic resonance image showed bilateral inferior olivary hypertrophy on FLAIR sequences, without

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any change on cerebellar dentate nucleus. He was diagnosed with metronidazole-induced neurotoxicity. Metronidazole was then discontinued. On the follow-up visit, he recovered substantially, however, distal hypoesthesia persisted. He could walk independently.

Conclusion (s)

Although metronidazole-induced neurotoxicity is considered a rare complication, it is crucial for clinicians to consider this entity. Our patient demonstrated the rare adverse effects to the nervous system. This also emphasized the impact of prompt withholding of treatment on the recovery.

Keywords

1. Inferior olivary hypertrophy
2. Metronidazole-induced neurotoxicity
3. Peripheral neuropathies

P20
The New Multi-Textured Puzzles Improving Visuospatial Memory and Attention in MCI Patients

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Background / Introduction

Neurocognitive disorder has become an important health issue in the aging society. The previous study has shown the benefits of cognitive training by solving puzzles in mild cognitive impairment patients. They are low-cost, motivating leisure activity which can be done alone or with others. No technological knowledge is required.

Objectives

To study the effectiveness of the newly invented multi-textured puzzles in enhancing visuospatial memory and attention in mild cognitive impairment (MCI) patients.

Methods and Material

Four multi-textured puzzles were created by the researchers. Twenty-six medical personnel in Prasat neurological institute with MCI were recruited to the study. They were randomized into two groups with 1:1 allocation. The intervention group played the multi-textured puzzles once a week for eight weeks consecutively, while the control group received only medical suggestions. We compared the scores of pre-tests and post-tests of primary outcome (block design test, digit spanning and spatial spanning test), and MoCA, which was the secondary outcome.

Results

Regarding the primary outcome, only the improvement in block design test was significant different (median score 2.0 and 0, p =0.003) in the intervention and control group, respectively. Median MoCA improved 1 score in the intervention group,

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but not in the control group, however, this is without statistical significance.

Conclusion (s)

The multi-textured puzzles improved spatial ability and possibly MoCA score in mild cognitively impaired patients.

Keywords

1. Mild cognitive impairment
2. Dementia
3. Multi-textured puzzles
4. Visuospatial memory
5. Attention

P21

Long Term Exposure of $PM_{2.5}$ Components Air Pollution and Risk of Ischemic Stroke Admission in Thailand

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Background / Introduction

Exposure to $PM_{2.5}$ in ambient air has been long known to be associated with risk of ischemic stroke, but there have yet to be studies that demonstrate the effect of each $PM_{2.5}$ subspecies, which are black carbon, organic carbon, sulphate, and dust, to the risk of ischemic stroke. By using the air pollutant data from satellite database combined with data of ischemic stroke incidence, we can demonstrate the relationship between $PM_{2.5}$ and incidence of ischemic stroke.

Objectives

We aimed to study spatial effect of each PM subspecies and contribution of each PM subspecies and contribution to the incidence of ischemic stroke.

Methods and Material

Using the satellite-based pollutant data from MERRA-2 satellite and incidence of ischemic stroke data from Thailand universal health coverage system from 2014 - 2016, we divided patient into 13 districts based on Thailand health district and calculated the spatial relationship of each PM subspecies using Poisson log-linear model. The contribution of each $PM_{2.5}$ components were demonstrated by integrated Nested Laplace approximation (INLA approach).

Results

From the analysis of spatial effect of $PM_{2.5}$ components, district 6 demonstrated highest incidence rate ratio in all PM subspecies, which were 2.25, 2.41,2.55 and 1.66 times greater than districts with lowest concentration for black carbon,

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sulphate, organic carbon, and dust, respectively. The multivariate analysis using INLA approach showed that an increase of 1 mcg/m3 in black carbon and dust was associated with an increase of 23% and 7% in the risk of ischemic stroke, respectively.

Conclusion (s)

With our results, we can conclude that exposure to $PM_{2.5}$ is associated with increased risk of ischemic stroke and black carbon is the PM component that contributes the most to the risk of ischemic stroke.

Keywords

1. Ischemic stroke
2. $PM_{2.5}$
3. Black carbon

P22
Progressive Dysarthria and Severe Limb Dystonia in ALS-FTD Associated with UBQLN2 Mutation: A Case Report

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Background / Introduction

Amyotrophic lateral sclerosis (ALS) shows clinical and pathological overlap with frontotemporal dementia (FTD) that includes the presence of hallmark ubiquitinated inclusions in affected neurons.

Objectives

Mutations in ubiquilin-2 (UBQLN2) have been associated with rare cases of X-linked juvenile and adult forms of ALS and ALS linked to FTD.

Methods and Material

Here, we report an ALS-FTD patient with genetic confirmed UBQLN2 mutation who manifested progressive severe dysarthria and limb dystonia.

Results

A 42-year-old woman presented with progressive dysarthria for 1.5 years. She described that her speech was slow, and her voice was progressively distorted. She also noted difficulty walking, stiffness of her right leg, and abnormal posture of her right hand. Her symptoms had progressed and later developed to bilateral sides. She denied neurological disorders in her family. The initial evaluations including general blood tests, MRI brain scan, and CSF analysis were unremarkable. Mental state examination revealed impaired trail making, cube, clock drawing, and delayed recall. The total TMSE and MoCA scores were 30/30 and 23/30, respectively. The electrodiagnostic study showed chronic diffuse denervation with ongoing denervation at the right biceps and bilateral first

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dorsal interosseous muscles. Whole-exome sequencing showed a mutation in the UBQLN2 gene.

Conclusion (s)

We report the first case of UBQLN2 mutation associated with sporadic ALS-FTD in Thai patients. Severe dysarthria and early limb dystonia closely resembled those with neurodegeneration with brain iron accumulation. Comprehensive investigations, genetic testing, and long-term follow-up were essential to get the correct diagnosis of overlapping neurodegenerative disorders.

Keywords

1. UBQLN2
2. Amyotrophic lateral sclerosis
3. Frontotemporal dementia
4. Dystonia
5. Movement disorders

P23
Bihemiparesis and Multicranial Nerve Palsies as a Presentation of Brainstem Abscess in a Child: A Rare Case Report

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Background / Introduction

Brainstem is an uncommon site of abscess with high mortality and morbidity which can arise as a complication of a variety of infections, trauma or surgery. It is a rare condition accounting for 1% incidence in the pediatric population.

Objectives

This case report showed effectiveness of drug therapy for treatment in brainstem abscess

Methods and Material

Case: A 14-year-old male presented with subacute progressive headache with left hemiparesis, slurred speech, asymmetrical face and lagophthalmos. This turned to bihemiparesis, dysphagia, numbness on right face and deafness two days later. Physical examination revealed weakness of the four limbs, left hemihypoesthesia and multicranial nerve palsies (N IV, VI bilateral, V D, VII D LMN, VIII D, IX, X D, XII D UMN). Bilateral clonus was observed with increased physiologic reflex and pathologic reflex in all extremities. Laboratory examination showed normal leukocyte (10.45uL) with neutrophilia (91.6%) and positive antistreptolysin P. Brain magnetic resonance image (MRI) showed pathologic lesion in right pons and medulla oblongata with perifocal edema, hypointense in T1W, hyperintense in T2W with a ring enhancement and maxillary sinusitis. Brain magnetic resonance cpectroscopy (MRS) showed peak choline (Ik 3.2), N-acetyl Aspartate (NAA) (Ik 1.9) and ratio choline/NAA (1.15). Drainage from maxillary sinus as the source of infection was performed. Ampicillin, cefotaxime, metronidazole was given for 4 weeks, followed by

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meropenem for 2 weeks, combined with physiotherapy. Repeat MRI showed that the abscess was decline. All neurological deficits improved.

Results

Bihemiparesis and multicranial nerve palsies are neurological manifestations resulted from pathology in the brainstem. Drug therapy must be considered as the first choice for brainstem abscesses due to the difficulty of surgical access. Empirical treatment with broad-spectrum antibiotics must be started immediately for 6-8 weeks and sequential brain MRI to monitor treatment response.

Conclusion (s)

Brainstem abscess in pediatric population is a life-threatening condition with good outcome if treated adequately.

Keywords

1. Brainstem abscess
2. Pediatric
3. Bihemiparesis

P24
A Rare Cause of Ataxia with Spasticity: Not to be Missed!

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Background / Introduction

Chronic lymphocytic inflammation with pontine perivascular enhancement responsive to steroids (CLIPPERS) is a unique inflammatory disease. The clinical syndrome essentially suggests a brainstem pathology with a characteristic MRI appearance.

Objectives

To highlight the clinical features and MRI findings of CLIPPERS.

Methods and Material

A retrospective review of a case from medical records at Siriraj Hospital was done.

Results

A 47-year-old man presented with progressive gait instability for 1 year. He had well-controlled hypertension. His neurological examination revealed spasticity of both lower extremities with muscle power MRC grade 5 in all groups except for mild weakness of left iliopsoas and tibialis anterior. He had generalized hyperreflexia with the presence of Hoffmann and Tromner signs on both sides. Impaired finger-to-nose-to-finger test on the left, mild wide-based gait with circumduction and impaired tandem gait was observed. Examination of the other systems was unremarkable. MRI of the brain, orbit, and spine showed extensive multiple tiny high signal intensity lesions in T2-weighted images with punctate gadolinium enhancement in the pons, medulla oblongata, cerebellar hemispheres, cerebral peduncles, cerebral white matter (including the corpus callosum), and the cervical and upper thoracic levels of the spinal cord. There was no

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evidence of optic neuritis. The diagnosis of CLIPPERS was made. Treatment with 1 gram of intravenous methylprednisolone for 3 days followed by oral prednisolone 60 mg/day was given. His symptoms were slightly improved. The brain and spinal cord MRI performed at 20 weeks after treatment showed a decrease in the number and size of T2-hyperintense lesions with residual lesions in the right periventricular area of the occipital lobe and splenium without any gadolinium enhancement.

Conclusion (s)

CLIPPERS is a rare demyelinating disease with a characteristic MRI finding and an excellent response to steroids.

Keywords

1. Chronic lymphocytic inflammation with pontine perivascular enhancement responsive to steroids (CLIPPERS)
2. Demyelinating disease
3. Punctate or curvilinear gadolinium enhancement
4. Ataxia
5. Spasticity

P25
Familial Neuromyelitis Optica Spectrum Disorder: Systemic Review and Report of New Cases

Background

Neuromyelitis optica spectrum disorder (NMOSD) has been known to have genetic contributing factors. However, familial cases of NMOSD have been rarely reported.

Objectives

To illustrate the case report and perform systematic review of published cases.

Methods

Description of the new cases and systemic review, using PubMed and EMBASE databases.

Results

We describe two couples of aquaporin-4 IgG (AQP4-IgG) seropositive NMOSD in sibling pairs. The first couple was a brother-sister pair. The older brother presented with longitudinally extensive transverse myelitis (LETM) at the age of 43. The younger sister presented with simultaneous optic neuritis and extensive subcortical lesion at the age of 43. They presented in 8 months apart. The second couple was sister-sister pair. The older sister presented with recurrent LETM at the age of 45, while the younger sister presented with transverse myelitis 10 days after COVID-19 vaccination at the age of 46. They manifested in 6 years apart. Through the systematic review, 21 articles matched the pre-defined criteria (72 patients in 35 families). Including our cases (76 patients in 37 families), most cases were Asian (37 cases, 48.7%), followed by Caucasian (21 cases, 27.6%). Forty-nine patients (64.5%) were AQP4-IgG seropositive, 14 (18.4%) seronegative and 13 (17.1%) unknown serostatus.

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Intra-family relationship included sibling pairs (19 families), parent-child pairs (13), and others (5). Two pairs of monozygotic twins were identified. In another exceptional family, NMOSD affected 3 generations. Most cases presented with isolated optic neuritis (45%), isolated myelitis (40%) and concurrent myelitis and optic neuritis (5%). Genetic testing has been tested in 6 families, HLA-DRB1*03 was the most common.

Conclusion (s)

We report a sibling pair of NMOSD. Among the 39 familial cases of NMOSD, the most common relationship was sibling pairs. The development of NMOSD in the same families suggests genetic predisposition, however, genotypic testing has scarcely been described.

Keywords

1. Neuromyelitis optica spectrum disorder
2. Familial
3. Demyelinating disease
4. Genetic

P26
A Comparison of Clinical Characteristics of Neurosyphilis Between HIV Infected and Non-HIV Patients at Maharat Nakhon Ratchasima Hospital

Background / Introduction

The diagnosis of neurosyphilis solely depends on positive VDRL in CSF which has low sensitivity. In case of negative test, no other diagnostic criterion is proposed so far.

Objectives

This study was aimed to find associated factors and characteristics of CSF in cases of neurosyphilis.

Methods and Material

The medical records of syphilitic patients who had been diagnosed between January 2007 and January 2018, at Maharat Nakhonratchasima Hospital were retrospectively reviewed. Only patients with or without HIV infection who had undergone lumbar puncture were recruited.

Results

From total 1,200 syphilitic patients, 371 underwent lumbar puncture, 60 were diagnosed with neurosyphilis although only 40 cases had positive CSF VDRL. And 44 of 60 were HIV positive whereas 16 were not. Two-thirds of early-stage syphilitic patients with neurosyphilis with HIV were asymptomatic. In contrast, majority of cases without HIV were symptomatic and the most common symptom was amnesia (38%). The significantly-associated factors of neurosyphilis were CSF protein more than 50 mg/dl in HIV-infected (p =0.01) and the serum RPR titer of 1:32 or more (p=0.01) in HIV-negative patients.

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Conclusion (s)

The neurosyphilitic patients with HIV co-infection were mostly asymptomatic. Only the elevated CSF protein in HIV and the high serum RPR titer in non-HIV patients were significant associated factors for neurosyphilis.

Keywords

1. Neurosyphilis
2. HIV infection
3. CSF finding

P27
X-link Adrenoleukodystrophy Presented with Early Anterior and Posterior Visual Pathway Dysfunction: A Single Case Report

Background / Introduction

X-link adrenoleukodystrophy (X-ALD) typically presents with central nervous system symptoms with visual disturbance in the late phase.

Objectives

To demonstrate the abnormal visual presentation in the early phase of X-ALD.

Methods and Material

Single case report

Results

A 37-year-old Thai male gradually developed bilateral visual disturbance which was more severe on the left side over 1.5 years. Later on, the memory and visuospatial cognitive function progressively declined followed by bilateral spastic gait. Among of his 7 siblings, one younger brother suffered from seizure and progressive total blindness 2 years before his death at the age of 10 years old. The physical examination revealed dyschromatopsia, decrease in visual acuity, RAPD and bilateral optic disc atrophy. The Goldmann kinetic perimetry showed homonymous inferior quadrantanopia. He also had bilateral spastic gait without motor weakness. The hyperpigmentation at both palmar creases, buccal mucosa, lips mucosa and hard palate, and the hormonal test by morning cortisol, adrenocorticotropic hormone (ACTH) and ACTH stimulation test were consistent with the primary adrenal insufficiency. MRI of the brain revealed T2/FLAIR symmetrical confluent hyperintensity of parieto-occipital regions involving splenium of corpus callosum, posterior limb of bilateral internal

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capsules and bilateral optic nerves atrophy. The MoCA test score was 8 out of 30 affecting mostly in the visuospatial and memory domain. Serum C26:0-LPC was elevated. The diagnosis of X-ALD was confirmed by a hemizygous, pathogenic deletion mutation, c.524_526delTCT (p.Phe175del) in ABCD1 gene.

