HPO1/20
Headache, papilloedema, and pancytopenia: A great masquerader revisited
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Background: Only high suspicion index can help in the correct diagnosis of some secondary headaches. We present an unusual case of secondary headache in a young patient.

Case Report: An 18-year-old female presented with low-grade fever, decreased appetite and migrainous headaches especially during early morning for 2 months. She had transient visual obscurations and double vision. Examination revealed significant pallor, bilateral Grade IV papilloedema with superficial retinal hemorrhages, bilateral lateral rectus palsy, and positive Kernig’s. Her noncontrast computed tomography of the head was normal. CECT revealed basal exudates without any other abnormality. A possibility of chronic meningitis with secondary headache was considered. However, the cerebrospinal fluid tap was hemorrhagic. Further investigations showed pancytopenia with Hb-6 g/dl, TLC-2800/cumm, platelet count-10000/cumm, and ESR-85 mm/h. Corrected reticulocyte count was 1.3% and coombs was negative. ATT and oral steroids were started empirically. The patient became a febrile with better appetite but pancytopenia persisted. Bone marrow aspiration revealed hypocellular narrow with normal cells. Contrast-enhanced magnetic resonance imaging of the brain showed multiple subdural bleeds with diffuse pachymeningeal enhancement and normal magnetic resonance angiography and magnetic resonance venography. In view of persistent pancytopenia, her autoimmune profile was done. She was positive for ANA (3+, speckled pattern), ds-DNA and U1-SnRNP. Antiphospholipid antibodies and proteinuria were negative. ATT was stopped and pulse methyl-prednisolone for 5 days followed by oral steroids was given. She became asymptomatic with complete reversal of pancytopenia. The final diagnosis of systemic lupus erythematosus (SLICC criteria) presenting as headache, fever, and pancytopenia was made. At 3 months follow-up, she remains asymptomatic on low dose of steroids.

Conclusion: SLE is a great masquerader which occasionally can present only as headache and pancytopenia.

HPO2/23
Atherosclerosis-related risk associations in cluster headache: A case–control study
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Background: Cluster headache (CH), a rare primary headache disorder unlike migraine occurs more commonly in older males with significant smoking history. Therefore, it would be interesting to know if CH patients have increased atherosclerotic predisposition. Aims: To study Atherosclerotic Related Risk Associations (ARRA) in CH and compare them with healthy controls. Methods: We comprehensively evaluated 11 ARRA, namely hypertension, BMI, waist-hip ratio, ankle-brachial index, lipid profile, fasting blood sugar, hsCRP, fasting serum insulin and leptin, intima-media thickness (IMT), and coronary computed tomography calcium score in CH patients and controls. We calculated ARRA score (0–11) for each patient and control. Results: A total of 30 CH patients (mean age: 40.5 years, mean illness duration 9.95 ± 9.98 years) and 30 age-matched and sex-matched (mean age 40.1 years) controls were studied. Significant differences were found in CH patients for 5/11, ARRA, namely elevated diastolic blood pressure (74.3 vs., 68.1, P = 0.003), elevated total cholesterol (188 vs. 167.3, P = 0.04), reduced HDL (44.5 vs. 49.1, P = 0.02), elevated fasting blood sugar (95.8 vs. 88.2, P = 0.03), elevated hsCRP (2.6 vs2.1, P = 0.03), and raised IMT (RIMT 0.69 vs. 0.55, P = 0.002 and LIMT 0.69 vs. 0.55, P = 0.02). Nearly 46.7% of CH patients had metabolic syndrome. ARRA score was significantly higher in CH than in controls (3.27 ± 1.57 vs. 2.1 ± 1.61; P = 0.003). Conclusions: CH patients have increased atherosclerotic predisposition as compared to healthy controls. Therefore, it is important to identify these risk associations and treat them additionally along with life style modifications to prevent atherosclerotic-related diseases.

HPO3/41
Episodic headache with intermittent blurring of vision with dysarthria, ataxia, and progressive hearing loss: An unusual presentation of neoplastic meningitis due to adenocarcinoma of lung
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A 55-year-old female presented with complaints of episodic headache, intermittent blurring of vision for which she was treated as a migraine in January 2018. In April 2018, she presented with headache, further deterioration of vision with episodes of unresponsiveness with ataxia, dysarthria, and headache. She was admitted and investigated further. Magnetic resonance imaging with venogram showed mild chronic ischemic changes with some leptomeningeal enhancement and irregularities of venous sinuses suggesting recanalized venous sinuses due to prior thrombosis. Lumbar puncture was done cerebrospinal fluid (CSF) opening pressure was 300 cm of H₂O with normal sugar/protein but 9 cells. She was treated as idiopathic intracranial hypertension with resolving venous sinus thrombosis with Diamox and repeated lumbar puncture. All the cerebrospinal fluid (CSF) showed mild pleocytosis but were negative of GeneXpert, bacterial, and fungal cultures as well as abnormal cells. In view of persistent symptoms and CSF cellularity, a positron-emission tomography–computed tomography (PET-CT) was done which showed a heterogeneously enhancing speculated soft-tissue mass along the right middle lobe of the lung. Computed tomography (CT)-guided biopsy confirmed adenocarcinoma of the lung, positive for epidermal growth factor receptor mutation. She was started on oral chemotherapy (Osimertinib). A patient with persistent neurological symptoms and CSF showing borderline abnormality should be investigated thoroughly to rule out neoplastic etiology, and PET-CT can be a useful modality for this.
HPO4/143

Migraine with aura: Headache and aura characteristics and treatment outcome

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Background: Migraine with aura (MA) has been sparsely reported from India. A comprehensive evaluation will be useful. Aim: The aim of this study is to study clinical profile and treatment outcome in MA. Methods: Consecutive MA patients (ICHD 3 β), attending headache clinic were prospectively evaluated by structured pro forma. Results: A total of 71 MA patients (mean age: 31.5 years [range 10–60 years], 13M: 58F, 83% episodic, 17% chronic, and mean illness duration 85 months) were studied. The mean headache attack duration, attack frequency, and severity (visual analog scale) were 24 h, 10.6/months and 7.1, respectively. Nearly 75% had holocranial, 7% side-locked, and 18% hemispherical side-shifting headaches. Throbbing character (86%), nausea (84%), vomiting (45%), photophobia (96%), phonophobia (91%), inhibition of activity (56%), alldynia (20%), vertigo (11%), and dysautonomia (21%) were reported. Visual aura (91%) included scintillating scotomas (15%), fortification spectra (15%), flashes of bright-colored light (35%), black spots in front of eyes (18%), blurred vision (3%), halos (5%), obscurations (6%), and tubular vision (1.5%). Brainstem aura (6%) consisted of vertigo, ataxia, and dysarthria. Sensory aura (3%) consisted of tingling from the shoulder region to hand. Mean aura duration was 29.6 min. None presented with isolated auras. Nearly 82% received monotherapy and 18% polytherapy. Nearly 54% received flunarizine, while the rest received propranolol (32%), amitriptyline (13%), and topiramate (10%). At 3 months, 10% had complete remission, 69% >50% reduction in attack frequency and 21% did not respond. Conclusions: MA patients can have wide spectrum of visual manifestations. Flunarizine is particularly helpful.

HPO5/202

A single-center observational study on patients with idiopathic intracranial hypertension

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Introduction: Idiopathic intracranial hypertension (IIH), a condition primarily seen in young, obese females, starting with episodic headache, may threaten vision if not addressed timely. This study aimed to observe the clinical profile of IIH patients and their response to therapy. Methods: Retrospective data from IIH patients under regular follow-up was collected including age, sex, body mass index, comorbidities, drug history, presenting symptoms, and response to therapy. Distant visual acuity, perimetry, optical coherence tomography (OCT), optic nerve sheath diameter (ONSD), cerebrospinal fluid studies, magnetic resonance imaging brain, and venography were analyzed, and response to treatment (acetazolamide/shunt surgery) studied. Results: A total of 29 patients were included in this study. Nearly 24 (82%) were females with mean age 38 ± 9.8 years and mean body mass index 26.98 ± 2 kg/m². 5(17%) had exposure to hormonal therapy, retinoic acid, or excessive Vitamin D. Symptoms included headache-28(97%), vision loss-20(68.5%), transient visual obscurations (TVO)-19(65.5%), and diplopia-7(24%). Mean CSF opening pressure was 25.5 ± 7 cmH₂O. 11(38%) patients had visual-acuity? 6/18; 25(86%) had field defects. Mean ONSD was 6.5 ± 0.6 mm; 14(48%) had reduced RNFL thickness. Acetazolamide mean peak therapeutic dose was 1391 ± 341 mg/day. With inadequate response, 31.6 ± 12days (mean) after diagnosis, 5(17%) patients underwent thecoperitoneal shunt surgery. Three months into therapy, 73% (mean) subjective improvement in headache was reported. Conclusion: Majority of the patients were overweight females in 25–50 years age group. headache, visual diminution and TVO were the most common symptoms. OCT and ONSD correlated well with symptoms. Acetazolamide and/or shunt surgery were effective therapies.

HPO6/203

A study of cognitive impairment in migraine patients and its relationship with anxiety, depression, and sleep quality

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Aim and Objectives: The aim and objectives of this study are to analyze the occurrence of cognitive impairment in migraine patients and its relationship with anxiety, depression, and sleep quality. Methods: This study is a pilot study done in the Institute of Neurology, Madras Medical College. Migraine patients fulfilling the inclusion and exclusion criteria with their consent were included in this study. They are divided into two groups: 1 with cognitive impairment and 2 without cognitive impairment based on Montreal Cognitive Assessment and ACE-III Scoring. The Headache Impact Test-6, Visual Analog Scale, Generalized Anxiety Disorder-7, Patient Health Questionnaire-9, and Pittsburgh Sleep Quality Index were used and analyzed between the two groups. Results: A total of 50 patients with migraine, aged 37.1 ± 10.3 years, were enrolled. The male-to-female ratio is 1:2.5 and 44% of participants were identified as with cognitive impairment. Attention was mainly impaired among the cognitive subsets. Migraineurs with cognitive impairment reported higher headache pain intensity and headache impact, as well as the greater prevalence of anxiety, depression, and reduced quality of sleep compared to migraineurs without cognitive impairment. Conclusion: Cognitive impairment seems relatively common in older patients with migraine. Migraineurs with cognitive impairment were more anxious, depressed and have poorer sleep quality than those without cognitive impairment. The results support the importance of searching for subclinical cognitive disturbance in migraine patients who deserved to be followed up to verify whether they develop clinically relevant disorders over time. However, it requires a large sample to validate this study.

HPO7/332

A headache-right off the woods

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Abstracts
Scrub typhus is a rickettsial disease caused by Orientia tsutsugamushi, the incidence of which is being on the rise in the recent past. There are several systemic manifestations of scrub typhus including the involvement of central nervous system which is reported mostly from South India. We describe the first case of scrub typhus meningitis with bilateral papilledema and other clinical features of raised intracranial pressure from North India. The patient presented with isolated CNS manifestation. Considering the recent increase in scrub typhus in India, a proportionate increase in the neurological complication has to be anticipated. The diagnosis was made based on the clinical picture and a positive IgM ELISA for scrub typhus. The patient improved completely with oral doxycycline. We emphasize the need for a high degree of clinical suspicion and familiarity with the various central nervous system manifestations including bilateral papilledema to allow early diagnosis and treatment thereby reducing the patient morbidity and mortality.

DPO1/36
Idiopathic normal pressure hydrocephalus presenting as psychosis
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Introduction: Idiopathic normal pressure hydrocephalus (iNPH) is a syndrome characterized by gait disturbance, dementia and urinary incontinence, and dilatation of ventricular system with normal opening cerebrospinal fluid pressure. iNPH presenting as psychosis is uncommon. Aim: The aim of this study to describe iNPH presenting as psychosis. Method: Patients availing dementia care service from tertiary care hospital with a diagnosis of psychosis were evaluated for psychosis. Observations and Results: Three patients presenting as psychosis are described. All the patients were diagnosed as having hydrocephalus as per the consensus criteria. Patient 1 was a 55-year-old female with psychosis was found to have iNPH. She gave a history of psychosis relieved with successful shunting of the hydrocephalus. She developed the recurrence of psychosis each time the hydrocephalus recurred due to shunt malfunction and was relieved with correction of hydrocephalus with shunting. Patient 2 was a 67-year-old male with a long history of psychosis with paranoid ideas. Five years after the onset of illness, he developed gait apraxia and a computed tomography scan done showed hydrocephalus. Patient 3 had bipolar illness since the age of 60 years of age. He also developed gait apraxia 5 years into the illness and was diagnosed as having iNPH following imaging. Conclusions: All the patients had psychosis much before other features of iNPH developed. One of the patient’s psychosis was temporally associated with onset and offset of hydrocephalus thereby strongly supportive the causative nature of iNPH than just coexistence. iNPH though rare can be one of the causes for late-onset secondary psychosis.

DPO2/37
Forgotten psychiatric comorbidity in neurological disorders
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Introduction: To look for the association of psychiatric comorbidities in epilepsy, headache, and stroke, this study was undertaken as very few studies have been reported from this part of the country so that we can help patients in improving their quality of life. Materials and Methods: Fifty patients each of proved epilepsy, stroke, and headache were enrolled after consent and they were put to screening using the Global Mental Health Assessment Tool (GMHAT) questionnaire and at the same time, the Department of Psychiatry assessed comorbidities – depression and anxiety – and made diagnosis using the Hamilton Anxiety Rating Scale (HAM-A) and Hamilton Depression Rating Scale (HAM-D) scale, respectively. Results: The GMHAT tool showed that 50% of the patients having a headache, 80% of the patients who had stroke, and 72% of the patients suffering from epilepsy had psychiatric comorbidities. The HAM-A scale showed that 40% of the patients having a headache, 16% of patients suffering from epilepsy, and 30% of patients with stroke had anxiety as psychiatric comorbidity. The HAM-D scale showed depression in 30% of the patients having headache, 36% of the patients with epilepsy, and 60% of the patients who had stroke. Conclusion: Results of our study showed that depression and anxiety are the most frequently encountered psychiatric comorbidities. In our study, it was seen that depression was more common as compared to anxiety in patients with epilepsy and stroke.

DPO3/97
Cognitive dysfunction in vertigo patients
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Introduction: Vertigo is a common symptom that occurs in both central and peripheral pathologies. Most vertigo questionnaires concentrate on the physical symptoms and impact on the quality of life. The Neuro-Psychological Vertigo Inventory (NVI) evaluates the physical, emotional, and cognitive complaints in one single questionnaire and hence used in our study. Aim: The aim of this study is to find out cognitive problems in patients suffering from vertigo using a new questionnaire. Methodology: A total of 50 patients suffering from vertigo and related problems presenting to the Neurology Outpatient Department of Madras Medical College were selected using appropriate inclusion and exclusion criteria. They were evaluated using The NVI which is a new questionnaire that determines cognitive and emotional neuropsychological complaints in vertigo patients. Results: Out of 25 patients, 13 were females, and 12 were males. Average scores of all females were 58.7, and average scores of all males were 52. They were subclassified into three age groups, and average score of each age group calculated. Similarly, average scores of each of the seven domains in NVI were calculated. Based on the duration patients were classified into three groups and the correlation between duration of vertigo and average scores was done. Conclusion: Average scores of female patients were more than male patients.41–55 age group patients had highest average scores, and patients with longer duration of the vertigo had higher scores. Time perception and space perception scores were lower; attention and emotion scores were higher; and memory, motor, and vision had intermediate scores higher the cognitive complaints – higher the emotion
scores. Patients with increased severity of vertigo had more psychological distress.

**DPO4/113**

**Sporadic Creutzfeldt–Jakob disease: Report of two cases**

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**Introduction:** Creutzfeldt–Jakob disease is a rare fatal rapidly progressive dementing disorder. The estimated annual incidence was 0.5–1.5 per million population and incidence of 0.085 per million is recorded in India. Hereby, we report the two cases of Sporadic Creutzfeldt–Jakob disease presenting as rapidly progressive neurodegenerative disorder.

**Case Reports:** A 40-year-old female cook by occupation presented with one and a half month history of altered behavior, blurred vision, swaying while walking, which progressed to a kinetic mute rigid state with myoclonus with right focal motor seizures. Her routine basic investigations were normal with magnetic resonance imaging (MRI) brain showing diffusion restriction in bilateral caudate and putamenal areas with cortical ribboning, cerebrospinal fluid (CSF)-14-3-3 positive with EEG suggestive of prion disease. A 50-year-old female, alcohol vendor by occupation, presented with 2 months history of asthenia, abnormal posturing of the right upper limb, slowness in daily activities, memory disturbances followed by chorea of both upper limbs with speech disturbances which progressed to a kinetic mute state with myoclonus. Her CSF 14-3-3 was positive, and MRI brain has similar findings as the previous case, other investigations being normal. **Conclusion:** Creutzfeldt–Jakob disease is a fatal neurodegenerative disorder with rapid progression which is considered to be underreported. Behavioral changes, global cognitive decline, cerebellar ataxia, visual symptoms, and myoclonus rapidly progressing into a kinetic mute state are the classical scenario described. Here, CSF 14-3-3 and MRI Brain clinched the diagnosis which differentiates from other treatable conditions and leads to early hospice care according to present management strategies.

**DPS5/220**

**The Montreal Cognitive Assessment: Normative data from Tamil (Indian)-based population**

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**Background:** The Montreal Cognitive Assessment (MoCA) is a screening instrument used to assess different aspects of cognition. Normative data for Tamil MoCA has not been obtained yet. Such norms are important because performance on neuropsychological tests varies according to age, sex, and education. **Objective:** The objective of this study to establish normative data for Tamil MoCA in Indian population aged between 30 and 50 years from the Institute of Neurology, Madras Medical College which is a part of the ongoing pilot study in our institute. **Methods:** A total of 40 healthy individuals with their proper consent, between the age group 30 and 50 years selected, MoCA test performed using 7.1 version of Tamil MoCA format, and data obtained. **Results:** Mean MoCA score in this study found to be 26.25 ± 2.38. Females had 26.4 ± 2.58, those have >10th class education had score 27.69 and with <10th class had 24. Males had 26.1 ± 2.22 those having >10th education had score 27.72, and with <10th education had 24.11. Thus indicated that older age (P < 0.01), lower education (P < 0.01), and male sex (P < 0.05) were associated with poor MoCA score. **Conclusion:** This study provides normative data for the Tamil MoCA test in 30–50 age group in Indian population. This data will help us in comparing and validating the further ongoing studies.

**DPO6/233**

**Autoimmune encephalitis: An important cause of reversible and rapidly progressive dementia**

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**Introduction:** Rapidly progressive dementia is mostly an intractable and irreversible illness characterized by rapid disease progression within 1 year. The most common cause of rapidly progressive dementia was considered to be prion disease Creutzfeldt-Jakob disease. However, in the recent past, autoimmune encephalitis has been recognized as a reversible condition which leads to rapidly progressive dementia. Here, we present two cases of autoimmune encephalitis who presented with rapidly progressive dementia. **Case 1:** A 60-year-old male presented with a history of rapidly progressive forgetfulness from last 3 months. History of myoclonic jerks presents from the last 2 months. On examination, GCS was E4V5M6 and MMSE was 17/30. Blood investigations were showing hyponatremia (Serum sodium– 126 meq/l). Magnetic resonance of the brain was showing mild signal changes in the bilateral temporal lobe. Hence, serum and CSF Anti-LGI1 antibody level were sent which was positive. The patient was then started on Injection methylprednisolone along with intravenous immunoglobulin and improved. **Case 2:** A 58-year-old male presented with a history of rapidly progressive forgetfulness from the last 7 months. On examination, MMSE was 11/30. Faciobrachial dystonia was present. Blood investigations were showing hyponatremia (Serum sodium was 124 meq/l). MRI of the brain was showing signal changes in bilateral temporal lobe. CSF Anti-LGI1 antibody level was positive. The patient was started steroids along with intravenous immunoglobulin. The patient got significant improvement. **Conclusion:** Anti-LGI1 is a reversible cause of rapidly progressive dementia. Early diagnosis and aggressive treatment can prevent cognitive and behavior damage.