Conclusion (s)

This case report demonstrated an atypical early visual disturbance in an adult-onset X-ALD.

Keywords

1. X-ALD
2. Optic disc atrophy
3. Early visual disturbance

P28
Panautonomic Failure in a Patient with Primary Sjögren's Syndrome

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Background / Introduction

Primary Sjögren's syndrome (pSS) is a systemic autoimmune disease characterized by symptoms and signs of exocrine gland dysfunction, leading to the development of keratoconjunctivitis sicca and xerostomia. Neurological involvement of pSS has been reported and can manifest as various symptoms in the central and peripheral nervous systems.

Objectives

The development of autonomic neuropathy in patients with pSS is less frequent, and panautonomic failure is rare.

Methods and Material

We report a case of pSS associated with severe panautonomic failure.

Results

A 56-year-old man was admitted to the hospital with recurrent syncope and orthostatic intolerance. He was recently discharged from a hospital two weeks ago due to drug-induced Stevens-Johnson syndrome. He also complained fatigue, dry eyes and mouth, light-headedness, diminished sweating, constipation, urinary retention required to retain catheter, and erectile dysfunction. On physical examination, his blood pressure dropped from 100/60 mmHg to 60/48 mmHg without compensatory tachycardia. Neurological examination showed normal muscle power, tone, and there was no sign of parkinsonism. Sensory systems and reflexes were normal. Laboratory test results were strongly positive for anti-SSA and anti-SSB antibodies as well as

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positive Schirmer test. A labial salivary gland biopsy showed focal lymphocytic cell infiltration. The electrodiagnostic study demonstrated moderate sensorimotor axonal polyneuropathy. The patient was treated with prednisolone and fludrocortisone with abdominal binder and tilt board training. The orthostatic intolerance had gradually improved, and fludrocortisone was discontinued.

Conclusion (s)

Neurogenic orthostatic hypotension and generalized autonomic failure is a rare neurological manifestation in pSS. pSS should be recognize a differential diagnosis in patients with signs and symptoms suggestive of autonomic dysfunction.

Keywords

1. Sjogren syndrome
2. Autonomic dysfunction
3. Autonomic failure
4. Orthostatic hypotension

P29

Facial Myositis as an Atypical Presentation in Anti-TIF1-γ Associated Myositis: A Case Report

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Natthapon Rattanathamsakul

Background / Introduction

Idiopathic inflammatory myopathies (IIMs) are a group of heterogeneous diseases of skeletal muscles, which may be associated with extra-muscular manifestations. Muscle biopsy and myositis-specific autoantibodies are important tools for the diagnosis and classification of IIMs. Typical clinical features include subacute to chronic progressive weakness in muscles of the neck, trunk, and extremities.

Objectives

We report the rare manifestation of anti-TIF1-γ associated myositis presenting with predominant facial and masticatory muscle involvement.

Methods and Material

Case report

Results

A 34-year-old male presented with a progressive weakness of facial and masticatory muscles for 6 months. The physical examination showed bilateral temporalis and masseter muscle atrophy. Limb muscles were all normal, except for only grade IV weakness of bilateral infraspinatus muscles. The serum creatinine kinase (CK) level was 459 U/L. The nerve conduction study was normal, but the electromyography showed evidence of chronic myopathic process with active denervating features in facial and masticatory muscles as well as, in proximal arms and legs muscles, despite the absence of weakness. MRI of the extremities revealed muscle edema with gadolinium enhancement in the left triceps, bilateral

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deltoids, and latissimus dorsi muscles. The myositis antibody was positive for anti-TIF1-γ autoantibody. Muscle biopsy from the left biceps showed endomysial mononuclear cell infiltration and perimysial lymphohistiocytic infiltration. Immunohistochemistry for HLA-ABC and HLA-DR was positive, suggestive of the inflammatory nature of the disease. The chest and abdominal computed tomography showed no evidence of malignancy. The patient was diagnosed with facial myositis. After treatment with prednisolone 1 mg/kg/day for a month, facial weakness had been improved and the CK level decreased to 67 U/L.

Conclusion (s)

Herein, we report the unique case of focal myositis involving facial and masticatory muscles associated with anti-TIF1-γ, without skin or extramuscular manifestation.

Keywords

1. Facial myositis
2. Anti-TIF1-γ3. dermatomyositis
4. Idiopathic inflammatory myopathies
5. HLA-ABC and DR antigens

P30
Osmotic Demyelination Syndrome after Liver Transplantation in Wilson's Disease

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Background / Introduction

Osmotic demyelination syndrome (ODS) is a neurological disorder, commonly caused by overcorrection of chronic hyponatremia. We hereby report a rare case with Wilson's disease who came with an atypical presentation of ODS after liver transplantation (LT) due to acute liver failure.

Objectives

To illustrate a case of osmotic demyelination syndrome in Wilson's disease after liver transplantation.

Methods and Material

Case report

Results

Four weeks prior, a previously healthy 27-year-old woman presented with subacute progressive jaundice and Coombs' negative hemolytic anemia for 2 months. After extensive work-up of hepatitis, the results were compatible with Wilsonian crisis with acute liver failure. She underwent LT at day 8th of the admission and had massive blood loss. So 1,600 mL of packed red cells and 560 mL of fresh frozen plasma were replaced. During the one-month hospital stay, there was no alteration of sodium level over 10 mEq/L within 24 hours. Two weeks after hospital discharge, the patient had gradually reduced level of consciousness and spontaneous movements. She was readmitted and determined as akinetic mutism—characterized by severe axial rigidity with bradykinesia and no verbal responses despite alertness. Brain magnetic resonance images showed multifocal patchy hyperintense

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lesions on T2-weighted images and hypointense signals on T1-weighted images—distributing at central pons, bilateral middle cerebellar peduncles, and bilateral basal ganglia. All metabolic profiles and electroencephalogram were unremarkable. ODS was diagnosed and levodopa was prescribed for symptomatic treatment. Her symptoms were partially improved the following week; she was able to speak in short sentences with increased motor activities.

Conclusion (s)

ODS was a possible neurological complication following LT. Although no rapid corection of sodium was previously evidenced, other risk factors—massive blood transfusion —could lead patients to this condition. Raising awareness, providing further investigation, and appropriate management are critical in patients suspected of ODS following LT.

Keywords

1. Osmotic Demyelination Syndrome
2. Liver transplantation
3. Akinesia-mutism
4. Parkinsonism
5. Wilson's disease

P31
Case Report of Sarcoidosis with Myelopathy after COVID-19 Vaccination

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Background / Introduction

Sarcoidosis is an immune-mediated multisystem noninfectious granulomatous disorder. Neurological involvement can be manifested in 5-10% of sarcoidosis cases. Myelopathy is a rare presentation.

Objectives

To highlight the clinical features and MRI findings of sarcoidosis with myelopathy

Methods and Material

Retrospective review of a case from medical record at Siriraj Hospital was done.

Results

A 46-year-old woman presented with numbness around her trunk for one day. She developed a low-grade fever, fatigue, and weight loss for one month, right after the second dose of a COVID-19 vaccine. She also experienced difficulty with defecation and urination. Physical examination revealed decreased pinprick sensation along the right and left dermatome from T2 to T12 and left T1. The vibratory and proprioceptive sensations were preserved. She had hyperreflexia on right-sided extremities without any weakness or cranial neuropathy. One centimetre left supraclavicular lymph node was palpable. T2-weighted spine MRI revealed multifocal hyperintense lesions at C4-T2 and T7 levels. Gadolinium enhancing lesions were predominant at central and bilateral dorsal aspects compatible with the trident sign. Chest CT reported multiple mediastinal lymphadenopathies. CSF analysis showed mild hypoglycorrhachia without pleocytosis or elevated protein. Lymph node biopsy

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demonstrated non-caseating granulomas with Schaumann bodies and asteroid bodies. No organism or malignant cell was detected. This patient was diagnosed with probable sarcoidosis with myelopathy. Intravenous methylprednisolone 1 gram was prescribed for three days and then continued with prednisolone and methotrexate. On a two-month follow-up examination, the body numbness resolved completely.

Conclusion (s)

This case illustrated spinal cord involvement of sarcoidosis. The classic dorsal subpial enhancement involving central canal or trident sign accompaniment with hilar adenopathy raises the suspicion of neurosarcoidosis. A non-neural tissue biopsy was needed for probable diagnosis to demonstrate non-caseating granulomas. Treatment with corticosteroids following with immunosuppressive agent resulted in clinical improvement.

Keywords

1. Sarcoidosis
2. Myelopathy
3. COVID-19 vaccination

P32
Progressive Multifocal Leukoencephalopathy in an Immunocompetent Host: A Case Report

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Background / Introduction

Progressive multifocal leukoencephalopathy (PML) is a fatal gradual-onset demyelinating disease resulting from John Cunningham (JC) virus reactivation. Most cases of PML affect immunocompromised hosts, especially HIV-infected patients. Accordingly, PML in an immunocompetent host is very rare.

Objectives

To illustrate clinical presentation, diagnostic investigations, treatments, and outcome of PML in an immunocompetent host.

Methods and Material

A retrospective review of a case from the electronic health database at Siriraj Hospital was performed.

Results

A 35-year-old previously healthy woman presented with left hand and calf numbness for two months. She had no risk factors for an immunocompromised status. Brain MRI showed T1-hypointense lesions with corresponding T2- and T2-FLAIR-hyperintensity at subcortical white matter (WM), centrum semiovale, and periventricular WM of the right parietooccipital region without enhancement. There was no specific abnormality on MRI of the orbit and the spine. CSF analysis was unremarkable except for the detection of JC virus from PCR with a viral load of 516,749 copies/ml. Anti-HIV, serum NMO-IgG, and ANA were negative. CD4/CD8 ratio was normal. The patient was diagnosed with PML in an immunocompetent host. Mirtazapine 15 mg/day

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with slow titration up to 60 mg/day within 1 month combined with mefloquine 250 mg/day for 3 days, followed by 250 mg/week were prescribed. The regimen was maintained for 2 months. CSF for JC virus turned negative. Her numbness symptom remained stable without any other focal neurological deficits at the last follow-up visit five years later. Repeated brain MRI showed unchanged lesions.

Conclusion (s)

This case demonstrates that PML can affect non-immunocompromised individuals. The gradual progression, characteristic MRI, and the presence of JC virus in the CSF have led to PML diagnosis. There were limited data on the combination of mirtazapine and mefloquine for PML treatment in immunocompetent patients, but this patient had excellent response.

Keywords

1. Progressive multifocal leukoencephalopathy
2. JC virus infection
3. Immunocompetent host

P33
Recurrent Headache and Abducens Nerve Palsy in a Man with Aspirin-Responsive Lymphocytic Hypophysitis

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Background / Introduction

Lymphocytic hypophysitis (LYH) is a rare inflammatory condition of the pituitary gland that typically occurs in women in the peripartum period. LYH may result in hypophysial dysfunction, visual field defects, and ocular motility disturbance. In addition, headache and orbital pain may develop in temporal relation to the onset of hypophysitis.

Objectives

The severity of LYH varies among affected individuals, so different therapeutic strategies may be required. Treatment with corticosteroids or surgical resection may be required in patients with mass effects. However, spontaneous recovery can occur. The role of NSAIDs and aspirin for the treatment remains undetermined.

Methods and Material

We report a case of LYH presented with three episodes of headache, orbital pain, and abducens nerve palsy, whose symptoms were successfully controlled with low-dose aspirin.

Results

A 18-year-old Thai man came to the hospital with three episodes of headache, orbital pain, and diplopia in 5 months. The first two episodes were isolated right abducens nerve palsy. The headache and painful ophthalmoplegia were controlled with NSAIDs and resolved within a week without a definite diagnosis. Later, he developed a recurrent episode of headache and diplopia. Neurological examination showed left abducens nerve palsy with partial right eye ptosis without other signs of right

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oculomotor dysfunction. Brain imaging revealed hypo-enhancment of the pituitary gland with thickening of the pituitary stalk. Laboratory investigations showed CSF lymphocytic pleocytosis and hyperprolactinemia. His symptoms gradually recovered in three months, and he was placed on low-dose aspirin to prevent relapse. Repeat brain imaging a year later showed the disappearance of abnormal enhancment of the pituitary gland and thickening of the pituitary stalk.

Conclusion (s)

This case report suggested that recurrent episodes of headache and painful ophthalmoplegia can be presenting symptoms of LYH. Treatment with low-dose aspirin may be an alternative strategy to control symptoms of LYH.

Keywords

1. Lymphocytic hypophysitis
2. Autoimmune hypophysitis
3. Pituitary gland
4. Hyperprolactinemia
5. Aspirin

P34
Ischemic Stroke Associated with Invasive Fungal Sinusitis: A Case Report

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Background / Introduction

Stroke related with invasive fungal sinusitis is rare and mortality rate is high. Early diagnosis is challenging, and early treatment is crucial for improving the patient outcome.

Objectives

To describe clinical characteristics, brain imaging and pathophysiology of invasive fungal sinusitis leading to internal carotid territory stroke.

Methods and Material

We report a case of biopsy-proven invasive aspergillus rhinosinusitis presented with acute ischemic stroke.

Results

Case report

A 69-year-old woman presented with dysarthria. She had history of the right facial pain, headache, and right aural fullness for 2 weeks and was diagnosed with hypertension and diabetes mellitus for 10 years. CT and CTA brain showed right internal border zone infarction with right ethmoid and sphenoid sinusitis, right otomastoiditis and ill-defined mass at the right nasopharynx extended to the right oropharynx involving right carotid space resulting in moderate stenosis of distal cervical segment of the right internal carotid artery. A month later, she was found unconsciousness with progressive left hemiparesis. Her vital signs showed blood pressure 69/40 mmHg. CT brain showed right parietal lobe infarction with extensive right internal border zone and posterior external border zone infarction. Endoscopic sinus surgery

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was performed and pathologic finding showed septate hyphae with acute angle branching, compatible with Aspergillus spp. Pathophysiology of stroke is possibly due to progressive luminal narrowing of the right internal carotid artery from invasive aspergillosis encasing the vessel resulting in low cerebral blood flow and worsened by hemodynamic compromise. Voriconazole was given and surgical debridement was performed. Outcome at 8th weeks after the treatments was fair, patient had persistent left hemiparesis.

Conclusion (s)

Stroke related invasive aspergillus should be suspected in immunocompromised host including diabetes mellitus patients who had rhinosinusitis adjacent to cerebral vessels. Early diagnosis and prompt treatment is important to patient's outcome.

Keywords

1. Aspergillosis
2. Invasive fungal sinusitis
3. Stroke

P35
Autoimmune Glial Fibrillary Acidic Protein Astrocytopathy without Typical Hallmark Imaging Feature: A Single Case Report

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Background / Introduction

Autoimmune Glial Fibrillary Acidic Protein (GFAP) astrocytopathy has been recently discovered in the past decade. Although rare, this entity reveals unique clinical features of acute meningoencephalitis with or without myelitis and the distinctive brain linear or punctated radially perivascular gadolinium enhancement in white matter on MRI.

Objectives

To demonstrate the anti-GFAP astrocytopathy case with atypical MRI features.