**DPO7/239**

**Case series of Creutzfeldt–Jacob disease at a tertiary care level in Telangana**

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**Background and Purpose:** Creutzfeldt–Jacob disease is a rapidly progressive neurological disorder caused by prion proteins, still considered rare in India due to decreased
The auditory verbal learning test (AVLT) is a neuropsychological tool widely used to assess functions such as attention, memory, and learning ability in the auditory-verbal domain. There is currently a lack of Indian normative data, and International normative data applied to our population might lead to inaccurate assessment especially in the diagnosis of demented patients. **Objective:** The objective of this study is to establish normative AVLT data in Indian population. **Methods:** AVLT was administered on 40 randomly selected healthy individuals who were a part of an on-going pilot study at the Institute of Neurology, Madras Medical College, Chennai, Tamil Nadu, India. **Results:** A total of 16 patients were retrospectively reviewed and diagnosed of probable sCJD using the European diagnostic criterion between December 2015 and January 2018 with females 75% (12); 40–60 years age group-62% (10); Farmer’s-50% (8); clinical presentation: dementia-100%, EPS-75%, behavioral-62%; cerebellar-20%; MRI imaging: U/L cerebral hemisphere + B. G lesions-62%, B/L Hemisphere-25%; EEG : 38%-PLED’s, 31%-diffuse slowing and triphasic waves; NCS: Axonal 31%; PET imaging 6/6-positive. **Conclusion:** Our study showed preponderance of CJD disease in female sex and farmers. Dementia and extrapyramidal features were common presenting symptoms, with unilateral MRI lesions. Functional imaging remains a useful technique that supports DWI findings in reaching the diagnosis in atypical presentations of CJD. The prevalence of this disease in India needs more elaborate studies.

**DPO8/324**

**Normative auditory verbal learning test in Indian population**

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**Background:** The auditory verbal learning test (AVLT) is a neuropsychological tool widely used to assess functions such as attention, memory, and learning ability in the auditory-verbal domain. There is currently a lack of Indian normative data, and International normative data applied to our population might lead to inaccurate assessment especially in the diagnosis of demented patients. **Objective:** The objective of this study is to establish normative AVLT data in Indian population. **Methods:** AVLT was administered on 40 randomly selected healthy individuals who were a part of an on-going pilot study at the Institute of Neurology, Madras Medical College. Individuals with a history of any neurological/medical conditions, head trauma, substance abuse and cognitive dysfunction were screened and excluded from the study. **Results:** The study group had a mean age of 37.5 ± 5.7 and education years of 16.5 ± 7.11. The mean values of list a trial 1, 2, 3, 4 and 5 were 7.9 ± 2.2, 9.9 ± 1.7, 10.5 ± 2, 11.4 ± 1.9, and 12 ± 1.8, respectively. Immediate and delayed recall was 11.1 ± 2.14 and 9.6 ± 1.9. Pearson’s correlation analysis (P < 0.001) showed a significant association between AVLT performance with age (r = 0.354) and education (r = 0.259) but not between AVLT performance and gender (r = -0.016). **Conclusion:** This study helps further to establish a reference baseline AVLT values in our population. The normative AVLT data collection in this study showed significant AVLT association with age and education but not with gender.

**DPO9/334**

**Predicting the severity of cognitive impairment from coexisting nonmotor symptoms in patients with dementia**

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**Introduction:** Dementia is the loss of cognitive functioning, thinking, remembering, and reasoning and behavioral abnormalities to such an extent that it interferes with a person’s daily life and activities. The World Health Organization (WHO) predicts that worldwide about 75% of the estimated 1.2 billion people, aged above 60 years, will suffer from dementia by 2025. According to the WHO, the rate of growth will be highest (around 336%) in India, China, South Asia, and Western Pacific regions. Several nonmotor symptoms also coexist with dementia. The aim of the study is to predict the severity of cognitive impairment from coexisting nonmotor symptoms in patients with dementia. **Methodology:** A total of 100 participants clinically diagnosed with various types of dementia were recruited from the outpatient department of a neurospeciality hospital in eastern India. Montreal Cognitive Assessment Scale (MoCA) was used to assess the severity of cognitive impairment and Neuropsychiatric Inventory (NPI) was used to assess the nonmotor symptoms. **Results:** The mean age of the population (M:F = 57:43) was 66.16 ± 8.465 years. No significant correlation were found between MoCA and NPI scores (r = −0.34; P = 0.744). However, the cognitive impairment was significantly higher in patients who presented with hallucination (P = 0.025). **Conclusion:** We conclude that hallucination could be one important predictor for higher severity of cognitive impairment in patients with dementia. The severity of cognitive impairment does not depend on other coexisting nonmotor symptoms.

**DPO10/352**

**Palliative care needs in dementia: A preliminary study**

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**Introduction:** Palliative care approach can help to mitigate patients’ and families’ concerns and needs in dementia. Palliative care needs in dementia, though increasingly being recognized, have received limited attention in India. **Aim:** The paper aims to assess the caregiver burden and palliative care needs in Dementia. **Method:** A cross-sectional descriptive study was performed among thirty patients diagnosed with dementia (male and female) and their caregivers who were receiving treatment from a national tertiary referral center for neurological disorders. All the patients were diagnosed with dementia based on clinical evaluation and radiological findings. The family members were spouses, son or daughter or siblings. Functionality, palliative care needs, and caregiver burden were assessed with standardized scales including sociodemographic schedule, schedule to assess palliative care needs in dementia, Clinical Dementia Rating (CDR), Scale, Integrated Palliative Care Outcome Scale – Dementia and Zarit...
Burden Interview. Mean age of patients was 61, with 73% of them being male. Results: Palliative care needs emerged as an important concern among the group studied. Applicability of palliative care, person-centered communication-shared decision-making, psychosocial and spiritual support, family care and involvement were some of the areas emerged. Nearly 83% of the caregivers spent more than 15 h per day in caregiving. Further results will be presented. Conclusion: Palliative care approach in dementia is an important area that needs to be recognized and adopted from the early stages of the diagnosis. Multidisciplinary teamwork is essential to meet the patients’ and caregiver’s support needs.

**Friday, September 28, 2018, 10:15-14:00 h**  
**Poster Session – 02: Movement Disorders**  

**MPO1/6**  
**Midbrain arteriovenous malformations presenting as Young-Onset Parkinson’s disease**  
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Brainstem arteriovenous malformations (AVMs) are rare and complex lesions. These lesions have been described to constitute between 2% to 6% of all brain AVMs. Aneurysms involving the middle cerebral artery, vertebral artery, or posterior cerebral arteries can cause secondary Parkinsonism, but benefit from optimized medical therapy remains unknown. Structural lesions that impair the nigrostriatal pathway rarely produce dopa-responsive Parkinsonism but more commonly this type of Parkinsonism has little, if any, response to levodopa. Although Parkinsonism is a rare complication of aneurysm, it is important to recognize it as potentially treatable condition. We present a case of a 37-year-old male who presented with subacute onset tremulousness of the right hand with slowness of body movements and stooped posture with no history of postural giddiness, cranial nerve dysfunction, weakness of any body part with no bowel bladder dysfunction, altered behavior or altered mentation, no history of forgetfulness or unsteadiness or history suggestive of collagen vascular disorder, no history of any drug intake, or any prior viral infection. Clinical features were suggestive of young onset Parkinson’s disease, and MRI brain showed midbrain AVM. This case adds to the growing evidence that Parkinsonism secondary to structural brain lesions involving midbrain may also respond to levodopa. Hence, it is mandatory to rule out secondary causes of Young-Onset Parkinson’s disease in certain situations so that treatable causes can be addressed specifically.

**MPO2/15**  
**Prevalence of nonmotor symptoms in patients of Parkinson’s disease treated in Tirunelveli Medical College Hospital**  
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Introduction: Parkinson’s disease is characterized mainly by its motor symptoms of resting tremors, rigidity, hypokinesia and postural instability. However, it is also associated with nonmotor features such as postural hypotension, constipation, urinary urgency and incontinence, anosmia, insomnia, and rapid eye movement (REM) sleep disorders being the most prominent. Aim and Objectives: This study is about investigating the prevalence of the major nonmotor features parkinsonism and the age wise distribution of these symptoms, within the selected population residing in and around Tirunelveli district of southern Tamil Nadu. Results: Nearly 71% of all the studied cases had at least one nonmotor symptom. Nearly 49% had two or more symptoms, and 29% had 3 or more nonmotor systems. The study findings revealed that insomnia is the most common symptom, which was present in 43% of cases. Constipation was present in 26%, REM sleep disorders in 23%, postural hypotension in 20%, anosmia in 26% with anosmia testing being positive only in about 6%, while the rest gave a history of smell impairment. Urinary frequency, urgency, and incontinence were present in 26% of cases which include 9%, who have urinary incontinence. The average age of study participants was 60.8. The average duration of illness was 3.6 years. Patients with anosmia and constipation belonged to comparatively older age groups with a mean age of 63.2. Postural hypotension was present in a younger age group, with mean age of 58.3. Nearly 71% of patients with anosmia also had coexisting REM sleep disorder. Nearly 63% of those with REM sleep disturbance also had anosmia.

**MPO3/31**  
**A rare presentation of Wilson’s disease with predominant corticospinal tract involvement**  
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A 20-year-old female presenting with complaints of Weakness of all four extremities for 4 years, difficulty in speaking, for 1 year, Weakness was insidious in onset, gradually progressive, of moderate severity, in both proximal and distal parts of the upper and lower limbs, which was also associated with stiffness. Speech has become slower, with difficulty in articulating syllables. Comprehension, repetition, reading, and writing were normal. There were no complaints of involuntary movements, tremors, dystonia, and unsteadiness of gait. No complaints of behavioral disturbances. No history of similar illness within family members and her parents did not have a consanguineous marriage. Examination: Kayser–Fleischer rings were observed in both her eyes. She had pseudo bulbar type of dysarthria. Her gag reflex and jaw jerk were exaggerated. Muscle tone in all her extremities was spastic, with moderate degree of proximal and distal weakness. All her deep tendon reflexes were exaggerated, and plantar response was extensor on both sides. Investigations: Serum ceruloplasmin: 9.39 mg/dl (20–60 mg/dl), 24 h urine Copper: 614.6 mcg/day (3–50 mcg/day), USG Abdomen: Coarse and heterogenous echotexture of liver, consistent with cirrhosis. Magnetic resonance of the brain with contrast: T2/FLAIR hyperintensities without contrast enhancement over bilateral basal ganglia, thalamus, midbrain, pons, and periaqueductal gray matter. Discussion: Wilson’s disease presents with hepatic, neurologic, and psychiatric manifestations. These include dysarthria, dystonia, tremors, parkinsonism, Choreoathetosis, ataxia, seizures, and cognitive impairment. Hyperreflexia and tics have been rarely reported. In this patient, spasticity and
hyperreflexia were the predominant symptoms, along with a pseudobulbar type of dysarthria.

**MPO4/61**

**Two cases of hyperglycemia-induced abnormal movement with reversible magnetic resonance imaging changes**

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**Bombay Hospital and Medical Research Centre, Mumbai, Maharashtra, India**

We present a case of subcortical T2 hypointensity in a diabetic patient, who was came with weakness and involuntary movements of the left upper limb and ataxia of the left lower limb. and other with seizure episode, laboratory reports confirmed the diagnosis of ketotic hyperglycemia. It is rather important to identify subcortical T2, FLAIR hypointensity which as only been recently found to be associated with nonketotic hyperglycemia. Early identification and prompt correction of blood sugar would help in alleviating the neurological symptoms.

**MPO5/84**

**Application of Indian smell identification test as a screening test to study unawareness of hyposmia in patient of idiopathic Parkinson’s disease**

Patel U  
**Department of Neurology, P. D. Hinduja National Hospital and Medical Research Centre, Mumbai, Maharashtra, India**

**Background:** Loss of olfaction is a hallmark of neurodegenerative disorders such as Idiopathic Parkinson’s disease (IPD) and may precede IPD by many years. Olfactory bulb involvement may be the earliest site of pathology in IPD. This study examines the frequency of unawareness of hyposmia in study cohorts with and without IPD. **Objective:** The objective of this study is to evaluate the unawareness of hyposmia in the IPD patients by assessing the olfactory function using an Indian Smell Identification test (INSIT).  

**Materials and Methods:** Olfaction was assessed in 30 IPD patients and 30 healthy controls using INSIT. They were asked to identify the smell from a set of choices and were scored out of 10. The cutoff used for hyposmia was an INSIT score ≤ 4. Unawareness was defined as reporting normal sense of smell in the setting of a low INSIT.  

**Results:** The mean age for the IPD and control group was 64.3 ± 10.6 years and 63.9 ± 10.2 years, respectively. The percentage of male participants was 53% and 56% in the IPD and control group, respectively. Out of the 30 patients in each group, 18 patients were unaware of hyposmia in the IPD group as compared to four patients in the control group, which was found to be statistically significant (*P* < 0.001). **Conclusion:** Unawareness of hyposmia in IPD is high compared to elderly without Parkinsonism. This all leads to a premise whereby population screening using INSIT could be used for early detection of IPD in those already harboring the earliest pathology of neurodegeneration.

**MPO6/95**

**Differentiation of autonomic dysfunction in multiple system atrophy subtypes and Parkinson’s disease**

Garg D, Srivastava AK, Prasad K, Shukla G, Vibha D, Pandit AK, Rajan R, Jargal AK

Department of Neurology, All India Institute of Medical Sciences, New Delhi, India

**Objectives:** The distribution and severity of autonomic dysfunction appear to differ between multiple system atrophy subtypes, MSA-P (Parkinsonian) and MSA-C (cerebellar). These also appear to differ from idiopathic Parkinson’s disease (IPD). We studied patients with MSA, IPD, and age- and sex-matched normal controls to evaluate the autonomic function measures that may differentiate these disease entities.  

**Materials and Methods:** We recruited 100 patients with MSA (48 MSA-P and 52 MSA-C), 50 patients with IPD, and 50 healthy controls. We used SCOPA-AUT autonomic function questionnaire, autonomic function tests, and functional scales (Unified MSA Rating scale, Hoehn-Yahr grading) on a prospective basis. **Results:** Patients with MSA complained significantly more of genitourinary and gastrointestinal dysfunction compared to both IPD and healthy controls. Standing heart rate was significantly different in patients with MSA-C (84 [76–93.5]) (median [interquartile range]) versus IPD (79 [70–84]) (P = 0.002) and MSA-P (84 [80–88]) versus IPD (79 [70–84]) (P = 0.001). Change in heart rate on deep breathing test also differed between MSA-P (P = 0.032) and IPD and MSA-C (P = 0.002) and IPD. There were no significant differences in the other autonomic parameters. **Conclusion:** Autonomic variables including symptoms of gastrointestinal and genitourinary dysfunction, and cardiac autonomic dysfunction evaluation including standing heart rate and change in heart rate with deep breathing can be used to differentiate patients with MSA from IPD. Autonomic function does not differ significantly between the two MSA subtypes.

**MPO7/107**

**Vascular parkinsonism: A myth or reality**

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**Objective:** The objective of this study is to study the clinical and radiological features of vascular Parkinsonism (VP). **Methods:** It is a cross-sectional study where 20 patients with VP underwent motor and cognitive evaluation and brain magnetic resonance imaging (MRI). **Results:** Patients with VP were predominantly male (93%) and 7% female with average age of presentation of 67.6 years ranging from 35 to 85 years; all had vascular risk factors-arterial hypertension (62.55%), T2DM in 25%, CAD and CKD in 12.5% each, and smoking in 50%. Around 62.5% had a past history of stroke, and 25% had TIAs. Majority presented with an insidious onset of Parkinsonism (87.5%) and acute onset in 12.5% and a rapidly progressive clinical course. Predominant lower body Parkinsonism (50%), hemiparkinsonism in 37.5%, postural instability (75%), freezing of gait (25%) and falls in 50%, urinary incontinence and pyramidal signs were more common in patients with VP. Movement Disorders Society’s Unified PD Rating Scale scores were higher in patients with VP with less responsiveness to levodopa. Most patients with VP had brain MRI changes: multiple lacunar infarcts (66.7%) or extensive white matter disease (26.7%). **Conclusions:** VP can be clinically diagnosed by Parkinsonism at an older age, characterized by lower body predominance, urinary incontinence, pyramidal...
signs, and postural instability with freezing of gait and falls, and dementia with less responsiveness to levodopa and a progressive course.

**MPO8/131**

**Study of clinical spectrum, topographic correlations, and frequency of poststroke movement disorders in adults**

Elango N, Govindharajan S, Sundaram SN, Ranganathan LN
Department of Neurology, Institute of Neurology, Madras Medical College, Chennai, Tamil Nadu, India

**Methods:** We reviewed consecutive patients with involuntary abnormal movements (IAMs) following a stroke who were included in the Madras Institute of Neurology, RGGGH, Stroke Registry and they were followed up for at least 1 year after the onset of the IAM. We determined the clinical features, topographical correlations, and frequency of movement disorders associated with stroke. **Results:** Of 1500 patients with stroke 52 developed movement disorders up to 1 year after the stroke. Patients with chorea were older, and the patients with dystonia were younger than the patients with other IAMs. In patients with isolated vascular lesions without IAMs, surface lesions prevailed, but patients with deep vascular lesions showed a higher probability of developing abnormal movements. One year after onset of the IAMs, 10 patients (21.4%) completely improved their abnormal movements, 36 patients (67.8%) partially improved, four did not improve (7.1%), and two patients with chorea died. In the nested case-control analysis, the patients with IAMs displayed a higher frequency of deep lesions (63% vs. 33%) than patients without IAMs (OR 3.38, 95% CI 1.64-6.99, \( P < 0.001 \)). Patients with deep hemorrhagic lesions showed a higher probability of developing IAMs (OR 4.8, 95% CI 0.8-36.6). **Conclusions:** Chorea is the most common movement disorder following stroke and appears in older patients. Involuntary movements tend to persist despite the functional recovery of motor deficit. Deep vascular lesions are more frequent in patients with movement disorders.

**MPO9/164**

**A case of symmetrical Parkinsonism due to intracranial dural arteriovenous fistulae caused by chronic cerebral venous sinus thrombosis**

Subramanian M, Soumini PR, Velayutham S, Jayaraj M, Arunan S
Department of Neurology, Stanley Medical College, Chennai, Tamil Nadu, India

**Introduction:** Intracranial dural arteriovenous fistulae (DAVF) is acquired fistulous communications between dural arterial branches and dural venous sinuses or cortical veins with the nidus located within the leaflets of the dura mater. They are usually secondary to chronic cerebral venous sinus thrombosis. Parkinsonism is a rare presentation of such DAVF in brain. A case of 40-year-old alcoholic with multiple dural AVF intracranially symmetrical Parkinsonism and are presented here. **Case Report:** A 40-year-old male who is an alcoholic presented with bradykinesia of 4 months’ duration with frequent falls and in a bedridden state for 3 months preceded by a 1-year history of headache which was not evaluated. He used to be apathetic and used to do his activities only on prompting by his wife. Higher mental examination revealed bifrontal lobe dysfunction. There were bilateral cogwheel rigidity and bradykinesia. He had postural instability and was unable to even sit. Magnetic resonance imaging of the brain revealed diffuse subcortical T2/FLAIR white matter hyperintensities. There were engorged cerebral venous sinuses and chronic cortical venous thrombosis with multiple intracranial dural AVF. He was discharged with a plan to do DSA and further intervention with embolization at higher center. **Conclusion:** Dementia and Parkinsonism are uncommon presentations in DAVF. The white matter hyperintensities produced by chronic venous hypertension are believed to cause Parkinsonism and dementia. Previous rare case reports have highlighted the reversible nature of Parkinsonism and dementia symptoms after occlusion of dural AV fistula. High index of clinical suspicion is needed to detect this treatable cause of dementia and Parkinsonism.

**MPO10/328**

**Clinical comparisons between patients with freezing and gait disturbances in Parkinson’s disease**

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**Introduction:** Gait disturbances are debilitating symptoms commonly seen in Parkinson’s disease (PD) and often affect the quality of life. **Aims:** In this observational study, we compared the clinical characteristics between three cohorts of PD patients-those having freezing, those having gait difficulty without freezing, and those having no gait difficulty. **Methodology:** Out of recruited 40 PD patients, 13 were freezers, and 7 had gait difficulty with no freezing and 20 had no gait difficulty. Difference between gait, cognition, motor and nonmotor parameters in these groups were assessed using UPDRS III, MMSE and GAIT Rite and RBD questionnaire. The statistical significance was derived using independent sample t-test. **Results:** Freezers had more severe motor \( (P = 0.01) \) as well as cognitive \( (P = 0.01) \) impairment compared to both groups. Stride velocity \( (P = 0.003) \), step length \( (P = 0.03) \), stride length \( (P = 0.02) \), double support time \( (P = 0.01) \), stance time \( (P = 0.02) \) were significantly decreased in freezers when compared to the patients having gait disturbance without freezing. PD patients with gait disturbance without freezing also had a higher UPDRS III \( (P = 0.01) \) and lower MMSE \( (P = 0.01) \) score as compared to PD with no gait disturbance though their H and Y \( (P = 0.356) \) staging had no significant difference. REM sleep behavior disorders were higher \( (P = 0.001) \) among patients with freezing as compared to other groups. **Conclusion:** Patients having gait disturbance had more severe cognitive impairment and RBD symptoms. These symptoms were more pronounced in PD patients with freezing. This might be related to common anatomical substrate.