Methods and Material

A single case report

Results

A 43-year-old Thai male presented with a 2-week period of subacute low-graded fever, diffuse severe headache, urinary retention, and severe bilateral legs weakness. Later, he developed confusion and generalized tonic-clonic seizure. Physical examination revealed comatose status with preserved brainstem reflexes, flaccid quadriplegia, generalized hyporeflexia and absent bulbocavernosus reflex. The MRI of the brain showed hyperintense foci of both basal ganglia and thalamus, and diffuse leptomeningeal enhancement along both cerebral hemisphere, brainstem and cerebellum. The MRI of the whole spinal cord demonstrated a long extensive signal hyperintense intramedullary spinal cord lesion between the cervicomedullary junction and T10 spinal cord. Although cerebrospinal fluid (CSF) analysis showed lymphocytic pleocytosis and high CSF protein, the CSF culture for tuberculosis,

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fungus and cytology were unremarkable. The electroencephalography revealed generalized diffuse slow theta activities. The GFAP autoantibody was detected in the CSF autoimmune encephalitis autoantibodies panel test. With the diagnosis of anti-GFAP astrocytopathy, the combination of intravenous methylprednisolone (1 g/d) and intravenous immunoglobulin (0.4 mg/kg/d) was prescribed for 5 consecutive days, following with high dose (60 mg/d) of oral prednisolone. The clinical impairment dramatically recovered to normal consciousness with gradual motor power recovery to MRC grade III within 3 months.

Conclusion (s)

Though lacking the typical MRI findings of punctate and linear gadolinium enhancement, this anti-GFAP astrocytopathy case demonstrated the classic clinical features and treatment response. This rare emerging entity still needs further extensive studies.

Keywords

1. Anti-GFAP astrocytopathy
2. Meningoencephalomyelitis
3. Meningoencephalitis

Oral Presentation

P36
Five-Year Post Thymectomy Outcome as Evaluated by Dosage Requirement of Pyridostigmine, Prednisolone and Azathioprine between Thymomatous and Non-Thymomatous Myasthenia Gravis Patients

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Background / Introduction

Post-thymectomy outcome of thymomatous (Th) and non-thymomatous (nTh) myasthenia gravis (MG) patients evaluated by daily dosage requirement of symptomatic or immunosuppressive drug is limitedly studied.

Objectives

To evaluate five-year post thymectomy outcome by dosage requirement of pyridostigmine, prednisolone and azathioprine between thymomatous and non-thymomatous myasthenia gravis patients

Methods and Material

All transsternal thymectomized MG patients who had thymic histopathology results between 2002-2020 were enrolled. Clinical demographic data and presentations between ThMG and nThMG patients was analyzed by univariable analysis ($p<0.05$). The daily dosages of pyridostigmine, prednisolone and azathioprine required during the five consecutive years after thymectomy were compared with those before thymectomy ($p<0.05$).

Results

The ThMG patients had significantly higher age at diagnosis of MG (44 (41.8, 49.2) vs.33 (21.5, 44) years, p=0.008), but shorter time from diagnosis to thymectomy (8.5 (2,12) vs. 22 (10.2,46.5) months, p=0.03) and lower thyroid stimulating hormone level (0.8 (0.5,1.4) vs. 1.5 (1,2.5) μIU/L, p=0.017) (Table 1). During the five-year post thymectomy period, daily requirement of pyridostigmine decreased significantly in both groups. Daily

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requirement of prednisolone decreased significantly at the 2nd and 4th year in nThMG patients, and non-significant reduction was shown in ThMG patients. Significantly higher dosage of azathioprine was required from the 3rd to 5th year in nThMG patients, whereas significantly lower requirement from the 1st to 3rd year presented in ThMG patients with a tendency to require much lower dosage.

Conclusion (s)

Both ThMG and nThMG patients had MG symptom relief after thymectomy as shown by significantly decreased daily pyridostigmine dosage requirement. Although daily requirement of prednisolone significantly decreased, more azathioprine was required instead implying higher immunogenicity in nThMG patients.

Keywords

1. Myasthenia gravis
2. Post thymectomy
3. Pyridostigmine

P37
Effectiveness of Rivaroxaban Initiated within 48 Hours versus 7 Days after Ischemic Stroke due to Atrial Fibrillation on Stroke Prevention Detected by Magnetic Resonance Imaging: A Randomized Trial

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Background / Introduction

The optimal time to start oral anticoagulant (OAC) in patients with ischemic stroke due to atrial fibrillation (AF) is unknown. Non-vitamin K antagonist oral anticoagulants (NOACs) are superior to warfarin in reducing of the intracranial bleeding risk.

Objectives

The aim of this study is to assess the efficacy and safety of rivaroxaban initiated within 48 hours versus at 7 days after a stroke onset on prevention of ischemic stroke among patients with atrial fibrillation by comparing the prevalence of recurrent ischemic stroke and hemorrhagic transformation between patients receiving rivaroxaban within 48 hours versus at 7 days after a stroke onset among patients with ischemic stroke related atrial fibrillation.

Methods and Material

We performed a randomized, open-label, blinded end point evaluation trial. Consecutive patients with AF with acute ischemic stroke within 48 hours after onset who had no contraindications to receiving secondary prophylaxis with rivaroxaban were randomized (1:1) into rivaroxaban initiated within 48 hours after stroke onset (early rivaroxaban group) or rivaroxaban initiated at 7 days (late rivaroxaban group). Computed tomography (CT) scan or magnetic resonance imaging (MRI) of the brain was performed before randomization to exclude intracranial hemorrhage. A follow-up MRI scan of the brain was subsequently performed 4 weeks after the initial event. The primary outcome was new ischemic lesion seen on results of MRI of the brain at 4 weeks. The secondary outcome was

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intracranial hemorrhage seen on results of MRI of the brain at 4 weeks.

Results

A total of 26 patients (15 women and 11 men; mean age 72.1 years) were studied. Thirteen patients were randomized into early rivaroxaban group and 13 patients were randomized to late rivaroxaban group. The early rivaroxaban group and late rivaroxaban group showed no significant difference in the rate of new ischemic lesion (7.7 % vs 15.4%, P=0.54) or the rate of intracranial hemorrhage (61.5% vs 30.8%, P=0.12). All of the intracranial hemorrhages were asymptomatic hemorrhagic transformations.

Conclusion (s)

In acute ischemic stroke related AF with small or medium-sized infarction, early rivaroxaban (initiated within 48 hours after stroke onset) and late rivaroxaban (initiated at 7 days) had comparable efficacy and safety. All of the intracranial hemorrhages were asymptomatic hemorrhagic transformations.

Keywords

1. Atrial fibrillation
2. Acute ischemic stroke
3. Non-Vitamin K Antagonist Oral Anticoagulant/ Rivaroxaban
4. Hemorrhagic transformation
5. Magnetic resonance imaging

P38

Meningioma Presenting as Rapidly Progressive Dementia and Visual Hallucination: A Case Report

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Background / Introduction

Dementia and visual hallucination in meningioma are rare conditions. This case describes the clinical features and management of meningioma with favorable outcome.

Objectives

This case report shows effectiveness of surgical removal and cognitive stimulation for treatment dementia and visual hallucination in meningioma

Methods and Material

Case report

A 66-year-old woman, diagnosed with meningioma, presented to Dr. Sardjito Hospital with 2-month history of headache, followed by right limb weakness, memory impairment and visual hallucination. She was suffering from daily visual hallucination lasting about 5 minutes per day as well as tension-type headache which occurred four times per week. Physical examination showed the patient was fully alert with right hemiparesis. A contrast magnetic resonance imaging (MRI) image showed extra-axial solitary solid lesion in the right parietooccipital region. Anatomical pathology examination of the tumor tissue showed fibroblastic meningioma. Before surgery, the patient was tested for Montreal Cognitive Assessment (MoCA) with the result of 9/30, and activity daily living (ADL) assessment showed dependency. On day 2 after surgery, the visual hallucination disappeared, and on day 9 MoCA evaluation showed improvement (12/30). Patient was discharged on day 25 of hospitalization with memory impairment and was

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followed up at the memory clinic for cognitive stimulation.

Meningioma is a common intracranial tumor of which the three most common symptoms are headache, mental status changes, and paresis. In this patient, visual hallucination is associated with parietooccipital lesion and psychotic syndrome. Comparing the results of MoCA test before and after treatment period with cognitive stimulation, a 3-point improvement was observed in the language, abstraction, and orientation.

Conclusion (s)

Dementia and hallucination in meningioma can be treated with surgery. Cognitive stimulation and adequate treatment in post-operative meningioma may improve memory impairment.

Keywords

1. Meningioma
2. Hallucination
3. Dementia

P39
Paraneoplastic Neuromyelitis Optica Spectrum Disorder: Case Report and Systematic Review

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Background / Introduction

Over the last decade, increasing number of reports have illustrated associations between neoplasms and neuromyelitis optica spectrum disorder (NMOSD). However, types of neoplasms and temporal relationship have not been widely studied.

Objectives

To evaluate the associations between neoplasms and NMOSD by means of temporal relationship, risk factor, and pathology.

Methods and Material

Systematic review was performed independently by two investigators. Fifty-nine articles were included from initial screening and 87 relevant AQP4-ab positive cases were retrieved. Three cases of paraneoplastic NMOSD presented in this article were also included. One case in this article had associated melanoma which had never been reported before.

Results

The median age of onset of NMOSD symptoms was 53 (range 12-87) months. Eighty-six percent (77/90) of cases were female. Over one-fifth the associated neoplasms were breast cancer (22%). Others included lung cancer, lymphoma, and ovarian tumor affecting 17%, 12%, 11% of patients respectively. In 33% of all patients (30/90) was diagnosed with cancer before the onset of NMOSD by a median of 10 [range (-180) - (-1)] months. In fifty cases (56%) had symptoms of NMOSD before cancer diagnosis by a median of 1 (range 0-180)

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months. No family history of NMOSD were identified and smoking was reported in 3 out of 7 patients among 90 cases. Tissue pathology illustrated expression of AQP-4 in 14 patients (82%) which was suggestive of paraneoplastic association due to immunologic reaction.

Conclusion (s)

The diagnosis of cancer may either precede or follow the onset of NMOSD. Certain evidence demonstrate tumor expression of AQP4 suggestive of paraneoplastic association. Cancer screening in NMOSD patients should be done based on the prevalence of tumors by age group and risk factors.

Keywords

1. Neuromyelitis optica spectrum disorder
2. Paraneoplastic syndrome
3. Neoplasms

P40
Is It the Vaccine? Case Reports and Systematic Review of Postvaccination Neuromyelitis Optica Spectrum Disorder

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Background / Introduction

The triggers of neuromyelitis optica spectrum disorder (NMOSD) are obscure. Vaccination have been observed to precede certain cases of NMOSD. Amidst the Coronavirus disease 2019 (COVID-19) pandemic, mass vaccination has unveiled two cases of newly diagnosed postvaccination NMOSD so far.

Objectives

To present two cases of post-COVID-19-vaccination NMOSD and systematically review previous reports.

Methods and Material

Searching of Ovid MEDLINE and EMBASE databases was done independently by two investigators using predefined search terms. Newly diagnosed NMOSD cases fulfilling the 2015 International Panel for NMO Diagnostic criteria with symptoms presenting between 2-30 days after vaccination were included together with two new cases. Data on demographics, clinical presentations, vaccines, latency duration, treatments, and outcomes were extracted and compared.

Results

Ten cases of postvaccination NMOSD, aging between 15-46 years old, were identified. Nine patients (90%) presented with transverse myelitis and 3 (30%) with optic neuritis. The median duration from vaccination to onset was 9 days (range 2.5-14 days). Five patients (50%) had aquaporin 4-IgG seropositive NMOSD and one had a family history of NMOSD. Three-fourths of seropositive patients

with myelopathy had short-segment transverse myelitis. The reported vaccines included CoronaVac, ChAdOx1 nCoV-19, yellow fever, quadrivalent influenza, H1N1 influenza, quadrivalent human papilloma virus, Japanese encephalitis, rabies, and recombinant hepatitis B virus, and tetanus-diphtheria-pertussis vaccines. All patients received high-dose steroids for initial treatment and 2 required additional therapeutic plasma exchange. Maintenance therapy was given for 4 patients. Five patients (50%) had no relapse within the follow-up period (range 3-34 months). Almost all patients returned to baseline functional status.

Conclusion (s)

Postvaccination NMOSD is rare, and has been observed with various types of vaccines. The short temporal relationship between vaccination and onset of NMOSD and the family history of NMOSD in one patient indicate that vaccine might be a trigger for genetically predisposed individuals.

Keywords

1. Neuromyelitis optica spectrum disorder
2. Aquaporin 4
3. Postvaccination
4. Vaccine
5. Autoimmune

P41
A Quarter-Century Report on Siriraj Neuromyelitis Optica Spectrum Disorder Registry

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Background / Introduction

Neuromyelitis optica spectrum disorder (NMOSD) is a rare autoimmune demyelinating disorder of the CNS with a racial predilection towards Asian descendants. The relapsing nature leads to high accumulative disability.

Objectives

To demonstrate the characteristics, morbidity, and mortality of NMOSD patients at Siriraj Hospital.

Methods and Material

Medical record of patients attending the Multiple Sclerosis and Related Disorders Clinic at Siriraj Hospital between January 1994 and July 2021 were reviewed retrospectively. Patients fulfilling the 2015 International Panel for NMO Diagnostic criteria were included. Descriptive statistical analysis was performed on the demographics, treatment, visual outcome, motor outcome, Expanded Disability Status Scale (EDSS), and mortality. Data were compared between aquaporin 4 (AQP4)-IgG seropositive and seronegative patients.

Results

From the 165 NMOSD patients included, 145 were AQP4-IgG seropositive and 20 were seronegative. The overall mean age at onset was 37.48 +/-14.29 years with female-to-male ratio of 14:1. The initial presentation of AQP4-IgG seropositive and seronegative NMOSD were similar with transverse myelitis as the most common phenotype (44.8% vs 50%), followed by optic neuritis (41.1% vs 30%). Area postrema syndrome presented more commonly in the seronegative group (6.2% vs 30%,

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p=0.004). Ninety percent of patients had relapsing disease with 73.1% of seropositive patients experiencing relapse within 2 years whereas only 45% of the seronegative do (p=0.01). The median number of attacks was 4 (1-40) and 3 (1-15), respectively (p=0.067). AQP4-IgG seropositive patients suffered from more frequent optic neuritis attacks (1 (0-16) vs 0.5 (0-5), p=0.004) and unilateral blindness (42.8% vs 5%, p=0.001). Majority of patients (46.2% and 75%) remained ambulatory with EDSS less than 4. Eleven mortality cases were identified (6.9% and 5%) with infection being the leading cause of death.

Conclusion (s)

NMOSD most commonly presents with transverse myelitis or optic neuritis. AQP4-IgG seropositive patients had higher risks of unilateral blindness.