**MPO11/336**

**Association of disease severity and inflammatory markers in patients with Parkinson’s disease**

Roy A, Chatterjee K, Banerjee R, Choudhury S, Mondal B, Basu P, Shabham S, Kumar H
We Although serotonin syndrome usually

A 60-year-old female

including anti-GAD, anti-TPO, anti-VGKC and anti-

failed to improve with cyproheptadine. Her serum creatinine

throughout with bilateral extensor plantars. The symptoms

conscious, disoriented, and not following verbal commands

starting sertraline and it kept worsening after sertraline

mg po BID for the past 15 days. She developed generalized

presented with 5-month history of depression and 3-month

as serotonin syndrome.

Sporadic Creutzfeldt–Jakob disease presenting as

Kumar N, Gudhate A

Department of Neurology, All India Institute of Medical Sciences,

Rishikesh, Uttarakhand, India

Background: Creutzfeldt–Jakob disease (CJD) is a rare

neurodegenerative disorder with a rapid disease course. It is

clinically characterized by rapidly progressive dementia, pyramidal and extrapyramidal features, myoclonus, and akinetic mutism. Typical magnetic resonance imaging (MRI) of the brain and electroencephalogram findings supports the diagnosis. CJD may mimic a variety of neurodegenerative, autoimmune, infectious and toxic-metabolic disorders. Herein, we report a case of probable sporadic CJD presenting as serotonin syndrome. Case Report: A 60-year-old female presented with 5-month history of depression and 3-month history of reduced sleep and appetite and taking sertraline 50

mg po BID for the past 15 days. She developed generalized stiffness, reduced speech, and generalized jerks output after starting sertraline and it kept worsening after sertraline discontinuation. On neurological examination, the patient was conscious, disoriented, and not following verbal commands and had no speech output. Although she was moving all four limbs, they were rigid. The deep tendon reflexes were brisk throughout with bilateral extensor plantars. The symptoms failed to improve with cyproheptadine. Her serum creatinine

phosphokinase returned normal autoimmune/paraneoplastic

screen including anti-GAD, anti-TPO, anti-VGKC and anti-

NMDA were negative. MRI of the brain revealed diffusion

restriction in bilateral striatum. Her EEG showed generalized periodic sharp wave complexes (1/s periodic triphasic sharp wave complexes), suggesting the possibility of Sporadic CJD. Conclusion: Although serotonin syndrome usually responds to discontinuation of the causative agent and use of cyproheptadine, a relentless progressive course may favor a possible neurodegenerative illness-like Sporadic CJD.

Friday, September 28, 2018, 14:00-16:00 h

Poster Session – 03: Miscellaneous Disorders

Gadolinium deposition in brain: A case report

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Introduction: Magnetic resonance imaging (MRI) with gadolinium, even in patients with normal renal function can cause retaining of gadolinium in the brain.

Case Report: An 8-year-old girl presented with headache and fever for 1 month and altered sensorium for 2 days. The child had neck stiffness and lateral rectus palsy. Fundus normal. MRI of the brain with gadolinium revealed Flair hyperintensity in the left temporal lobe with DWI restriction in splenium of callosum. CSF showed 90 lymphocytes/mm3, protein 52 mg/dl. Sugar 77 mg/dl, culture, AFB, viral markers were negative. Mantoux test was positive. CXR was normal. The child was treated with ATT. One year later, MRI with contrast was repeated for headache and vomiting, and it revealed T1 hyperintensity in both globus pallidus. No calcification on computed tomography brain. LFT, RFT, serum ammonia, and sugar are normal. The child became asymptomatic after 2 days. Discussion: Causes of high-signal intensity in globus pallidus on T1W include idiopathic calcification, hepatic failure, parenteral nutrition, hyperglycemia, hemorrhage (methemoglobin), Japanese encephalitis, hamartoma in NF1. One more cause is deposition of previously administered gadolinium as in our case. In our case, linear gadolinium was used, which is more likely to get deposited compared to macrocyclic gadolinium. Common sites are globus pallidus, dentate nucleus, bone, and skin, even if renal functions are normal. Autopsy shows gadolinium in endothelium and small fraction in brain interstitium. There is no gliosis or neuronal damage. Long-term effects are unknown. Conclusion: T1 hyperintensity in globus pallidus could be due to deposition of previously administered gadolinium. Potential harmful effects of such deposition are unknown. Contrast should be used, assessing the potential risks and benefit. Macro cyclic gadolinium is preferable in children.

MPO2/26

Pseudosyringomyelic presentation of smoldering myeloma in a 32-year-old male

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Background: Monoclonal Gammopathy (MG) is frequent in patients with peripheral neuropathy of undetermined etiology.
MG-associated neuropathy usually manifests as a slowly progressive sensorimotor polyneuropathy with numbness and ataxia, with rare involvement of small nerve fibers. **Case Report:** We report a 32-year-old male smoker presenting with 1 year history of insidious onset slowly progressive b/l symmetrical, sensory predominant peripheral neuropathy (mainly small fiber) pseudosyringomyelic presentation without any involvement of motor system, cranial nerves, autonomic dysfunction, family history, skeletal deformity. **Investigations:** CBC, RFT, LFT, LIPID PROFILE – normal, serology, toxic screen-negative. Vitamin B12-728, cerebrospinal fluid studies-normal. NCS of all limbs-sensory motor axonal peripheral neuropathy involving all four limbs. Sympathetic skin response was normal. Sural nerve biopsy-amyloid neuropathy. Serum electrophoresis (IF)-M BAND (IgG and Lambda chain). Immunoelectrophoresis-Monoclonal gammopathy seen in Gamma and Lambda Region. Skeletal survey and PET CT were normal. Bone marrow aspiration and biopsy– normal bone marrow with plasma blast cells 0%. In the above case, we have seen a rare presentation of smoldering myeloma with M band (IgG and Lambda) detected by serum protein electrophoresis in patients with chronic symmetrical small fiber sensory neuropathy. He is treated with CyBorD X 4 cycles and due for follow up. Injection bortezomib 1.75 mg S/C once weekly on D1, D8, and D15. Tab Dexa 8 MG 3-0-2 (Total Dose-N 40 Mg) on D1, D8, and D15. Tablet Cyclophosphamide 50 MG 3-3-2 on D1, D8, and D15.

**MiPO3/53**

Subcutaneous injection of botulinum toxin in patients with postherpetic neuralgia: A preliminary study

Kumar S, Jain P, Jain S
Department of Neurology, Shri Balaji Institute of Medical Science, Raipur, Chhattisgarh, India

**Background:** Postherpetic neuralgia (PHN) is neuropathic pain that occurs after herpes zoster infection. Several treatments have been suggested in the management of PHN. This study evaluates the efficacy of subcutaneous injection of botulinum toxin in patients suffering from PHN. **Methods:** Nineteen patients suffering from PHN for more than 2 months were enrolled in the study. The severity of pain was assessed by visual analog scale (VAS). A total dose of 500 units of BTX-A was injected around the site of pain. This was administered in about 25 subcutaneous injection around the site, delivering approximately 20U/ml of BTX-A per injection. The patients were followed at 1, 2, 3, 4, 12, and 16 weeks after the administration of the drug. **Results:** The mean age was 56 years (age range 36–63) for nonpregnant patients. The two pregnant patients of age 28- and 32-year-old who were in their 28 and 30 weeks of gestation were also included in this study. The mean duration of PHN was 4.78 wks. At each visit, VAS was used to evaluate the degree of pain (0: painless; 10: maximum pain). There was a significant reduction in the severity of pain after the injection. **Conclusion:** Botulinum toxin significantly decreases the severity of pain in PHN patients and last for 4-6 months of the period. This decrease is less prominent by passing time.

**MiPO5/172**

A case report of classical type of Foix–Chavany-Marie Syndrome

Machhavada K, Sovani A, Kotadia T, Prajapati J
Department of Neurology, Zydus Hospital, Ahmedabad, Gujarat, India

A 47-year diabetic and hypertensive male came with complaints of difficulty in swallowing, slurred speech with left hemiparesis. On examination, the patient had bilateral 5th motor, 7th, 9th, 10th, and 12th cranial palsy. The patient was nonverbal with only automatic vocalizations. He had left hemiparesis with power 4/5. Sensory examination is normal. Deep tendon reflexes were brisk with extensor left planter. One month back, the patient had left corona radiate infarct with right facial palsy, dysphasia and right hemiparesis which was completely recovered. MRI brain showed acute right corona radiate infarct with gliosis in left corona radiate. Angiography was normal. Foix–Chavany-Marie syndrome (FCMS) or anterior opercular syndrome is a rare neurological syndrome most commonly caused by cerebrovascular accidents. Anatomically, the classical FCMS is constituted by combination of bilateral cortical or subcortical lesion involving bilateral corticobulbar and corticospinal...
Working in Cold-induced urticaria is a type of physical urticaria that can vary in presentation from mild, localized urticaria, to generalized urticaria to severe anaphylaxis.

Treatment of cold urticaria involves education, avoidance of cold triggers, and use of antihistamines and an epinephrine auto-injector.

**Conclusion:** A 32-year-old male presented with a history of acute abdominal pain, diagnosed to have a perforated duodenal ulcer, had undergone laparotomy with posterior gastrojejunostomy and was on nil per oral for 1 week due to surgical reasons, was referred for acute onset of blurred vision, unsteadiness of gait. On examination, he had visual loss with counting finger at 1 m, vertical gaze restriction, and bilateral gaze-evoked nystagmus. He had bilateral papilloedema and peripapillary retinal flame hemorrhages. Magnetic resonance imaging of the brain showed typical midline increased signal intensity in the dorsal midbrain, thalamus, and mamillary bodies. He received intravenous thiamine for 10 days with subjective and objective improvement in vision (6/12 both eyes at 2 weeks), resolving papilloedema, peripapillary hemorrhages, and improvement in gait ataxia and gaze restriction. **Discussion:** Papilloedema and retinal hemorrhage are found only in 4% and 2% of cases of Wernicke’s. Pathogenesis is postulated to be associated optic neuritis, analogous to the nutritional retrobulbar neuropathies. **Conclusion:** Visual loss, papilloedema, and retinal hemorrhages are increasingly being recognized as the additional, reversible features of Wernicke’s encephalopathy. The changes that occur on MRI brain, though rare are characteristic and considered diagnostic of Wernicke’s encephalopathy.

**MiPO6/73**

**Challenges faced in semi-urban and rural rehabilitation: A prospective study**

**Ruikar D, Kokane S, Ruikar P**

**Neuro Rehabilitation Center, Latur, Maharashtra, India**

**Aims:** Challenges faced while working in predominantly rural- semi urban area are significantly different than the metropolitan center. We present here experience from a center based in highly drought-prone area India. **Materials and Methods:** This data are derived from Neuro Rehabilitation Center base at Latur, Maharashtra. The center serves to predominantly having low socio economical and rural population. The data collected prospectively from 31 March 2014-2016 June 2017. **Result:** During the study, there were 2550 patients who availed services at the center. Nearly 60% were male patients. More than 65% of people who were treated were from rural areas. Average distance people had traveled to reach the rehab center was approximately 30 km which takes approximately 1.5 to 2 h of one way travel time. Patients presented more for regional pain syndromes. Cervical and lumbar radiculopathies were most common syndrome 27.45% and 26%, respectively, followed by vertigo 11.37%, Neuropraxic syndrome 8.39%, stroke 3.9%, and myopathy 1%. **Discussion:** Working in Neurorehabilitation Center in semi-urban or rural setups has different challenges than metropolitan areas. Starting from misconceptions about rehab services of patients to highly irregular follow-up due to that outcomes many times remain suboptimal. Most of the times attend one session and did not turn up for follow up due to distances and loss of wages. Pain is more common reason to attend the services than other neurological diseases like stroke. Mostly, female patients did not attempt exercise sessions at center or at home. Semi urban- rural region rehab centers need different approach, use of new technological ways such as youtube, Xbox may help.

**MiPO7/139**

**Eyeing on “EYE” to solve a diagnostic PIE!!**

**Paneyula S**

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Wernicke’s encephalopathy is a neurological emergency caused due to thiamine deficiency, a clinical diagnosis, seen in ethanol abuse, in the clinical settings of malnutrition, hyperemesis gravidarum, cancer and gastric surgeries. We present this case to highlight the clinical presentation of Wernicke’s encephalopathy with a rare visual disturbance, including papilloedema and retinal hemorrhages hitherto underrecognized. **Case Report:** A 32-year-old male presented with a history of acute abdominal pain, diagnosed to have a perforated duodenal ulcer, had undergone laparotomy with posterior gastrojejunostomy and was on nil per oral for 1 week due to surgical reasons, was referred for acute onset of blurred vision, unsteadiness of gait. On examination, he had visual loss with counting finger at 1 m, vertical gaze restriction, and bilateral gaze-evoked nystagmus. He had bilateral papilloedema and peripapillary retinal flame hemorrhages. Magnetic resonance imaging of the brain showed typical midline increased signal intensity in the dorsal midbrain, thalamus, and mamillary bodies. He received intravenous thiamine for 10 days with subjective and objective improvement in vision (6/12 both eyes at 2 weeks), resolving papilloedema, peripapillary hemorrhages, and improvement in gait ataxia and gaze restriction. **Discussion:** Papilloedema and retinal hemorrhage are found only in 4% and 2% of cases of Wernicke’s. Pathogenesis is postulated to be associated optic neuritis, analogous to the nutritional retrobulbar neuropathies. **Conclusion:** Visual loss, papilloedema, and retinal hemorrhages are increasingly being recognized as the additional, reversible features of Wernicke’s encephalopathy. The changes that occur on MRI brain, though rare are characteristic and considered diagnostic of Wernicke’s encephalopathy.

**MiPO8/147**

**A rare case of cold-induced anaphylaxis**

**Sreenivas D**

**Department of Neurology, Chalmad Anand Rao Institute of Medical Sciences, Karimnagar, Telangana, India**

**Introduction:** Cold-induced urticaria is a type of physical urticaria that can vary in presentation from mild, localized urticarial, and/or angioedema to generalized urticaria to severe systemic symptoms that can lead to death. Triggers of cold urticaria can vary between patients and can be secondary to ingestion of cold substances, aquatic activities, and exposure to cold environments or objects. **Case Presentation:** A 20-year-old boy presented with urticaria and syncope while swimming. He was immediately removed from water and later generalized urticaria subsided. He had episodes of urticaria after exposing to cold weather or water. There was no family history of similar illness. He was not on any treatment or did he have any illness. An ice provocation test was performed that revealed wheal in 3 min. **Discussion:** The physician should be aware of the cold included triggers while treating patients with syncope. Treatment of cold urticaria involves education, avoidance of triggers, and use of antihistamines and an epinephrine auto-injector in severe cases.

**MiPO9/150**

**A case report of two cases of postcranial surgery pseudohypoxic brain swelling**

**Sreenivas D**

**Department of Neurology, Chalmad Anand Rao Institute of Medical Sciences, Karimnagar, Telangana, India**

**Background:** Postoperative intracranial hypotension-associated venous congestion (PIHV), previously termed pseudohypoxic...
brain swelling, is a rapid, severe, and potentially fatal postoperative complication associated with spinal and cranial surgeries. The purpose of this study is to describe the clinical and imaging findings of two cases of severe intracranial hypotension postcrania! surgery.

**Materials and Methods: Case Vignette 1:** An 80-year-old was operated for subdural hematoma. Immediately postsurgery patient developed tonic seizures of both limbs. Did not improve with antiepileptics and was ventilated later. Magnetic resonance imaging (MRI) of the brain showed bilateral basal ganglia diffusion positive hyperintensities with normal MRV.

**Case Vignette 2:** A 75-year-old under treatment for chronic lymphoma brain stem developed subdural hematoma. Postoperatively developed seizures after 2 h he became drowsy and was later ventilated. MRI of the brain showed bilateral basal ganglia diffusion positive hyperintensities with normal venogram. Both patients succumbed to death eventually.

**Discussion:** The distribution of MRI signal intensity changes in the thalamus/basal ganglia had been the result of impaired drainage through the internal cerebral veins and the vein of Galen into the straight sinus cerebrospinal fluid loss has been discussed as a possible pathogenetic mechanism. The clinical outcome appears to be correlated to specific imaging findings.

**Conclusion:** We report these two cases as a rare manifestation of intracranial hypotension which can have fatal outcome if not identified and treated in time. A differentiation between the mechanism of development of this lesion and true hypoxia must be carefully made.

**MiPO10/163**

**Unusual neurological presentations in a case of non-Hodgkin lymphoma: Disease and treatment related**

_Basle MA, Benny R, Shah P_

_Deptartment of Neurology, Fortis Hospital, Mumbai, Maharashtra, India_

**Objective:** An unusual neurological presentation in case of Non-Hodgkin lymphoma. **Methodology:** A 76-year-old male is a known case of diabetes, and hypertensive was diagnosed with NHL- diffuse large B cell variant and was treated with six cycles of R-CHOP chemotherapy. The first neurological complaint was painful right LMN facial palsy. No zoster rash was seen. After CSF analysis showed lymphocytic predominance, he was advised antiviral for 2 weeks. Again, he presented with a unilateral headache and pain over the cheek, magnetic resonance imaging (MRI) imaging showed enlargement of the b/l trigeminal nerve. Later on, for a routine follow-up for lymphoma treatment, he presented with painful bilateral lower limb along with difficulty in walking. His MRI spine with contrast study showed bilateral lumbar root enhancement. His last neurological complaint occurred during the second dose of high-dose methotrexate. He suffered an episode of TIA. MRI of the brain showed mild flair hyper intensity, which was attributed to methotrexate-induced toxicity. **Results:** He is under regular follow up and present on CNS prophylaxis with rituximab. **Discussion:** According to Rocha TM et al., Male gender, previous use of intrathecal chemotherapy and refractory response to the initial treatment were independent risk factors for CNS infiltration. This case shows multifocal neuroaxial involvement due to NHL and also stroke like side effect of methotrexate toxicity.

**MiPO11/180**

**Three rare cases of reversible dentate nuclear hyperintensities**

_CHowdary MKU, Reddy RR, Prasad SVN, Naveen T, Vengamma B_

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**Introduction:** The dentate nucleus is a cerebellar structure involved in voluntary function motor control and cognition. Dentate nuclear hyperintensities are rarely encountered; the formulation of differential diagnosis can be difficult. We report three cases of reversible dentate nuclear hyperintensities.

**Details:** Case 1: A 54-year-old male, CKD on PD, recently diagnosed to have pulmonary tuberculosis. He was initiated on 4 drug regimen ATT with HRZ and levofloxacin. Magnetic resonance imaging (MRI) of the brain showed bilateral T2-weighted dentate nuclear hyperintensities. Isoniazid was stopped. Case 2: A 28-year-old male with a history of hemorrhoids was prescribed ornidazole for 3 months. MRI of the brain showed symmetrical T2 weighted and FLAIR hyperintensities involving the dentate nuclei. Ornidazole was stopped. Case 3: A 39-year-old female presented with complaints of fever with altered sensorium 15 days ago and recovered. MRI brain revealed T2 hyperintensities in bilateral cerebellar peduncles, dentate nuclei, pons, and midbrain. We considered the possibility of acute disseminated encephalomyelitis (ADEM). IV methyl prednisolone was given for 5 days. All the three patients had acute cerebellar syndrome. All the patients showed a significant improvement of symptoms with the resolution of lesions on MRI. **Conclusion:** Acute cerebellar syndrome is a common clinical presentation associated with dentate nuclear hyperintensities. Reversible dentate nuclear hyperintensities are found in Isoniazid toxicity, Ornidazole toxicity, and ADEM. Most cases of dentate nuclear hyperintensities are potentially treatable and reversible with early intervention.

**MiPO12/184**

**Ross syndrome: clinical and laboratory correlates and review of literature**

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**Background:** Ross syndrome is diagnosed by the presence of the characteristic triad of segmental anhidrosis, depressed deep tendon reflex, and tonic pupils. It is a rare, misdiagnosed autonomic disorder with <80 cases reported in world literature.