Keywords

1. Neuromyelitis optica spectrum disorder
2. Aquaporin 4
3. Morbidity
4. Mortality
5. Outcome

P42

A Comparison Between Subjective and Objective Measurements of Spasticity in CNS Inflammatory Demyelinating Diseases Patients in Siriraj Hospital

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Background / Introduction

Spasticity could occur in Central Nervous System Inflammation Demyelinating Diseases (CNSIDD) due to damage or disruption to the area of the brain and spinal cord. For spasticity assessment such as numeric rating scale (NRS) and Modified ashworth scale (MAS) were well describe in multiple sclerosis (MS). However, a greater prevalence of Neuromyelitis Optica Spectrum Disorder (NMOSD) than MS was observed in Asian population. In practice, spasticity was also more common in NMOSD than in MS which there was no standardized spasticity assessment.

Objectives

This study aimed to compare between subjective and objective measurements of spasticity and to identify the clinical characteristics associated with spasticity among patients diagnosed with central nervous system inflammatory demyelinating diseases (CNSIDDs) at Siriraj Hospital.

Methods and Material

We performed the prospective cross-sectional study of CNSIDDs patients recruited from Siriraj Hospital between June and November 2020. Spasticity measurements were done by patients using Numerical Rating Scale (NRS) and by clinicians using Modified Ashworth Scale (MAS). Patient-reporting spaticity was evaluated with the associated clinical characteristics.

Results

Seventy-nine CNSIDDs patients was included for analysis, 25 with multiple sclerosis (MS), 53 with neuromyelitis optica spectrum disorder (NMOSD),

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and 1 with myelin oligodendrocyte glycoprotein antibody disease (MOGAD). There was a statistically significant correlation between subjective NRS scores and clinicians' MAS scores at visit (r=0.934, p<0.001). Spasticity was noted in 18 NMOSD patients (34%), compared with 2 MS patients (8%) (p=0.016). Clinical characteristics associated with spasticity included the higher number of transverse myelitis (TM) attacks, higher number of severe TM attacks, higher number of longitudinal extensive transverse myelitis (LETM) attacks (p<0.001), longer disease duration (p=0.025), higher Expanded Disability Status Scale (EDSS) score, and higher pyramidal Functional System Scale (FSS) score (p<0.001).

Conclusion (s)

Patients' self-reported NRS score had a good correlation with clinicians' MAS score for the assessment of spasticity in CNSIDDs. Spasticity appeared to be more frequent with NMOSD. Clinical characteristics associated with spasticity included the higher number of TM attacks, severe TM and LETM; longer disease duration; higher EDSS and pyramidal FSS scores.

Keywords

1. Spascity
2. NMOSD
3. MS

P43
Predictors of Survival in Gliomas

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Background / Introduction

Gliomas are the most frequent primary brain tumors with 30% 1-year survival rate for high-grade tumors (grade III and IV), 13% survive 5 years in which they can be affected by various factors.

Objectives

This study aimed to determine the survival of patients with gliomas in Malaysia, and its predictive factors.

Methods and Material

This is a single-centered, retrospective analysis of patients with histological diagnosis of glioma in University Malaya Medical Centre, Malaysia. Clinical, electrophysiological and neuroimaging data were collected from 2008 to 2020. Logistic regression of all significant factors was performed to determine the predictors of survival in gliomas.

Results

A total of 239 patients with gliomas were identified, of which 52.3% were male, 40.6% Chinese, with a mean age of 39.3 ± 22.6 years (range, 1-80). Majority had high grade gliomas (65.3%, WHO grade III and IV). The overall survival rate was 27.6% for high grade gliomas and 82.6% for low grade gliomas. The survival was associated with lower WHO grading, absence of midline shift or edema in neuroimaging, presence of seizures, younger age of presentation, and resection performed. The logistic regression analysis was statistically significant, $\chi 2$ (7, N = 205) = 80.187, p<0.001. Five predictors of survival were identified, including resection performed (OR, 4.16), younger age at

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presentation (OR, 0.979), not receiving adjuvant therapy (OR, 0.478), lower WHO grading (OR, 0.467) and absence of midline shift pre-operatively (OR, 0.402).

Conclusion (s)

Besides tumor grading, we identified surgical resection as the main predictor for survival in gliomas.

Keywords

1. Predictors
2. Survival
3. Glioma

P44
Ependymoma in Upper Spinal Cord Segments : A Rare Case Report

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Background / Introduction

Spinal cord tumors are sporadic and account for around 2%-4% of central nervous system neoplasms. They are commonly found in the cervical (67%), but are rarely found in the upper segment. These tumors commonly present with neck or back pain with sensory or motor symptoms.

Objectives

This case report shows that ependymoma in upper spinal cord segments is managed differently.

Methods and Material

Case description: A 54 years old female reported a history of chronic progressive neck, shoulder and arm pain of moderate intensity. He complained of weakness on the left side of the body accompanied by thickness starting from the C2 dermatome. Spinal magnetic resonance imaging revealed intramedullary mass lesions, which shows slight hyperintensity on T1W and hyperintensity on T2W, located at the cervical 1-2 vertebrae levels with dilatation of spinal cord at the cervical 1-5 vertebrae levels. Because of its location, she didn't undergo surgery or biopsy, but she was planned for radiotherapy. Cerebrospinal fluid examination showed no tumour cells. External radiotherapy was delivered on this site.

Results

Ependymoma can occur at any age, but most commonly in adulthood. The diagnosis and disease staging are performed by craniospinal MRI. Tumor classification is achieved by histological and molecular diagnostic assessment of tissue

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specimens according to the World Health Organization (WHO) classification 2016. Primary treatment is surgery, but when it cannot be done, radiotherapy is a possible option. Ependymomas in the spinal cord have better prognosis than those located in the brain, although there is not enough data that shows the success of therapy without surgery.

Conclusion (s)

Ependymoma in upper spinal cord segments is a rare and is managed differently.

Keywords

1. Ependymoma
2. Spinal cord
3. Radiotherapy

P45
Chemotherapy Induced Acute Cerebellar Syndrome: A Case Report

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Background / Introduction

Hyper-CVAD regimen is commonly used to treat patients with acute lymphoblastic leukemia (ALL). Pancerebellar dysfunction due to methotrexate (MTX) or cytarabine is rare but possible. Herein, we report a possible case of acute pancerebellar dysfunction due to a combination of cytarabine and methotrexate (MTX) given in high doses.

Objectives

To illustrate the clinical features of chemotherapy induced neurotoxicity.

Methods and Material

Case report.

Results

A 26-year-old Thai woman was diagnosed with B-cell ALL in 2016. There was no leukemic involvement in the central nervous systems (CNS). Chemotherapy (CMT) was initiated and clinical remission was achieved in 2019 with no complication related to treatment.

Unfortunately, the disease relapsed. The first cycle of the hyper-CVAD regimen was started without any neurological complication. On day 1 of the second hyper-CVAD regimen, she received intravenous high-dose MTX. On day two and day 3, she received cytarabine 4800mg (3000 mg/m2) every 12 hours. Her renal function was normal on admission. A few days later, she gradually developed vertiginous sensation and ataxia. Neurological examination revealed slurred speech, horizontal gaze-evoked nystagmus, truncal ataxia, limbs dysmetria, and wide base gait. Blood chemistry

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showed acute renal impairment with serum creatinine of 2.53 mg/dL (GFR 25.4 ml/min/1.73m2) and a high blood level of methotrexate (4.942 mmol/L). Non-contrast brain MRI did not show evidence of leukodystrophy, stroke or mass-like lesion. A lumbar puncture was performed, and no malignant cell was detected. She discontinued both MTX and cytarabine and was treated with dexamethasone and folinic acid intravenously. However, her symptoms did not significantly improve. Intravenous methylprednisolone 125 mg once daily was prescribed for five days. Her symptoms slowly improved. The order of improvement began with decreased truncal ataxia, nystagmus, limb dysmetria, gait difficulty, and slurred speech. Her serum creatinine returned to baseline on day 16.

Conclusion (s)

MTX may cause various CNS toxicities usually associated with lesions in subcortical or intramedullary spinal white matter areas. Furthermore, MTX can also potentially cause nephrotoxicity. All forms of cytarabine are excreted primarily in the kidney. Kidney impairment and high dose cytarabine (2,000-3,000mg/m2) increase the risk of neurotoxicity. Early detection and treatment with corticosteroid and folinic acid may provide good neurological outcomes and minimize the risk of residual neurological deficit.

Keywords

1. Chemotherapy
2. Ataxia
3. Leukemia

P46
Sleep Quality and Sleep Pattern among Residents and Its Relation to Anxiety and Depression during the Pandemic (COVID-19) in a Private Tertiary Hospital

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Background / Introduction

Sleep disturbance is defined as the mental or/ and physical status that produces a series of adverse symptoms, owing to abnormal amount of sleep or/and poor sleep quality. This remains to be a global health concern and a contributor to risk for anxiety and depression. Currently, due to the skeletal workforce in the hospital brought about by the COVID-19 pandemic, physicians are subject to great pressure, irregular work time, and frequent day-night work shifts, which may lead to the increase of sleep disturbances.

Objectives

The aim of this study is to (1) evaluate the quality of sleep and sleeping pattern of resident physicians in a private tertiary hospital during the of COVID-19 Pandemic and (2) measure the association of sleep quality and sleep pattern with depression and anxiety.

Methods and Material

This was a single-center cross-sectional study conducted at Makati Medical Center from August 2020 to October 2020. Online Google forms were sent to resident physicians who consented to participate in this study via electronic mail. The forms contained a structured questionnaire with the following components: basic information, Sleep Hygiene Index tool, Pittsburgh Sleep Quality Index tool, and the Goldberg Anxiety and Depression Scale.

Results

A total of 187 resident physicians were included in this study. 38.0% of participants had fair

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to poor sleep hygiene, 79.1% had short sleep pattern, and 74.9% had poor sleep quality. 44.4% of participants had probable anxiety and 47.6% had probable depression. Having probable anxiety (OR=5.1, 95% CI=2.3 to 11.4, p-value <0.001) and probable depression OR=2.6, 95% CI=1.3 to 5.2, p-value=0.006) were both significantly associated with poor sleep quality.

Conclusion (s)

There is a high prevalence of poor sleep quality among resident physicians in the studied research locale. In addition to this, almost half of the resident physicians show notable signs of anxiety and depression. Both sleep hygiene and sleep quality are significantly associated with risk for anxiety and depression.

Keywords

1. COVID-19 pandemic
2. Sleep quality
3. Sleep pattern
4. Anxiety
5. Depression

P47

Clinical Features and Treatment Outcomes of Severe Strokes in Thailand: Real-World Practice in Hospitals Across Thailand

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Background / Introduction

Severe ischemic stroke is a health burden and cause of death in Thailand. Thrombolysis is currently being used to treat acute ischemic stroke and is quite effective. This study aims to evaluate clinical outcomes and risk factors associated with intracerebral hemorrhage (ICH) after thrombolysis (rTPA).

Objectives

Aims to evaluate clinical outcomes and risk factors associated with intracerebral hemorrhage (ICH) after thrombolysis (rTPA).

Methods and Material

In this historical cohort study, patient data were obtained from the admission medical record, that were sent to the National Health Security Office (NHSO) for reimbursement purposes between fiscal years of 2015-2017. We selected patients with severe (NIHSS 15-24) and very severe (NIHSS ≥ 25) acute ischemic stroke. Clinical outcome after thrombolysis was analyzed and risk factors for ICH were investigated by multivariate method.

Results

681 from 3,610 patients were included. In the severe stroke group, median Barthel index, median NIHSS at discharge and modified Rankin Scale (mRS) improved in rTPA patients but sICH as more frequent (12.2% vs 3.9% p = 0.006). In the very severe stroke group, median NIHSS at discharge was lower in the rTPA patients (15.0 vs 27.5 P = 0.003) but sICH was not different (15.3% vs 5.7% p = 0.266). The factors associated with sICH in the severe stroke group are male gender

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(OR 1.844,95% CI 1.032-3.297) and diabetes mellitus (OR 2.085,95% CI 1.113-3.908), whereas in the severe and very severe stroke group (NIHSS ≥ 15), the factors are male gender and age (OR1.022,95% CI 1.000-1.045).

Conclusion (s)

Severe stroke patient who received rTPA, has a higher sICH rate but better outcomes. Male gender, diabetes mellitus and age are risk factors for sICH after rTPA.

Keywords

1. Clinical features
2. Outcomes
3. Severe strokes
4. Thailand

P48

Diagnostic Accuracy of Cerebral Peduncle and Middle Cerebellar Peduncle Widths in Differentiating Atypical Parkinsonian Syndromes from Parkinson's Disease

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Background / Introduction

The differentiation of Parkinson's disease (PD) and atypical parkinsonian syndromes (APS) is clinically challenging, especially in the early stage of the disease. Magnetic resonance imaging (MRI) may improve diagnostic accuracy. In parkinsonian syndromes, the measurement of cerebral peduncle (CP) and middle cerebellar peduncle (MCP) axial widths have not been investigated.

Objectives

To evaluate the diagnostic performance of the CP and MCP axial widths in differentiating APS from PD.

Methods and Material

Measurements of the CP and MCP based on axial T1-weighted MRI were performed in patients with probable PD (n= 27), Lewy body dementia (LBD, n=12), progressive supranuclear palsy (PSP, n=15), multiple system atrophy (MSA, n=9), and in controls (n=10). Diagnostic accuracies were determined by sensitivity, specificity, receiver operating characteristic curve, and area under the curve (AUC).

Results

Parkinsonian patients significantly had smaller mean axial width of CP (12.81 ± 1.26 vs 13.99 ± 0.75 mm, p <0.01) and MCP (16.13 ± 2.01 vs 17.94 ± 1.21 mm, p <0.01) than controls. The mean MCP measurement of < 16.49 mm accurately differentiated APS from non-demented PD (sensitivity 79.2%, specificity 81.5%, AUC 0.84, p <0.01). The CP to MCP ratio > 0.88 suggested the diagnosis of

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probable MSA (sensitivity 88.9%, specificity 90.6%, AUC 0.92, p <0.01). The interrater reliability of the axial CP and MCP widths was 0.96 (interrater ICC range = 0.92–0.98). In parkinsonian patients, the width of CP showed an inverse correlation with age, while the width of MCP showed an inverse correlation with disease severity.

Conclusion (s)

This study provides a new reliable and validated MRI measurement for differentiation of APS from PD. Measurement of CP and MCP width on the axial MRI may help distinguish patients with degenerative parkinsonism.

Keywords

1. MRI biomarker
2. Cerebral peduncle
3. Middle cerebellar peduncle
4. Diagnostic accuracy
5. Atypical parkinsonian syndrome

P49

Prediction of Post Stroke Cognitive Impairment in Patients with Mild Acute Ischemic Stroke by SIGNAL2 Score and Extracranial Internal Carotid Stenosis

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Background / Introduction

Post stroke cognitive impairment (PSCI) was one of the common comorbidities and usually could happen after 3 months of stroke. Previous studies showed that SIGNAL2 score and extracranial internal carotid stenosis were important for the prediction of PSCI. Components of SIGNAL2 score are Stenosis (Intracranial), Infarcts (acute cortical non lacunar), Global cortical atrophy, Number of years of education, Age at the time of acute stroke, Lacunes (chronic) and Leukoaraiosis.