**Objectives:** Two representative cases of Ross syndrome are presented with their laboratory correlates and relevant review of literature. **Results:** Both cases (aged 35 and 58 years) presented with a complaint of decreased sweating over one half of the face and ipsilateral upper limb and trunk as well as contralateral lower limb. There was compensatory increased sweating and hyperpigmentation over the remaining parts of the body. Duration of symptoms was 2 years and 15 days, respectively. The patients had variegated skin color as per above distribution and hyporeflexia in lower limbs. One patient also had Holmes-Adie pupil. Iodine test showed hypohidrosis in the described areas which were confirmed by skin biopsy.
There was a mild degree of demyelinating polyneuropathy in lower limbs with absent sympathetic skin response. Autonomic function test showed reduced resting cardiac autonomic tone in one patient. Radiologic, biochemical, and autoimmune profiles were normal. The patients were treated symptomatically. **Conclusion:** Ross syndrome is a rarely reported autonomic disorder with limited treatment options and no definite documented cure.

**MiPO13/190**

Simultaneous multiple congenital anomalies in a young male

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**Background:** Congenital malformations associated with disorders of neuronal migration leading to seizure disorder in young population are often seen. Here, we report a case with six congenital malformations, simultaneously present in brain imaging of this patient. **Case:** A young 35-year-old male with a history of seizure disorder since childhood, on magnetic resonance imaging had open-lip schizencephaly, focal cortical dysplasia, polymicrogyria and heterotrophic gray matter in left frontal and frontoparietal region along with corpus callosum agenesis. He also had evidence of cerebrospinal fluid signal intensity cystic spaces in posterior fossa directly communicating with fourth ventricle, compressing the cerebellar hemispheres and absence of vermis suggestive of Dandy–Walker syndrome. Perinatal history was asymptomatic. Family history was not significant. Genetic analysis was not done. Patient’s seizures are well controlled on two first-line antiepileptic drugs. **Discussion:** Various congenital malformations associated with seizure disorders are described. Most of them are due to a direct result of faulty neuroblast migration. During early gestation (8–15 weeks), most severe migratory defects occur, affecting events in the gross formation of the neural tube and cerebral vesicles. Later defects of neuronal migration can present as disorders of cortical lamination or gyration such as lissencephaly, pachygyria, and cerebellar dysplasias. In our patient, the main presentation was seizures and was adequately controlled with antiepileptic drugs. **Conclusion:** Congenital malformations, especially disorders of neuronal migration need to be identified as important cause of seizure disorder. Medical management is effective despite multiple malformations.

**MiPO14/219**

Cerebro Tendinous Xanthomatosis – more problem than solution

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**Background:** Cerebrotendinous xanthomatosis (CTX) is a rare autosomal-recessive metabolic disease, characterized by accumulation of lipid in different tissues, particularly tendon, central nervous system, and eye. Diagnosis of CTX is based on the typical clinical features, elevated plasma cholestanol level and characteristic magnetic resonance imaging (MRI) appearance. We report three patients with CTX and their management problem. **Case Reports:** Two patients had a history of recurrent diarrhea in neonatal period, global developmental delay, and poor scholastic performance. They were operated for cataract in childhood and presented with progressive gait difficulties. Clinical examination revealed firm masses over tendoachilles and bilateral cerebellar signs. Clinical diagnosis of CTX was made. Blood investigations revealed normal serum cholesterol, triglyceride, and other lipoprotein level. Plasma cholestanol level could not be obtained due to nonavailability of test. MRI of the Brain, T2W image shows bilateral symmetrical hyperintensities involving dentate nuclei and deep cerebellar white matter in both patients. MRI of ankle joint revealed enlarged tendoachilles showing signal changes in MRI image. One asymptomatic patient presented with xanthoma over joints without neurological involvement and normal brain MRI. **Conclusions:** (1) Diagnosis of CTX needs high suspicion in early stage of disease especially with patients of recurrent neonatal diarrhea and juvenile cataract. (2) Presence of xanthoma and typical MRI feature gives clue to diagnosis of CTX in later stage. (3) Non-availability of investigation (cholestanol level estimation) and treatment (chenodeoxycholic acid) are major drawbacks for management. (4) Early detection and treatment have a key role for improvement of neurological symptoms.

**MiPO15/223**

A case report of megalencephalic leukoencephalopathy with subcortical cysts

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Megalencephalic leukoencephalopathy with subcortical cysts is clinically characterized by macrocephaly, mild motor developmental delay, and seizures. Later in life, patients may develop gradual onset of ataxia and pyramidal features and mental deterioration later. A combination of clinical features and magnetic resonance imaging (MRI) features is required for arriving at the diagnosis. The condition is inherited in an autosomal recessive pattern, and the gene locus has been mapped as MLC 1 gene at chromosome 22q. 24-year-old male 1st born to consanguineous parentage with normal perinatal history and normal development up to 13 years of age except macrocephaly since infantile period. From 13 years of age neuroregression noted in the form of decreased attained scholastic performance, loss of communication skills, slowness of activities and development of seizures. Since 19 years age gradually progressive asymmetric spastic quadriaparesis with spastic dysarthria. Significant family history with similar neuroregression was noted in younger sibling. On examination, macrocephaly noted, conscious with decreased attention, left UMN facial palsy with spastic dysarthria and spastic quadriaparesis with gross in coordination noted. MRI of the brain axial T2-weighted images showing multiple subcortical cysts in the bilateral temporoparietal regions and diffuse hyperintense white matter changes. DNA sample analysis for mutation on MLC1 gene showed heterogeneous mutation in exon2 confirming the diagnosis of MLC. MLC is the most common leukodystrophy with megalencephaly observed in India and should be considered in the differential diagnosis of children with megalencephaly and leukoencephalopathy. One should suspect and carry out genetic tests to confirm the diagnosis.
Intracranial metastasis is the most common
up to ET orifice, medially up to midline and laterally up to
brain with contrast showed nasopharyngeal mass extending
to oropharynx, posteriorly up to left CP angle, anteriorly
revealed an abnormal VEMP, BERA, and normal VEP. MRI
electrolytes, TFT and was negative for HIV, hepatitis-B, C,
were all in normal limits. Both patients improved with short course of
steroids.

Aims:
The aim of this
study based on intracranial location is sparse.

MiPO17/267
A case of nasopharyngeal carcinoma presenting
as Godtfredsen’s syndrome
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Godtfredsen’s syndrome is a syndrome of multiple cranial nerve
involvement especially sixth and twelfth nerve involvement
seen mostly in infiltrative nasopharyngeal carcinoma. Here,
we describe a case. 53-year-old female presented with
complaints of headache and numbness of the left half of face
and chronic denervation in EMG and the classic MRI finding,
i.e. anterior displacement of the posterior wall of dural space
and a well-enhanced crescent-shaped posterior epidural space
in the lower cervical canal in neck flexion, which is absent
in neutral position. It is interesting that three of them were
workers in bag-making factory and had to use sewing machine
for long duration. Whether nature and duration of any job
are risk factors should be evaluated in larger study in future.

MiPO18/268
Idiopathic isolated palatal palsy
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We report the two cases of isolated palatal palsy with no
etiology established after thorough investigations. Idiopathic
isolated palatal palsy is a rare entity and results from palsy of
pharyngeal branch of Vagus nerve due to unknown etiology.

Case Report: Our first case was 13-year-old boy who presented
with complaints of nasal regurgitation of liquids and nasal
speech of 2 weeks’ duration with bilateral palatal palsy on
examination. Routine blood investigations, throat swab
culture, RNS, NCS, MRI brain with contrast, CSF analysis, ENT
evaluation, and vasculitic workup were all in normal limits. Our
second case was a 16-year-old boy who presented with similar
complaints of 5 days duration with left side palatal palsy on
examination. Similar to above case, investigations were all in
normal limits. Both patients improved with short course of
steroids. Discussion: Isolated palatal palsy commonly occurs in
male child (80%) and always unilateral from available literature.
Our first case is a rarity who presented with bilateral palatal
palsy. Common presenting features include nasal speech,
nasal regurgitation, and dysphagia. There are two proposed
mechanisms in available literature: (1) infection/immunologic
and (2) vascular. Before concluding it as idiopathic, patients
need to be evaluated for possible identifiable diseases such as
Myasthenia gravis, Guillain–Barre syndrome, motor
neuron disease, diphtheria infection, brain stem tumors or
demyelination, jugular foramen syndrome, adenoidectomy,
and vasculitis. This disease is self-limiting, and available
literature showed complete recovery in two-third of the cases
without any treatment. Prednisolone can be used to hasten
recovery.

MiPO19/275
Analysis of cerebral metastasis using
fluorodeoxyglucose pet and source probnation
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Background: Intracranial metastasis is the most common
brain SOL. However, data on the source of primary tumor
based on intracranial location is sparse. Aim: The aim of this
study to analyze the various intracranial metastasis based on
the number, location, the source (primary malignancy), and
categorizing the site-specific metastasis based on primary
malignancy. Materials and Methods: Patients diagnosed with intracranial secondaries using 18F-Fluorodeoxyglucose Positron Emission Tomography (FDG-PET) scan were analyzed for number, location, and the source. The predilection of different regions of the brain to different primary sites was analyzed. Results: 160 patients (62 males, 98 females) were analyzed amounting to 255 metastatic lesions. 75 and 85 patients had solitary and multicentric lesions, respectively. The primary malignancies contributing to the intracranial metastasis include lung (46.25%), breast (31.87%), ovary (4.37%), prostate (2.5%), and others (15.01%). The most common primary malignancies that metastasize to the frontal, parietal, occipital, cerebellar, thalamus, and brainstem regions are carcinoma of lung (99) followed by the breast (73) and that metastasize to the temporal lobe are carcinoma breast (10), lungs (8), cervix (2), to the corpus callosum are colon (1) and breast cancer(1), to the gangliocapsular region are breast (2) and endometrial cancer (2), to the suprasellar region are ovary (1), and lung cancer(1). Conclusion: The most common primary tumors that metastasize to the brain include carcinoma lung followed by breast. This algorithm would give a clue to narrow down the search toward the appropriate primary site in those with unknown origin and in resource-limited setting.