Objectives

The aim of this study was to predict PSCI in patients with mild acute ischemic stroke by SIGNAL2 score and extracranial internal carotid stenosis

Methods and Material

Ninety-nine patients with mild acute ischemic stroke (modified Rankin scale ≤2 with Montreal Cognitive Assessment (MoCA) ≥ 26) were included. Study population was collected at the Yangon General Hospital, Yangon, Myanmar from January, 2018 to August, 2019. MRI and MRA were done. Stenosis of internal carotid arteries were assessed by Consensus Panel Gray-Scale and Doppler Ultrasound Criteria. Cut off value of MoCA for impaired cognition was <26. Association between SIGNAL2 score and MoCA, extracranial carotid stenosis and MoCA were assessed.

Results

Thirty-Nine percent of patients had cognitive impairment after 3 months of stroke. There was

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statistically significant association between SIGNAL2 score and cognitive impairment (P =0.008). At the cut-off value of 7, 88.9% of studied population had score below 7 and 11.1% had score of ≥ 7. The new predictive cut-off value of SIGNAL2 score for the current study was ≥ 4 (sensitivity - 82.1% and specificity - 63.3%)

Two percent of patients had ≥ 70 % stenosis at the right side and 1.01 % had ≥ 70 % stenosis at the left side of internal carotid arteries. There was no statistically significant association between extracranial internal carotid stenosis and cognitive impairment. (P =0.525)

Conclusion (s)

Current study showed that SIGNAL2 score could predict post stroke cognitive impairment in mild acute ischemic stroke patients after 3 months of stroke. The results were not statistically significant to show comparison between SIGNAL2 score and extracranial internal carotid stenosis.

Keywords

1. Post stroke cognitive impairment
2. SIGNAL2 score
3. Extracranial internal carotid stenosis

P50
Studying the Prevalence of Mild Cognitive Impairment and Dementia in Thai Elderly High Experience Professional Mindfulness Practitioners

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Background / Introduction

Prevention of cognitive decline is a crucial concern in the aging society. Meditation is one of the recommended interventions but its benefit is still controversial. However, the study of age-related cognitive change in monks may give us more understanding of the long-term effects of meditation.

Objectives

A cross-sectional study aimed to explore the prevalence of cognitive impairment and dementia in Thai elderly Buddhist monks and to determine the association between lifestyle, health, meditation, and cognitive functions.

Methods and Material

A total of 59 monks (aged 55-86 years) participated in this study. Baseline characteristics including monastic lifestyle, nutritional status, physical activity, sleep quality, and meditation were measured by standard questionnaires. Cognitive functions were assessed by Montreal cognitive assessment (MoCA), Digit Span Test, Coding Test, and Color-Word Interference Test.

Results

One-half of monks (57.6%) are diagnosed with mild cognitive impairment and 5.1% with dementia. Higher cognitive functions were associated with lower age ($p < 0.001$), higher education ($p < 0.001$), increased body mass index ($p < 0.01$), and good sleep quality ($p < 0.05$). Multivariate regression analysis revealed that Vipassana style was significantly associated with higher attention score and abstraction score in MoCA, while Samatha style

was associated with higher abstraction score in MoCA and increased self-corrected errors in Inhibition/Switching in Color-Word Interference Test. Interestingly, monks with a modern lifestyle were more likely to have uncorrected errors in Inhibition and Inhibition/Switching, while monks with a forest lifestyle make more self-corrected errors.

Conclusion (s)

The effects of meditation on cognition were not demonstrated due to limitations in neuropsychological assessments which focus on accuracy and processing speed in attention tasks, these tests may not suitable for the monastic population, especially the forest tradition which focuses on properly considering actions and thoughts, being aware of behaviors, and staying in the present.

Keywords

1. Mindfulness
2. Mild cognitive impairment
3. Monk

P51
Janus Kinase 1/2 Inhibition with Baricitinib is Not Only Ineffective but Possibly Harmful for Treatment of Anti-Signal Recognition Particle Immune-Mediated Necrotizing Myopathies

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Background / Introduction

Over the years, the treatments for idiopathic inflammatory myopathies (IIM) have improved significantly. For instance, in the case of an anti-signal recognition particle immune-mediated necrotizing myopathy (anti-SRP IMNM), we have observed the rising trends of methotrexate and rituximab being used as drugs of choice. Nevertheless, many patients still suffered from significant morbidity and mortality. A new treatment for anti-SRP IMNM is still being searched. Following a recent success in compassionate use of targeted therapy for the treatment of dermatomyositis. Baricitinib, a selective JAK1/JAK2 inhibitors, has been speculated as a potentially new treatment option for IIM. By binding to the specific site or pathway, this medication holds presumably more potentials for the curative effects and prevention of relapse than its conventional counterparts. However, as the study of the potency and efficacy of baricitinib in IIM is still in early stages, the data specifically for IMNM is very limited.

This illustrated case presents the decision of using the off-label baricitinib which is not effective and could have caused a severe adverse effect.

Objectives

To illustrate the clinical outcome of unconventional treatment of necrotizing autoimmune myositis.

Methods and Material

Case report

Results

Our patient was an Asian female who had dyslipidemia since 2019 or which 10 mg of simvastatin had been prescribed. She presented to

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the hospital in late 2020 with a clinical of severe calf pain and weakness of the calf and deltoid. Creatinine kinase (CK) level was markedly elevated at 12,016 units/L. Myositis profile was positive for anti-SRP. The search for occult malignancy was unremarkable. After the diagnosis of anti-SRP NAM was made, intravenous methylprednisolone was administered and it was followed by oral high dose prednisolone. One week later, her clinical course did not improve. Then, intravenous immunoglobulin (2g/kg/course) and methotrexate were introduced. Despite the considerable amount of medication, her condition still rapidly deteriorated with quadriplegia, severe dysphagia, and ultimately, a respiratory failure. In the effort to alleviate the symptoms, the physician team then decided to introduce a baricitinib as an off-label rescue therapy. The medication was started at 4 mg per day with daily neurologic assessment. Initially, the patient showed a promising sign of improvement, with less need for ventilatory support and slightly increased motor power score. Nonetheless the CK level was still high and expressed no decrement.

During the second week of drug administration, the patient developed an acute fever and productive cough after she had undergone tracheostomy due to prolonged intubation. Three days later, cellulitis and erythematous patch with scale at left calf and right thigh appeared. Initial chest X-ray showed no sign of abnormality. According to the above events, hospital acquired infection was suspected, so the septic workup was initiated and piperacillin-tazobactam was introduced. Baricitinib was then placed on hold. Nonetheless, after a course of broad-spectrum antibiotics for two weeks, the fever and her respiratory symptoms had not subsided. Furthermore, the skin lesion at left calf and right thigh seemed to be spreading. Skin biopsy revealed disseminated mycobacterium tuberculosis infection. After diagnosis was made, the patient received a course of anti-tuberculous drugs and continued to receive weekly methotrexate and oral prednisolone. The patient was hospitalized for over three months and then discharged with residual severe weakness (grade 2/5 MRC scale).

Conclusion (s)

This presented case pointed out that, even though the physician has managed the case according to ENMC protocol, the symptoms had yet to be subsided. Thus the addition of baricitinib as a rescue option did not achieve a favorable outcome. Moreover, it caused disseminated tuberculosis which was life-threatening and resulting in prolongation of hospital stay and severe residual weakness. Baricitinib might not provide a better response than the conventional treatment. However, in the relatively short duration of this medication, it is possible that we were unable to observe its maximum potential. We still heavily emphasize that the potency of this medication is uncertain and a comprehensive study should be implemented to investigate the efficacy and safety of this medication.

We also suggest that chest radiographic evaluation or careful medical history taking of patients as well as Tuberculin skin test are not adequate and accurate enough to rule out occult tuberculosis, especially in the endemic area. An extensive investigation of latent tuberculosis, such as interferon-gamma release assays (IGRAs) should be considered before the administration of baricitinib.

Keywords

1. Anti-signal recognition particle immune-mediated necrotizing myopathies
2. Necrotizing autoimmune myositis
3. Idiopathic inflammatory myopathies
4. Baricitinib
5. Mycobacterium tuberculosis

P52
Foville Syndrome in Hemorrhagic Stroke: A Neuroanatomical Review

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Maula Gaharu

Background / Introduction

Cross-brainstem syndrome has been reported since the 19th century by Millard, Gubler and Weber. The brainstem which consists of the mesencephalon, pons and medulla is a part of a complex anatomical structure of the brain because it contains various cranial nerve nuclei and is traversed by various ascending and descending pathways. This makes the brain stem syndrome interesting to study because of the variety of clinical manifestations. Various etiologies of brainstem disorders such as vascular disorders and space-occupying lesions can manifest clinically as brainstem syndromes, one of which is Foville syndrome. The following is a neuroanatomical review of case reports of Foville syndrome in hemorrhagic stroke, as well as a discussion of syndromes resembling this syndrome.

Objectives

Male, 42 yo, married, came the neurology clinic with chief complaints of left slanted mouth and left limb weakness for 1 week. His complaints occured while working, the patient experienced headache and fell easily when standing. On examination of the general status, there was hypertension, on neurological examination there was lower motor paresis of the right facial nerve, left hemiparesis and ocular right gaze paralysis. On brain CT, there was a hyperdense lesion in the right brainstem. The patient was diagnosed with Foville syndrome because he fulfilled the collection of clinical manifestations of the syndrome. The following is a neuroanatomical review of the syndrome.

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Methods and Material

A case report of brainstem haemorrhage.

Results

Foville syndrome is a clinical brainstem syndrome involving the corticospinal tract, medial lemniscus, medial longitudinal fasciculus, paramedian reticular formation and the nuclei of the abducens cranial nerves and facial nerves. Hemorrhage in the brainstem which occurs in 53% of cases is the most common cause according to Beucler et al. The pons, which is part of the brainstem, is the site of the lesion in this syndrome. Various components found in the ventral and tegmentum pons involved cause clinical manifestations in the form of contralateral hemiparesis, peripheral facial paresis and gaze paralysis. Corticospinal pathways, facial nerve pathways and conjugated horizontal gaze pathways are neuroanatomical aspects that explain the mechanism of clinical manifestations that occur. Differential diagnoses resembling Foville syndrome such as Millard-Gubler syndrome, Raymond syndrome, Intranuclear Ophtamoplegia (INO), One and a half syndrome and Eight and a half syndrome, are other clinical variants of lesions of the pons.

Conclusion (s)

Cross-brainstem syndrome is a collection of clinical manifestations that require neuroanatomical knowledge to determine the location of the lesion. Foville syndrome is a disorder of the pons with manifestations of contralateral hemiparesis, contralateral gaze and ipsilateral peripheral facial nerve palsy.

Keywords

1. Foville syndrome
2. Brainstem
3. Gaze paralysis

P53

Anti N-Methyl-D-Aspartate Receptor Encephalitis: A Report from Myanmar

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Background / Introduction

Anti-N-methyl-D-aspartate receptor (NMDAR) encephalitis was first described as a paraneoplastic syndrome by Dr. Joseph Dalmau and colleagues in 2007. Since then, there is a rapidly growing incidence of anti-NMDAR encephalitis cases worldwide.

Objectives

In Myanmar, the diagnostic testing for anti-NMDAR encephalitis was available in 2016 and there have been no reported study so far. We report patients with anti-NMDAR encephalitis admitted to one of the tertiary care hospitals in Myanmar.

Methods and Material

This is an observational study conducted at North Okkalapa General and Teaching Hospital (NOGTH) from January 2018 to December 2020. In this study, the diagnosis of anti-NMDAR encephalitis was based on the presence of anti-NMDAR antibody in either serum/cerebrospinal fluid (CSF). The clinico-demographic profile, ancillary tests and treatment outcome were reviewed and analyzed using medical records.

Results

In this study, ten patients diagnosed with anti-NMDAR encephalitis were included. Median age of onset was 21 years. Ninety percent of the study population were female. Seventy percent showed four of the six major groups of symptoms. Only ten percent was found to have ovarian teratoma. EEG abnormalities were observed in all patients. Sixty-six percent of MRIs performed were

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normal. All patients received high-dose steroid infusion followed by oral steroids. Four patients needed plasmapheresis. In this study, 40% of study population died.

Conclusion (s)

This small study shows the similarities and notable differences in Myanmar patients with anti-NMDAR encephalitis compared with other previous studies. Although there was some exceptions, generally anti-NMDAR encephalitis in Myanmar has similar characteristics to other previous studies in Asia.

Keywords

1. Anti-NMDAR-encephalitis
2. Teratoma
3. Myanmar

P54

The Relationship between Monocyte-to-HDL Cholesterol Ratio and Infectious Complication in Acute Ischemic Stroke Patient in Dr Sardjito General Hospital Yogyakarta

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Background / Introduction

Monocyte-to-HDL cholesterol ratio (MHR) is a novel prognostic inflammatory marker in cardiovascular diseases. MHR is increased in acute ischemic stroke, however, the role of MHR in predicting infectious complication rates remains unclear.

Objectives

To determine the predictive value of MHR on infectious complication rates in acute ischemic stroke. Based on previous research, MHR is associated with higher comorbidity and mortality rates.

Methods and Material

We analyzed 199 patients diagnosed with acute ischemic stroke from January 2020 to May 2021 in Dr. Sardjito General Hospital, Yogyakarta. MHR ratio was defined as high and low with cutoff derived from receiver operating characteristic curve (ROC curve) analysis. The infectious complication were urinary tract infections (UTI), pneumonia, and ulcus decubitus.

Results

From all 199 patients analyzed, 38 patients had the infectious complication. Twenty-nine patients had UTI, 9 patients had pneumonia, and 2 patients had ulcus decubitus, and 2 patients had more than 1 infections. MHR cutoff were 26.54, chi-square analysis showed p value < 0.001 with OR 3.596.

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Conclusion (s)

MHR was a significant and independent factor for infectious complication in acute ischemic stroke patients.

Keywords

1. Acute ischemic stroke
2. Monocyte-to-HDL cholesterol ratio
3. Infection complication

P55
The Efficacy of Platelet Rich Plasma on Optimization of Neurologic Function Improvement after Nerve Injury

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Background / Introduction

Peripheral nerve injury is still a global problem and can result in significant disability. Peripheral nerve injury can be caused by various etiologies, both traumatic and non-traumatic. The sciatic nerve is one of the most common peripheral nerves injured by trauma. Traumatic peripheral nerve injury can cause neuronal ischemia and thus functional deficits such as motor deficits, sensory deficits, autonomic disorders and neuropathic pain. Platelet rich plasma (PRP) contains growth factors that can induce healing and regeneration of nerve tissue.

Objectives

To analyze the efficacy of PRP on optimizing neurologic function after nerve injury with assessing efficacy in improving motor function.

Methods and Material

Twenty five rats were divided into one sham operation group and four injury group. The injury group consisted of saline group (n= 5), while the treatment group consisted of local PRP (n= 5), PRP intraperitoneally (n= 5), PRP intraperitoneally + local PRP (n= 5). The sciatic crush area of saline group was wrapped with gelatin sponge soaked with 0.2 ml of 0.9% saline solution while sciatic crush area in the treatment group was wrapped with gelatin sponge soaked with 0.2 ml of PRP. Intraperitoneal PRP was given five minutes after the crush process. Assessment of motor function was done by measuring the test of extensor postural thrust (EPT).

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Results

EPT test at week 2 showed the mean motor deficit were lower in the group that were given PRP than in the saline group ($p<0.05$).

Conclusion (s)

Administration of PRP locally and intraperitoneally after crush injury of sciatic nerve can improve motor function at week 2.

Keywords

1. Platelet rich plasma
2. Motor function
3. Extensor postural thrust

P56
Machine Learning Models Predict the Spatial Representation of Visuospatial Attention

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Background / Introduction

Mild cognitive impairment (MCI) is a neurodegenerative condition considered as a prodromal stage of Alzheimer's disease (AD) and other types of dementia. Although MCI is more controllable if diagnosed early, its severity could increase and become irreversible. Mildly disruptive memory and executive functions are common in people with MCI. Moreover, MCI patient might exhibit attentional deficits which may disrupt memory function, since attention plays role in mediating incoming sensory and mnemonic information.

Objectives

However, it is unknown how age-related changes in neural mechanisms that support attention and cognitive controls contribute to memory decline in different MCI subtypes. This is due to the lack of advanced diagnostic tools to predict the selectivity and severity of attention and memory deficits in MCI.

Methods and Material

Here, we have developed machine learning models based on the invert encoding model method. These tools use topographical patterns of EEG oscillations at alpha frequencies (~10Hz) and can reconstruct the mental representation of visuospatial attention, in real-time.

Results

We have applied these models with data collected from healthy individuals (18-60-year-olds) and our preliminary data showed highly precise

attention and spatial representation of dimension that occurred rapidly after the onset of attentional cues. The spatial representation of attention reconstructed based on our models suggested the slower shift and the lower amplitude of attention maps as subjects reached the 30s than young adults (18-23-year-olds). Furthermore, the effectiveness of this mental representation of adults older than the 30s has decreased with age, suggesting an age-related decline in attentional processing. Currently, we are applying these models with elderly (> 65-year-olds) with and without different MCI subtypes to examine if we can use these computational tools to help understand the mechanisms of cognitive decline in healthy ageing and MCI.

Conclusion (s)

Ultimately, the findings will aid in the development of better diagnostic approaches for the early diagnosis of MCI and will be one of the largest behavioural and EEG datasets made available publicly.

Keywords

1. MCI
2. EEG
3. Attention
4. Machine Learning
5. Neural oscillations

P57
Cerebral Venous Sinus Thrombosis in a Patient with Chronic Myeloid Leukemia : A Rare Case

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Background / Introduction

Cerebral Venous Sinus Thrombosis (CVST) is a rare form of stroke that happens 5 in 1 million people each year with headache as the common clinical presentation. Due to the disease's rare nature, there is little literature on the epidemiology, pathophysiology, and management of malignancy-related CVST. The prevalence is believed to be approximately 0.3%. Hematologic malignancies appear to be implicated more so than solid organ malignancies. However, CVSTs are usually reported in acute lymphoblastic leukemia (ALL) patients. Here we reported a rare case of CVST in a patient with chronic myeloid leukemia (CML).

Objectives

This case report is made to show that as rare as the case is, the diagnosis of CVST is hard to establish because the symptoms are usually not too specific and can be related to other diagnosis.

Methods and Material

We followed the symptoms and sign in the patient and ran some diagnostic tools to diagnose and treat the patient.

Results

Case Report: A 23 years old woman came with an acute-onset severe headache, vomiting, and weakness of the left extremities. She was previously diagnosed with CML based on the result of a bone marrow puncture. Her D-Dimer level was high (4.912 ng/ml), while her leucocyte level was normal (9.6x103/ul). MRI with angiography showed thrombosis in left transverse and rectus sinuses,

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along with infarction in bilateral thalamus, left parietooccipital lobe and left cerebellar hemisphere. Low molecular weight heparin (LMWH) was given. The patient's condition improved, and the patient was discharged with minimal hemiparesis.

Conclusion (s)

Here, we reported a rare case of CVST in a CML patient. CVST is one of the conditions clinicians should be aware of in patients with leukemia to ensure early treatment with an anticoagulant.

Keywords

1. Cerebral venous sinous thrombosis
2. CML
3. Anticoagulant

P58
Cerebral Toxoplasmosis in Newly Diagnosed HIV Patients: A Case Report in Developing Country

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Abdulloh Machin

Background / Introduction

Cerebral toxoplasmosis is the commonest CNS infection (33%) in patients with HIV/ AIDS, mostly in newly diagnosed ones. In the absence of early and proper treatment, toxoplasmosis in immunocompromised patients with central nervous system involvement can be severe and debilitating.

Objectives

We report a case of a 49-year-old man, with an unknown HIV status, presented with left sided progressive weakness, skewed face, slurred speech, projectile vomiting and disoriented. Computerized tomography (CT) result in peripheral hospital showed extensive edema in right hemisphere and has been previously diagnosed with suspected brain metastastic lesion. Steroid was then administered for initial treatment to reduce edema and the patient was referred to tertiary hospital after 2 days from admission without improvement.

Methods and Material

In our hospital, rapid test HIV screening was ordered and showed reactive result. A contrast head CT was conducted, followed by serology test of *Toxoplasma gondii*. We diagnosed this patient with cerebral toxoplasmosis. He was treated with pyrimethamine and clindamycin regimen, empirically for toxoplasmosis and mannitol to reduce intracranial pressure.

Results

The following magnetic resonance imaging (MRI) taken 10 days apart showed a reduction in surrounding edema. Patient was clinically stable,

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oriented and the headache subsided. He was discharged with the same drugs and advised to continue regular follow-up to start his combination anti-retroviral therapy.

Conclusion (s)

The screening of HIV is very useful to determine the HIV status of patient. Hence, clinicians must consider this possibility of HIV associated toxoplasmosis based on clinical, laboratory, and imaging result to establish early diagnosis and proper treatment with anti-toxoplasmosis.

Keywords

1. Cerebral toxoplasmosis
2. Human Immunodeficiency Virus
3. HIV

P59

Hughes Syndrome Manifesting as Stroke, Dementia and Bihemiparese: A Case Report to Distinguish from Chronic Inflammatory Demyelinating Polyneuropathy

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Background / Introduction

Hughes Syndrome or antiphospholipid syndrome (APS) is an immune system disorder that causes an increased risk of blood clots with many clinical manifestations.

Objectives

This case report shows how to diagnose and treat antiphospholipid syndrome from presenting with recurrent stroke and dementia.

Methods and Material

Case description : A 44-years-old man, with history of stroke 4 months before admission, referred to Sardjito Hospital with recurrent stroke and massive pericardial effusion with sign of impending tamponade. The patient presented with right limbs weakness and subsequently followed by the progressive of left limbs weakness, and cognitive impairment. The cerebral magnetic resonance imaging (MRI) showed subacute multiple lacunar infarcts in corona radiata sinistra, ganglia basalis sinistra, and lobes frontalis sinistra, chronic cortical infarction at lobes temporalis sinistra and chronic watershed infarction at lobes parietooccipital sinistra with encephalomalatic appearance. The Electroneuromyography showed motor and sensory polyradiculopathy which suggested CIDP. The cognitive examination in the outpatient memory clinic revealed Mini Mental State Examination (MMSE) score of 20/30, Montreal Cognitive Assessment Indonesian Version (MocaIna) score of 8/20 compatible with dementia. The immunology assay found that Lupus Anticoagulant (LA) was mildly positive, Antibody Cardiolipin (ACA)-IgM and ACA Ig-G, and double standed-DNA (dsDNA) were normal.

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Results

Hughes Syndrome or antiphospholipid syndrome (APS) is an immune system disorder that causes an increased risk of blood clots with many clinical manifestations such as stroke, dementia and can cause many organs damage. At this case report, the patient was diagnosed as Hughes Syndrome or APS and the anticoagulant was given by an internist. After 1 month follow up, the patient improved clinically.

Conclusion (s)

Manifestations of Hughes syndrome can mimic multiple sclerosis or CIDP. In the presence of thrombosis such as stroke, and LA, APS should be considered. The response to anticoagulant therapy might be helpful in the differential diagnosis.

Keywords

1. Dementia
2. Hughes syndrome
3. Stroke

P60
Case Series of Eosinophilic Meningitis and Their Etiologies

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Background / Introduction

Eosinophilic meningitis is defined as the presence of more than 10 eosinophils/mm3 in the cerebrospinal fluid (CSF) and/or eosinophils accounting for more than 10 percent of CSF leukocytes. Here we present five cases of eosinophilic meningitis in our center caused by *Angiostrongylus cantonensis* in 80% and *Mycobacterium tuberculosis* in 20%.

Objectives

To increase awareness of eosinophilic meningitis

Methods and Material

Case series

Results

We have encountered 5 cases of eosinophilic meningitis in our hospital over the recent 3-year period. Presentations include subacute onset of severe headache responding to dexamethasone, low grade fever and signs of meningism. One of them also had coexisting mild cervical myelitis clinically. They all had peripheral eosinophilia ranging from 5 to 11×103/µl and all were immunocompetent. Meningeal enhancement in contrast CT was found in 40%. CSF study revealed increased protein with eosinophil count ranging from 25% to 40%. To find out the underlying cause of eosinophilic meningitis, we sent out various parasitic serological tests in addition to routine meningitis workup. In 4 cases, *A. cantonensis* serology was positive and the rest had PCR positive for *M. tuberculosis*. Sixty percent

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were those living in rural and 40% from urban area. History of eating raw shrimp and snails was elicited in only one case. Thus, the presumed main mode of transmission is consumption of contaminated raw vegetables. Their symptoms improved and blood eosinophil count became normalize after anthelminthic treatment and steroid for 2-3 weeks.

Conclusion (s)

Eosinophilic meningitis is rarely reported in Myanmar although South East Asia is one of the endemic areas. *A. cantonensis* is the most common parasitic cause of eosinophilic meningitis.

Keywords

1. Eosinophilic Meningitis
2. *Angiostrongylus cantonensis*
3. Peripheral eosinophilia

P61

Neutrophil-to-Lymphocyte Ratio and Leukocyte Count as a Simple Hematologic Predictor of Stroke Severity and Functional Outcome in Acute Ischemic Stroke Patients

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Background / Introduction

It has long been recognized that inflammation plays a critical role in the pathogenesis of ischemic stroke. However, whether leukocyte count and neutrophil-to-lymphocyte ratio are related to stroke severity and functional outcome is uncertain.

Objectives

This clinical study aimed to evaluate the association of neutrophil-to-lymphocyte ratio and leukocyte count with stroke severity and functional outcome in acute ischemic stroke patients.

Methods and Material

This hospital-based, retrospective observational study included 112 subjects with acute ischemic stroke. All subjects had their demographic, clinical, and laboratory data obtained. The neutrophil-to-lymphocyte ratio and leukocyte count were evaluated to stroke severity on admission and 3-month functional outcome. The severity of stroke at admission was measured using the National Institutes of Health Stroke Scale (NIHSS), whereas the Barthel Index was used to measure 3-month functional outcome (BI). We conducted a regression analysis, adjusting for any confounding variables.

Results

Higher neutrophil-to-lymphocyte ratio was associated - but not significantly - with increased stroke severity (odds ratio [OR] 1.181, 95% confidence intervals [CI], 0.947-1.474, p: 0.140) and unfavorable functional outcome (OR 1.246, 95% CI, 0.905-1.716, p: 0.177). Higher leukocyte count was significantly associated with increased risk of stroke severity

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(OR 1.391, 95% CI, 1.121-1.725, p: 0.003) and unfavorable functional outcome (OR 1.434, 95% CI, 1.068-1.925, p: 0.017).

Conclusion (s)

Our study indicates that the neutrophil-to-lymphocyte ratio and leukocyte count are associated with stroke severity and functional outcome in acute ischemic stroke patients, with leukocyte count as an independent predictor of stroke severity and functional outcome.

Keywords

1. Neutrophil-to-lymphocyte ratio
2. Leukocyte count
3. Ischemic stroke
4. Inflammation
5. Prognosis

P62
Impact of Coronavirus Disease 19 Pandemic on Neurology Care

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San Oo,
Phyu Phyu Lay

Background / Introduction

Coronavirus disease 2019 (COVID-19) pandemic in Myanmar is part of the worldwide pandemic of COVID-19, the virus was confirmed to have reached Myanmar on March 2020. The COVID-19 pandemic has had a great impact on healthcare services of Myanmar, with neurology services being no exception.

Objectives

To evaluate the impact of COVID-19 pandemic on neurology care and on people living with neurological disorders.

Methods and Material

To assess the impact of COVID-19 pandemic on neurology services at Yangon General Hospital, a tertiary care center in Myanmar, we reviewed the outpatient and inpatient data comparing each month in March to December 2020 to its equivalent month in 2019. Telephone interviews were also performed to evaluate the consequences of pandemic on people living with neurological disorders.

Results

On average, percentage changes between 2019 and 2020 on neurology services was negative: for total inpatients was approximately -35%, and for total outpatient appointments was approximately -69%. There was significant reduction in stroke admissions (-54%) and emergency stroke care services (-35%) during COVID-19 compared to the same period of the previous year. Neurophysiology clinics were also negatively impacted by COVID-19,

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the average percentage change was -56%. A total of 70 people living with chronic neurological disorders were involved in telephone interviews (mean [SD] age, 63 [10.0] years; 54 men [77.1%]), among them, 27(38.5%) were stroke survivors, dementia in 7(10%), parkinsonism in 12(17.1%), epilepsy in 21(30%) and rest were other diseases. Among the responders, 26% of patients experienced complete inability to assess health care and treatment during the pandemic, due to patients' fear of contracting COVID-19 during hospital care, and/or transportation limitations. The great majority (63%) were not consulted about treatment plan in the future and they were continuing on the same regimen from the previous consultation.

Conclusion (s)

The COVID-19 pandemic has had a profound impact on people living with neurological disorders and, subsequently, their quality of life. This study can highlight the areas where the most attention should be given in the future, so that impact on those living with neurological disorders from lack of treatment accessibility during the pandemic can be minimized.

Keywords

1. Impact
2. COVID-19 Pandemic
3. Neurology care

P63
A 21-Years-Old Man with Cervical Pain and Collet-Sicard Syndrome after COVID-19 Vaccination: A Case Report

Background / Introduction

The COVID-19 infection sequelae might affect the nervous system. Common symptoms include fatigue, headache, or generalized pain and finding such as encephalopathy or corticospinal tract signs are present in approximately 82% to 87.4% of patients (42% in the early phase, 63% during hospitalization). Rarely, there are tremor, diplopia, tinnitus, dysphonia, seizures, stroke, Guillain-Barré syndrome, facial paralyzed, transverse myelitis, and encephalomyelitis.

Objectives

This paper presents a case report of cervical pain and Collet-Sicard syndrome after COVID-19 vaccination.

Methods and Material

A 21-year-old man complained dysphagia, left-sided deviation of tongue, and omental hypoesthesia post-vaccination with CoronaVac (Sinovac Life Sciences, Beijing, China). Pain and legs stiffness followed on day eight. On day nine, he experienced cervical radicular pain syndrome (CPS) and left sided motor weakness. Brain MRI was done revealing no abnormality, as were the blood counts and electrolytes. The electromyography (EMG) and nerve conduction velocity (NCV) were normal in week 2 but subsequently showed left-sided polyneuropathy and median nerve axonal and bilateral axillary demyelination (C5-7 and C8-Th1) worse on the left side. Azithromycin 500 mg/day, intravenous methylprednisolone 125mg/day, thiamine 100 mcg/day, cobalamin every 8 hours, and physical therapy was given during

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the 16-day hospitalization resulting in gradual improvement.

Results

Post-vaccination sequelae might be associate with axonal demyelination or Wallerian degeneration, which might occur at the brachial plexus in association to lower cranial nerves (C1-4 nerves). Sudden viral infection after vaccination might cause viral neurotropism. Azithromycin is a broad-spectrum antibiotic that modulated both the innate and adaptive immune response and accumulated in the central nervous system. Neurotrophic drugs are aimed at improving nerve transmission and myelin regeneration.

Conclusion (s)

Neurological sequels after vaccination might be irreversible and associated with the needle penetrated the deltoid muscle.

Keywords

1. COVID-19
2. Vaccination
3. Viral neurotropism
4. Brachial plexus
5. Lower cranial nerves

Young Investigator Award

P64
Demography of Encephalopathy in Covid-19 Patients at Dr Sardjito General Hospital, Indonesia

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Sekar Satiti,
Whisnu Nalendra Tama,
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Background / Introduction

Neurologic complications in patients with COVID-19 are common in hospitalized patients. Myalgias, headache, encephalopathy, and dizziness may be the most common symptoms, occurring in approximately one-third of patients in Asia, Europe, and the United States.

Objectives

Our goal is to provide demographic profile related to encephalopathy in COVID-19 patients.

Methods and Material

This was a retrospective observational study involving patients admitted to the Dr. Sardjito Hospital with encephalopathy, between January 2020 to August 2021. We divided ecephaopathic patients into two groups, COVID-19 confirmed and non-COVID-19 patients, and we analyzed data from medical records and laboratory results on admission.

Results

During 2020-2021, the neurology department were consulted to evaluate 241 cases of encephalopathy. A total of 78 cases (32.4%) were confirmed cases of COVID-19. The mortality rate in cases of COVID-19 encephalopathy was 80.77%, compared to 58.3% in non-COVID-19 encephalopathy. Of the 78 cases, the most common encephalopathy types in COVID-19 was hypoxic encephalopathy (51.3%), followed by septic encephalopathy (37.2%), uremic encephalopathy (10.3%), and hyperglycemic (1.3%). The highest mortality rate for encephalopathy in COVID-19 was

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hypoxic encephalopathy (82.5%), followed by septic encephalopathy 79.3%, and uremic encephalopathy (75%). When compared with non-COVID-19 cases, cases of septic encephalopathy experienced a significant increase in the mortality ratio in COVID-19 cases up to 4.6 times (p-value < 0.004) compared to non-COVID-19 cases. Cases of hypoxic encephalopathy in COVID-19 had a 2.35-fold risk of death and uremic encephalopathy had a 1.5-fold risk of death, but thess differences were not significant (p-value > 0.05).

Conclusion (s)

Encephalopathy is a major and devastating SARS-CoV-2 virus-associated CNS complication. Hypoxic/metabolic changes produced by intense inflammatory response against the virus trigger cytokine storm and subsequent ARDS and multiple organ failure. Encephalopathy is frequently encountered in older and critically ill patients. The presence of comorbidities predisposes to hypoxic/metabolic changes responsible for encephalopathy.

Keywords

1. Covid-19
2. Encephalopathy
3. Hypoxic

P65

Focus Group Discussion on Professional Caregivers for Adapting and Translating WHO's iSupport for Caregivers of People with Dementia

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Background / Introduction

As the prevalence of dementia cases is continuously rising, the demand for caregivers of people with dementia is also growing. However, there is a lack of guideline for caregivers of people with dementia, particularly in Bahasa language. This study is part of the research project to develop an iSupport virtual assistant - the Empowering Dementia Carers with an iSupport Virtual Assistant (e-DIVA) in Indonesia. During the process, Focus Group Discussion (FGD) is needed as guided in WHO's iSupport Adaptation and Implementation Guide.

Objectives

This study aims to identify issues that occurs on the adaptation of the iSupport module into Bahasa during the FGD with professional caregivers.

Methods and Material

The process of FGD had followed the WHO's iSupport Adaptation and Implementation Guide, which in this study focused on professional caregiver. The participants were 8-10 professional caregivers with at least two years of experience in providing care to dementia patients. The discussion was taken for 1.5 hours.

Results

Various feedbacks provided during FGD involved: 1) content, 2) choice of words, and 3) recommendation. Firstly, a glossary would help users to understand medical and technical English terms. Also, it would be helpful to mention local

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culture in the module, as a part of the content. Furthermore, putting examples in the task sessions was quite necessary. Secondly, there were several words formal in Bahasa language which is rarely used in day-to-day basis. Lastly, it was imperative to embed these skills in the curriculum of nursing study programme in the future.

Conclusion (s)

The data obtained from FGD was very beneficial for the translation and adaptation process into Bahasa version. Feedbacks related to content and choice of words are the main aspects that should be stressed on to ensure the adapted guideline is suitable with the local culture.

Keywords

1. Dementia
2. iSupport
3. Adaptation
4. Focus group discussion

P66
Diagnostic Challenge in Artery of Percheron Infarction

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Background / Introduction

The artery of Percheron (AOP) is a rare anatomic variant arising from P1 segment of posterior cerebral artery which supply bilateral thalami with or without midbrain. Non-specific neurological symptoms are common in artery of Percheron infarct. Few reports of AOP infarct caused by SARS-CoV-2 infection were found.

Objectives

To highlight unusual presentation of AOP infarct in patient with SARS-CoV-2 infection

Methods and Material

Case report

Results

A 37 years old previously active teacher presented with increasing bilateral headache for one week and altered mental status with memory impairment in the following three days. She denied fever, seizure, weakness and impaired vision. Neurological examination were normal except for delayed response. Electroencephalogram showed no seizure activity. Magnetic resonance imaging of brain revealed bilateral thalamic infarcts. There were hypoplasia of right vertebral artery and right anterior carotid artery on Magnetic Resonance Angiography and no venous sinus thrombosis on magnetic resonance venography. Laboratory studies were within normal limit. Antibodies to N-methyl-D-aspartate receptor, anti-Herpes Simplex virus(IgM), ENA profile, anti-cardiolipin antibodies were negative. D-dimer level was elevated at 8350 ng/l. Anti-SARS-CoV-2 (spike) was >250 U/ml on

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testing after 2 months. Her condition improved over the treatment of anticoagulation. Thrombolysis was not administered because of low suspicion for acute stroke at the onset of symptom.

Conclusion (s)

We present the diagnostic challenge of AOP infarct according to diversity in presentation of stroke. In the absence of risk factors for stroke, SARS-CoV-2 infection can be a contributing factor. Therefore, clinicians should keep AOP infarct in the differential diagnosis for non-specific neurological presentation to get early detection and intervention.

Keywords

1. Artery of Percheron infarct
2. Non-specific neurological symptoms
3. Diagnostic challenge
4. SAR-CoV-2 infection

P67
Scrub Typhus Case from Myanmar Complicated by Bilateral Frontoparietal Cortical Infarcts

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Win Zin Nwe,
Kyaw Myat,
Lwin Than Dar

Background / Introduction

Scrub typhus (ST) caused by *Orientia tsutsugamushi*, transmitted by thrombiculid mites (chigger's bite), is endemic in Southeast Asia. The organism infects endothelial cells affecting all organs. There is a wide spectrum of neurological manifestations, among which meningoencephalitis is classical. Stroke cases, mainly intracranial hemorrhage were reported and acute cerebral infarct is one of the less common complications of ST.

Objectives

We need to have high index of suspicion on the possibility of scrub typhus in a patient presented with fever in endemic area including Myanmar, and it is essential to establish easily accessible diagnostic facilities which is not currently available in Myanmar. Even if the latter cannot be established, having high degree of awareness and giving one of the sensitive antibiotics such as azithromycin, doxycycline or rifampicin are important in order to save the patients. In addition, another point is that cerebral infarction is a possible complication.

Methods and Material

Case report of a patient presented with prolonged fever, thrombocytopenia, acute hepatitis, acute kidney failure and acute bilateral fronto-parietal cortical infarcts

Results

Rickettsia serology was finally sent to an overseas laboratory and scrub typhus serology turned out positive. He significantly improved after

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intravenous azithromycin. At one-month after treatment initiation, he was completely back to normal.

Conclusion (s)

It is essential to have a high index of clinical suspicion and to establish easily accessible testing facility since scrub typhus is not susceptible to routinely and empirically used β-lactam–based regimens. Scrub typhus should be one of the differentials not to be overlooked in febrile patients from rural areas of Myanmar.

Keywords

1. Scrub Typhus
2. Cerebral infarct
3. Myanmar

P68
Insights into Patients' Concerns in Cervical Dystonia

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Background / Introduction

Cervical dystonia (CD) impacts a wide range of motor and non-motor functions that limits daily activities and social interactions. Personalised treatment goals should be developed to establish an individual patient's needs and guide physicians to focus on targeted treatments. However, the current understanding of these concerns is limited.

Objectives

To explore treatment goals in CD patients by measuring eight domains of the Cervical Dystonia Impact Profile (CDIP-58).

Methods and Material

CD patients established and prioritised 3 personalised main problems (goals) before botulinum toxin treatment at Chulalongkorn Centre of Excellence for Parkinson's Disease & Related Disorders (ChulaPD, www.chulapd.org) from March 2021 to August 2021.

Results

Twent-two CD patients (8 male, 14 female) with mean age of 57.45 + 13.46 years and disease duration of 9.93 + 7.95 years were recruited. A total of 66 personalised goals were set (3 goals per patient). Head and neck symptoms (18 patients, 27.27%) represent the most concerning problems for CD patients, followed by pain and discomfort (14 patients, 21.21%) and psychosocial functioning (10 patients, 15.15%). Upper limb activities, psychiatric co-morbidities and sleep were less concerning. Patients with a longer disease duration (> 5 years) and higher Onabotulinum toxin dosages

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(>50 units) did not show any significant differences in concerns in each CDIP subscales compared to those with shorter duration and lower dosages.

Conclusion (s)

Our study demonstrated that head and neck symptoms, pain and discomfort and psychosocial functioning were the top three most concerning problems in patients with CD. Identification the main problems of each CD patient could help physicians to implement better patient-centered care and optimise outcomes.

Keywords

1. Personalised treatment goal
2. CDIP-58
3. Cervical dystonia
4. Onabotulinum toxin

P69

Does Needle Size Matter in Botulinum Toxin Injection? A Pilot Study of Microneedle in Patients with Hemifacial Spasm

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Background / Introduction

Although Botulinum toxin type A (BTX-A) injection is considered the first-line treatment in patients with hemifacial spasm (HFS), therapeutic effects are temporary. This leads to repeated injections, which are associated with pain and discomfort. While injections with microneedle has been shown to cause less pain in other disorders, the evidence in HFS is lacking.

Objectives

The objective of our study is to compare pain and bruises in patients with HFS who received BTX-A injection with microneedle (34-G) or standard needle (30-G).

Methods and Material

This is a cross-over, double-blind, controlled trial involving 13 HFS patients who were randomized to receive two, 3-month interval, BTX-A injections with either standard needle or microneedle. The majority of patients were female (69.2%) with the mean age of 58 years (9.2) and the mean disease duration of 5.38 years (2.72). Primary outcomes were pain severity and characteristics, determined right after BTX-A injections with the Visual Analogue Scale (VAS) and Short-form McGill Pain Questionnaire (SF-MPQ-2). Bruise score was included as the secondary outcome.

Results

All patients completed the study. Significant reductions of the VAS (p=0.012), total SF-MPQ-2 (p=0.028), and bruise scores (p=0.002) were observed in those with 34-G needle compared to those with 30-G needle.

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Conclusion (s)

In patients with HFS, BTX-A injection with microneedles is associated with less pain and bruise development. Further study involving larger numbers of patients is currently underway to determine the efficacy with this procedure.

Keywords

1. Hemifacial spasm
2. Botulinum toxin
3. Microneedle
4. Pain
5. Effect

P70
A 61-Year-Old Diabetic Man with Lumbar Radiculopathy and Deep Vein Thrombosis Showed Improvement Underwent Percutaneous Discectomy and Neuromodulation: A Case Report

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Background / Introduction

Diabetes mellitus (DM) has a worldwide prevalence of approximately 8%, with an annual rate of 1.2 million, and 5% are insulin-dependent DM (IDDM). DM neuropathy consists of distal symmetric polyneuropathy (50%), mononeuropathies (25%), autonomic neuropathy (7%), cranial, thoracic, and lumbar neuropathies (3%). IDDM might affect the bone, cartilage and discs through microvascular disorders. The factors contribute to Virchow's triad and thus confers the risk of deep vein thrombosis (DVT).

Objectives

This paper presents a case report of diabetic disc herniation requiring minor procedures with minimal risks.

Methods and Material

A 61-year-old male suffering from DM for 5 years was brought to the emergency department of Dr. Kariadi Hospital unconscious. He has extremities tingling for the last one month, along with lumbar radicular pain and numbness for 2 weeks. On the second day of hospitalization, stiffness, redness, warmth and pain (NRS 8-9, allodynia, dysesthesia) developed on the left thigh and calf compatible with DVT. Nerve conduction velocity (NCV) showed axonal demyelination and sensory neuropathy, in which H reflex and F wave are not produced. MRI revealed L4-5 and L5-S1 protrusions. Daily administration of long and short-acting insulin, paracetamol 1500 mg, and gabapentin 200 mg did not cause satisfactory pain improvement.

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Results

Left-sided discectomy approach to L5-S1 disc was done together with radiofrequency neuroablation of superior hypogastric ganglion (SHG) at 75°C for 2 minutes, followed by dorsal root ganglion (DRG) and inferior hypogastric ganglion (IHG) at 42°C for 4 minutes pulsed radiofrequency. Sympathetic blocks improved for DM neuropathy. We hypothesized that the NRS 2-3 might be due to sympathetic-induced microvascular nociceptors ischemia that has been dramatically relieved. Similar mechanism on the DRG is associated with chronic pain due to degenerative disc disorders.

Conclusion (s)

Disc herniation in diabetic patients is a challenging issue for surgery. Emphasizing the need for minor procedures with minimal risks.

Keywords

1. Diabetes Mellitus
2. Vein Thrombosis
3. Lumbar disc herniation
4. Percutaneous discectomy
5. Radiofrequency

P71
Chronic Lumbar Disc Herniation Accompanied by Acute Drop Foot Showed Improvement within Less Than 90 Minutes of Discectomy: A Case Report

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Background / Introduction

Drop foot might be caused by L3 to S1 herniated discs that affected the roots supplying the deep peroneal nerve (L4 through S1) innervating the tibialis anterior and extensor hallucis longus muscles.

Objectives

Case report

A 26-year-old male presented with left radicular pain for 1 year of numerical rating scale (NRS) 6-8, numbness, and left drop foot for 1 week. Manual motor testing (MMT) reveal muscle strength of 555/ 332 along with positive straight leg raise (SLR), Bragard and Sicard tests. MRI revealed left lateral L5-S1 protruded disc, accompanied by decreased nerve conduction velocity (NCV) at the left peroneal nerve (48 m/sec) and sural nerve (56 m/ sec). Surgery including microdiscectomy followed by caudal epidural steroid injection was completed within 72 minutes under local anesthesia.

Methods and Material

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Results

Twenty-four hours follow-ups showed alleviation of pain as indicated by the numerical rating scale (NRS 2-3). MMT gradually improved as he can do left foot tiptoe at week 2 (MMT 555/ 544). Electrophysiologic studies done two weeks post-surgery showed improvement on the left peroneal nerve (51 m/sec), sural nerve (74 m/ sec) NCV. Neurotrophic drugs and lactate calcium prescrition will continue for 3 more months.

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Conclusion (s)

Discussion

Lumbar microdiscectomy showed immediate effectiveness (70%) and also at 2 years follow-up (65%), so did the endoscopic procedure (90% immediately, 80% within 2 years). Decompression surgery within 7 or 35 days of weakness onset confers a chance of complete recovery.

Conclusion

Minimally invasive approaches under local anesthesia require shorter operation time, minimize the periradicular fibrosis formation, and result in immediate return to normal activity.

Keywords

1. Chronic pain
2. Disc herniation
3. Microdiscectomy
4. Drop foot
5. Short-term surgery

P72
Pivotal Role for Parkinson's Disease Nurse Specialists in the Triage of Urgency During COVID-19 Lockdown: A Preliminary Analysis

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Background / Introduction

During the COVID-19 pandemic, telehealth has become almost 'the essential' in the daily management of parkinsonian patients with benefits being demonstrated in promoting accessible care, increased convenience, enhanced comfort, greater confidentiality, and reduced risk of contagion. In order to ensure that urgent care is delivered in a timely fashion, the Chulalongkorn Centre of Excellence for Parkinson's Disease and Related Disorders (ChulaPD, www.chulapd.org) has established a telehealth protocol for the Parkinson's Disease Nurse Specialists (PDNS) to triage urgent cases for appropriate intervention.

Objectives

To demonstrate the role of the Parkinson's Disease Nurse Specialists (PDNS) in triage of urgent cases for appropriate intervention.

Methods and Material

A telehealth protocol was agreed by the consensus of the ChulaPD multidisciplinary team, consisting of neurologists, PDNS, allied health professionals, and representatives of a patient support group. The criteria for urgency, defined by a significant change of existing conditions with potential clinical deterioration if left untreated, was applied by the PDNS to parkinsonian patients via a telehealth interview in advance of their scheduled appointments. This study reports on a preliminary retrospective analysis of parkinsonian cases who fulfilled the criteria for urgency and the interventions as undertaken by neurologists between April and June 2021.

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Results

Of the 605 patients interviewed by PDNS, 84 patients (13.89%; 74 PD, 10 atypical parkinsonian disorders) met the urgency criteria for immediate evaluation by neurologists (Table 1). The most common indications for urgency in PD patients were worsening freezing of gait (43.24%), followed by visual hallucination (14.86%), and symptomatic orthostatic hypotension (6.76%). For atypical parkinsonian patients, worsening balance (30%) was the most common indication for urgency, followed by frequent falls, and increased rigidity (both 20%). Neurological evaluation resulted in adjustment of medications in 64 PD (86.49%) and 8 atypical parkinsonian (80%) patients. None of these cases required emergency admission.

Conclusion (s)

This study identified a significant proportion of parkinsonian patients with urgent medical problems during the pandemic and provides evidence supporting a major role for PDNS.

Keywords

1. Parkinson's Disease Nurse Specialists
2. Telehealth protocol
3. Management of parkinsonian patients
4. Role of Parkinson's Disease Nurse Specialists

P73
Association of Immune-Mediated Necrotizing Myopathy with COVID-19 Vaccine

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Background / Introduction

The emergence of SARS-CoV-2 that causes coronavirus disease in 2019 (COVID-19) has been declared as global pandemic since February 2020. Efforts have since been taken to speed up the invention of vaccine that would help to curb the pandemic. Various neuromuscular complications of COVID-19 vaccine have been reported, including Bell's palsy and Guillain-Barré syndrome. However, the occurrence of myositis following COVID-19 vaccine has never been reported.

Objectives

We report a case of immune-mediated necrotizing myopathy following COVID-19 vaccination.

Methods and Material

Case report

Results

A 54-year old man presented with calf muscle tightness about 2 weeks after his first dose of Sinovac (CoronaVac®) vaccine. Three weeks later, after the second dose, he progressed to develop bilateral lower limb weakness and dysphagia. At presentation, he was unable to ambulate, had bulbar and neck flexion weakness, and proximal upper and lower limb weakness (MRC grade 2). Sensory examination was normal. His creatine kinase (CK) level was markedly raised at 27000 IU/L. Electromyography showed myopathic changes in the deltoid and iliopsoas muscles. Muscle biopsy was carried out over the left deltoid muscle. Myositis specific autoantibodies profile (Euroimmun®) revealed strongly positive anti-signal recognition

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particle (SRP) antibody. A diagnosis of immune-mediated necrotizing myopathy was made and the patient was treated with intravenous immunoglobulin followed by high dose oral prednisolone (60 mg). The patient has made a slow, gradual recovery with the shoulder abduction power improving to MRC grade 3 and resolution of bulbar and neck flexion weakness. There was also reduction of serum CK to 1200 IU/L.

Conclusion (s)

We report a first case of anti-SRP myopathy associated with COVID-19 vaccine. Although the causal relationship is unclear, an association of immune-mediated necrotizing myopathy with COVID-19 vaccine cannot be excluded.

Keywords

1. COVID-19
2. Necrotizing myopathy
3. Anti-SRP myopathy

P74
Acute Symptomatic Seizures in Renal and Hepatic Failures

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Background / Introduction

Acute symptomatic seizures (ASS) are seizures provoked by underlying medical illnesses such as systemic, metabolic, toxic or central nervous system diseases and occur at the time or in close temporal association with an acute insult.

Objectives

This study describes demographics, etiologies, incidence and EEG findings of ASS in patients with renal and hepatic failure.

Methods and Material

We reviewed the reports of EEG done in RIPAS hospital by the Neurology department (BNSRC) from April 2020 to March 2021. Pertinent clinical data was counterchecked with the hospital's electronic medical record system.

Results

Over a period of 1 year, 146 EEGs were reported for 139 patients including follow ups. Median age was 52 + 21 years with no sex preponderance (53% female vs 47% male). Among the identified 21 diagnoses, metabolic encephalopathy (17.1%) was the most common diagnosis, followed by epilepsy (11.6%) and hypoxic ischemic encephalopathy (7.5%). There were 17 renal failure patients (12.2%) with 4 normal and 13 abnormal EEG findings; diffuse slowing in 10, focal epileptiform discharges in 1 and multifocal epileptiform discharges in 2 patients. There was one patient with hepatic injury which showed diffuse slowing on EEG but none of the patients had hepatic failure. In our study, incidence of acute symptomatic seizures was

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2.16% in renal failure patients. Among all renal failure patients, 16 patients (94%) had additional seizure risks, such as presence of sepsis, previous stroke, previous epilepsy, posterior reversible encephalopathy syndrome, disequilibrium syndrome, and various electrolytes imbalance.

Conclusion (s)

This study proved that incidence of acute symptomatic seizures in renal failure is low. But this does not undervalue the utility of EEG in a great variety of medical illnesses with neurologic manifestations as a diagnostic tool.

Keywords

1. Symptomatic seizures
2. Encephalopathy
3. EEG

P75
Benefit of Immunomodulation Therapy in Glutamic Acid Decarboxylase-65 Autoantibody Related Epilepsy

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Background / Introduction

Glutamic acid decarboxylase (GAD) is the rate-limiting enzyme for the synthesis of γ-aminobutyric acid (GABA), the inhibitory neurotransmitter in the central nervous system. The enzyme is selectively expressed in GABA-ergic neurons and pancreatic β-cells. GAD antibody is associated with multiple neurological syndromes including stiff-person syndrome, cerebellar ataxia, limbic encephalitis and temporal lobe epilepsy. GAD antibodies were first associated with refractory temporal lobe epilepsy in 1998, the third most common among GAD65 Ab associated neurological conditions.

Objectives

To show the benefit of immunomodulatory therapy in Glutamic Acid Decarboxylase-65 Autoantibody Related Epilepsy.

Methods and Material

We describe 5 patients admitted to our Centre with seizures. The clinical data were collected using the hospital's electronic record system.

Results

Recurrent seizures were noted in all patients and were confirmed with clinical episodes and Electroencephalography (EEG) correlate. All patients received at least 2 different Anti-seizure Medications (ASM) of therapeutic dose. Other possible etiologies were excluded by MRI scans, Cerebrospinal fluid (CSF) examination and blood tests. Anti-GAD65 antibodies were detected in the serum of all patients and CSF of 1 patient.

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The antibody titers were ranging from 3 fold to 14 fold in these patients. None of the patients have diabetes and 1 patient has history of breast cancer. The seizures were refractory despite multiple ASMs but showed improvement upon combination with one or more of the immunomodulatory therapies (Intravenous immunoglobulin, Rituximab and Plasmapheresis).

Conclusion (s)

The seizures seen in our patients were most likely related to Anti-GAD65 Ab. The improvement is seen after Anti-Seizure Medications were combined with immunomodulatory therapy. The pathogenic role of Anti-GAD Ab in Neurological conditions is still debatable. But for patients with refractory seizures and Anti-GAD positive titers, an autoimmune etiology should be considered. In our case series, we have shown that immunomodulatory therapy is beneficial.

Keywords

1. Glutamic acid decarboxylase (GAD)
2. Immunomodulatory therapy
3. Refractory seizures

P76
Ischemic Strokes from Aortic Arch Atherosclerosis, The Prevalence in Suspected Embolic Stroke Population

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Background / Introduction

Aortic arch atheroma/atherosclerosis (AAA) is associated with a high risk of recurrent vascular events including ischemic strokes (IS). It is one of the important sources of cerebral embolism and is mainly diagnosed with transesophageal echocardiogram (TEE).

Objectives

This study determines the event rate of AAA among IS patients admitted to BNSRC, who were suspected of embolic etiology; and describes demographic, cardiovascular risk factors and neuroimaging profiles of the identified patients.

Methods and Material

This observational study was carried out in BNSRC from February 2020 to July 2020. We included IS patients of suspected embolic etiology, wherein a TEE was done. Patient data were collected from clinical files reviewed using the hospital's electronic medical record system.

Results

Over a period of 6 months, 58 patients with IS suspected of embolic etiology were investigated with TEE. The median age was 54 years (±13.54), with male predominance (71%). There were 8 patients (14%) with AAA on TEE, however only 6 patients (10%) have isolated AAA without other cardiac abnormalities. Among AAA patients, mean age was 67.67 (±12.04) years, with no sex predominance (male=50%) and majority (83%) age over 60 years. All have cardiovascular risk factors of hypertension and dyslipidemia, 67% have

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diabetes mellitus. Majority (67%) had multiple infarcts on brain MRI. Half of these patients were given dual antiplatelet therapy (aspirin plus clopidogrel) for 3 months, followed by a single agent on top of best medical management. No recurrent cardiovascular events, bleeding complications or mortality were reported among these patients after one year of follow-up.

Conclusion (s)

In this preliminary study of IS patients suspected of embolic etiology in Brunei, AAA as an identified source is not uncommon. These patients tend to belong to the older age group and had multiple cardiovascular risks. Prospective study for recurrent cardiovascular events and mortality among these patients is recommended.

Keywords

1. Aortic arch atherosclerosis
2. Ischemic stroke
3. Prevalence in Brunei

P77
Experience in Immunotherapy for Neurological Diseases at Brunei Neuroscience, Stroke and Rehabilitation Centre During the Coronavirus Disease 2019 Pandemic

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Background / Introduction

The first case of Coronavirus Disease 2019 (COVID-2019) was reported in Brunei on 9th March 2020 and heralded the first wave of the pandemic. With timely national policies and movement restriction orders, the first wave was curbed by May 2020. Brunei was fortunate with no local transmissions for up to 437 days. In the interim, COVID-19 vaccines were sourced and the national vaccination program began in April 2021. The second wave started on 5th August 2021.

Objectives

We share our experience in managing Neuroimmunologic Diseases (NID) at the Brunei Neuroscience Stroke and Rehabilitation Centre (BNSRC) during this pandemic.

Methods and Material

Case files of patients with NID requiring immunotherapy managed by team Delta M from March 2020 to September 2021 were reviewed.

Results

Fifty cases identified included 2 cases of multiple sclerosis, 10 cases of neuromyelitis optica, 3 cases of optic neuritis, 5 cases of autoimmune encephalitis, 2 cases of acute demyelinating encephalomyelitis, 1 case of acute inflammatory demyelinating polyneuropathy, 7 cases of myasthenia gravis, 4 cases of central nervous system (CNS) vasculitis, 2 cases of CNS lupus, 1 case of progressive encephalomyelitis with rigidity and myoclonus, 2 cases of myositis, 3 cases of Tolosa Hunt syndrome, 3 cases of lumbosacral plexopathy and 5 cases of

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Sjogren-related polyneuritis multiplex with small fibre neuropathy. Modalities of immunotherapy included plasmapheresis, intravenous immunoglobulin or methylprednisolone as first line or rescue. Maintenance longer term immunotherapy included intravenous rituximab, cyclophosphamide, mycophenolate and azathioprine. All patients were counselled about the risks of infections with immunotherapy and their regimens tailored so that they could be optimally vaccinated for COVID-19 with mRNA vaccines. No patients had COVID-19 whilst on immunotherapy. 3 cases were possibly related to COVID-19 vaccination. We have not been referred any patients with COVID-19 who had neurological disorders.

Conclusion (s)

During pandemics, it is prudent to balance the individual risks and benefits before intiating, continuing or discontinuing any immunotherapy for NID.

Keywords

1. Immumotherapy
2. Neuroimmunologic diseases
3. COVID-19 pandemic

P78
The Profile of Clinical and Laboratory Findings of Hypoxic Encephalopathy and Septic Encephalopathy in Covid-19

Background / Introduction

Encephalopathy is a global dysfunction of brain caused by other metabolic problems and not primarily from the brain. Encephalopathy is one of the major and devastating neurologic complication of Covid-19. Hypoxic/metabolic changes produced by intense inflammatory response against the virus triggers cytokine storm and subsequently acute respiratory distress syndrome and sepsis.

Objectives

To identify clinical and laboratory profile of Hypoxic and Septic Encephalopathy in Covid-19 patients of Dr. Sardjito Hospital, Yogyakarta, Indonesia.

Methods and Material

This is a descriptive study with cross-sectional approach. All encephalopathy patients both hypoxic and septic encephalopathy with confirmed Covid-19 from January 2020 to August 2021 were included.

Results

There were 69 cases of encephalopathy in Covid-19 confirmed patients, 40 (57.97%) of them had hypoxic-ischemic encephalopathy (HIE) and 29 (42.03%) had septic encephalopathy. The clinical profile showed that saturation rate is significantly different between septic (90.57) and hypoxic encephalopathy (78.38) with p-value 0.001. The Complete Blood Count examination showed significantly higher leukocyte, neutrophil count, and neutrophil lymphocyte ratio (NLR) for septic encephalopathy compared with hypoxic with p value <0.05.

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Conclusion (s)

Encephalopathy in Covid-19 showed different mechanism of consciousness alteration. Low oxygen saturation caused hypoxic encephalopathy from global brain hypoperfusion. High leucocyte caused high inflammatory reaction, and this led to sepsis condition and vascular dysfunction, mitochondrial failure and neurotransmitter imbalances.

Keywords

1. Covid-19
2. Encephalopathy
3. Hypoxic
4. Septic