MiPO20/331
Cogan’s syndrome: A case report
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Background: Cogan’s syndrome is rare autoimmune vasculitis causing vestibulo-auditory and ocular dysfunction. Only few cases are reported from India. Case Report: A 25-year-old female had: (1) progressive diminution of vision, red eyes, tearing, photophobia-40 days; (2) progressive deafness, tinnitus-30 days; (3) fatigability-5 days; (4) transient vertigo on postural change for 2 days which later become continuous; (5) imbalance and requiring support to walk- 1 day. No diplopia/dysarthria/dysphagia. No history of fever/weight loss/joint pain/headache. On examination, cornea was normal but anterior chamber (AC) was hazy due to keratic precipitates and AC cells. Pigment deposition noted on anterior lens along with uveitis. Extra-ocular movements were full range. Nystagmus beating to right on gaze to either side noted. Pure Tone Audiometry demonstrated severe bilateral sensorineural deafness. Clinical tests for vestibular function could not be performed due to severe vertigo. Romberg’s test was positive and gait ataxic. There were no long tract signs. Differential diagnoses considered were as follows: (1) Cogan syndrome: although interstitial keratitis absent, it can develop later; (2) Vogt–Koyanagi–Harada syndrome: however, the patient had no meningal signs, poliosis, alopecia, and vitiligo,(3) Susac syndrome: however, the patient had no headache, cognitive dysfunction [encephalopathy], scotomas [branch retinal artery occlusions], and centrally located corpus callosum lesions on MRI. (4) Sarcoïdosis: however, lymphadenopathy was absent. MRI Brain, ANA blot, ACE level, p-ANCA, c-ANCA, CRP, HIV, and VDRL were unremarkable. After excluding other conditions, a diagnosis of Cogan’s syndrome made. The patient responded well to steroids.

MiPO21/348
Clinicoetiological profile of patients presenting with subacute and chronic ataxia
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Introduction: Ataxia is derived from the Greek words ““a” meaning not and “taxis” meaning “order”. “Ataxia” refers to the inability to fine-tune posture and movement in an orderly manner. Ataxia can be sensory or cerebellar. It can also be categorized as hereditary and acquired. Aim of the Study: Study of epidemiology, clinical features, and etiology in patients presenting with subacute or chronic ataxia with special reference to spinocerebellar ataxia. Materials and Methods: This is a prospective clinical study of patients admitted to SCB Medical College and hospital with a diagnosis of subacute and chronic ataxia from October 2016 to August 2018. Patients will be categorized as having cerebellar ataxia or sensory ataxia. All relevant investigations will be done. Available genetic testing will be done in suspected cases of hereditary ataxia or sporadic spinocerebellar ataxias. All genetic testing will be done only after obtaining informed consent from the patient. Observation: A total of 50 cases of ataxia were taken out of which 12 were sensory ataxia, rest cerebellar ataxia. From patients of cerebellar ataxia, 10 were suspected hereditary ataxia and rest acquired. From hereditary ataxias, five were found to be spinocerebellar ataxia, one Friedreich’s ataxia, and one was ataxia telangiectasia. Rest of the patients either did not give consent for study or were found negative.

MiPo22/363
Ramsay Hunt syndrome: A rare cause of acute peripheral facial palsy
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Introduction: Ramsay Hunt Syndrome (RHS) is a relatively rare clinical entity manifesting with peripheral facial palsy, pain, and vesicular lesions in the ipsilateral ear due to reactivation of the varicella zoster virus in the geniculate ganglion. Case Vignette: A 50-year-old man with no prior comorbidities presented to our outpatient services with 1-day history of difficulty in closing right eye with deviation of angle of mouth to the left side, and mild ear pain on the affected side. Examination revealed the presence of lower motor involvement of the left facial nerve, without hyperacusis or loss of taste sensation. External ear examination showed no inflammation or vesicular lesions. Magnetic resonance imaging brain revealed no abnormality. The patient was started on oral steroids, physiotherapy, and eye protective measures. On the 3rd day of steroids, the patient developed multiple vesicles in the ipsilateral ear with swollen inflamed pinna and worsening otalgia suggesting a diagnosis of RHS. He was then started on oral acyclovir which was given for 11 days until all lesions started showing crusting. The patient continued physiotherapy and had shown marginal improvement in facial paralysis 3 weeks from onset of symptoms. Longer follow-up is needed to assess the extent of recovery. Conclusion: This case is being reported to highlight that RHS may mimic idiopathic Bells’s
palsy at presentation with a clinically delayed onset of vesicular
lesions. Hence, a high index of suspicion is warranted to decide
upon initiation of antiviral medications and monitoring for potential complications.

**MIPO23/365**

Cerebrotendinous xanthomatosis in three siblings from an Indian family

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**Background:** Cerebrotendinous xanthomatosis (CTX) is rare autosomal recessive bile acid metabolism disorder due to mutations in CYP 27A1 resulting in defective sterol 27-hydroxylase. There is an accumulation of cholestanol and cholesterol in most tissues. It is characterized by tendon xanthoma, chronic diarrhea, juvenile cataract, and mental retardation. **Case:** A 25-year-old female presented with multiple swelling over ankles, right knee and elbow, bilateral cataract (operated at 11 years), and mental retardation. Her elder brother (35) and younger sister (23) had similar complaints. Brother was most severely affected. He had spastic diplegia with severe cognitive dysfunction. Two sisters had multiple tendon xanthomas, bilateral operated cataracts and moderate cognitive impairment. Her parents and remaining four siblings were asymptomatic. On evaluation, she had elevated triglycerides and high low-density lipoprotein/high density lipoprotein ratio (serum cholesterol not done due to nonavailability of the test). Magnetic resonance imaging (MRI) of ankles showed fusiform thickening of both the Achilles tendon, wedge biopsy from ankle swelling showed classical features of xanthoma. MRI brain showed the involvement of bilateral dentate nuclei and cerebellar white matter. She was diagnosed with case of CTX based on clinical, radion ological, histopathological features, and strong family history. She and her two siblings received ursodeoxycholic acid (due to nonavailability of chenodeoxycholic acid) and HMG Co A inhibitor. On follow-up, no significant change in mental status/xanthoma has been noted. **Conclusion:** three siblings with the varied severity of CTX features have been discussed and the possibility of CTX should be considered in an individual with tendon xanthoma, early cataract, and mental retardation.

**MIPO24/68**

Not an atom bomb, but uniform and liberal education system can eradicate terrorism from this world: A neuro-psychiatric, developmental and genetic explanation

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Brain development including behavior, emotion is a preplanned genetic program. In the 5th–28th week intra-uterine life, neurons undergo massive proliferation, differentiation, migrate to the periphery of the cortex. By the 28th week, glial cells proliferate scaffolding the neuronal process-myelination starts. Neuronal intricate connections, synaptisation, receptor formation, neurotransmitter formation start. Posttranslational modification of protein and genetic codon formation has already started. By 2–3 years anatomical, physiological, genetic part is ready for future learning, memory, behavioral, and emotional development. By 16–17 years >90% of all development is completed. We inherit sucking milk, gradually swallowing, and eating food-reflex activity developed. Genetic codon develops, stored as permanent memory. Thus, walking, swimming, reading, writing, etc., basic reflex activity develops. It cannot alter. Two human children rescued from wolves family from Jharkhand jungles in an early 19th century at 8 years. They walked on four limbs, ate raw meat, and behaved-like wolves. Next 2 years, they were trained for human food habit, gait, etc., but their behavior unchanged died. In 1949, Hess got Nobel Prize for functional compartmentalization of hypothalamic function. In animal model stimulation of a part of the amygdala, the hypothalamus produces “Sham Rage Syndrome (SRS):’ i.e., excess rage reaction. The continuous religious task and learning in this age group are like SRS, and young people turn into terrorists with the minimal stimulus. Hence, our teaching in liberal education system produces rational thinking, broad mentality. Hardcore religious teaching, practice is like “SRS”: in animal-model. Uniform-rational education required to combat terrorism.

**Friday, September 28, 2018, 16:15-20:00 h Poster Session – 04: Stroke**

**SPO1/69**

An uncommon etiology of cerebral sino-venous thrombosis in a young female: chasing the great masquerade

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**Background:** Cerebral sino venous thrombosis (CVT) can have varied etiologies. Identifying a specific etiology is important for proper treatment. **Case Report:** A 25-year-old unmarried female presented with fever, recurrent vomiting, seizures, right hemiparesis, and altered sensorium. Magnetic resonance imaging brain, magnetic resonance venography revealed hemorrhagic infarct in the left parietal region with mass effect, sagittal, and left transverse sinus thrombosis. She received low-molecular-weight heparin, antiepileptics despite that developed status epilepticus with diffuse cerebral edema, enlarging hematoma, impending uncal herniation. Lorazepam, levitiracetam aborted the status and urgent decompressive craniotomy, hematoma evacuation, prefrontal lobectomy was done. Postoperatively, patient’s sensorium improved, cerebral edema, mass effect resolved. No immediate cause of CVT was detected. Her hemogram, routine biochemistry, electrocardiogram, chest X-rays, cerebrospinal fluid, antiphospholipid antibodies, homocysteine, and thrombophilia panel were normal. Holoprosencephaly of the brain tissue showed areas of focal edema, evidence of vasculitis. Further vasculitic work revealed positive antinuclear antibody, anti-double stranded DNA, and anti Sjogren’s syndrome (SS)-A antibodies. Other autoimmune and viral markers were negative. CECT chest, abdomen showed hepatomegaly with pleural effusion, mediastinal lymphadenopathy. Schirmer’s test was positive, lip biopsy revealed multiple foci of dermo-epidermal lymphocytic infiltration consistent with SS.
SPO2/75
Cardioembolic stroke in India: Is the etiological spectrum changing from valvular atrial fibrillation to nonvalvular atrial fibrillation
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Introduction: Non-valvular atrial fibrillation (NV-AF) is the most common cause of cardioembolic stroke in industrialized nations, particularly in the elderly as compared to resource-poor countries, where it is still valvular chronic rheumatic heart disease (CRHD)] atrial fibrillation (V-AF) In India, the population is aging and also there has been declining prevalence in the CHRD Study Question: Is the etiologic spectrum of cardioembolic stroke in India changing from V-AF to NV-AF? Materials and Methods: Retrospective analysis of prospectively collected Institute Stroke registry-based data in two time periods as follows: Period I: January 2008 to June 2010; Period II: June 2015 to December 2016. The study population included patients aged above 18 years with first-ever ischemic stroke. Diagnosis of ischemic stroke was based on the computed tomography or magnetic resonance imaging brain findings. Stroke subtyping was done using the TOAST criteria. The etiological spectrum of cardioembolic strokes between the time periods was compared for any change. Results: No difference in the proportion of cardioembolic strokes between Period I and II: 116/548 vs. 89/446; 21% vs. 20%; P = 0.69). Cardioembolic stroke due to chronic rheumatic heart disease was significantly more in the period (Period I 19.0% vs. Period II 9.9%; P = 0/045). Cardioembolic due to NV-AF was significantly more in the Period II (Period I vs. II; 11.2% vs. 28%; P < 0.001). Conclusions: This study suggests that in this part of the world (south India) there is a change in the etiologic spectrum of cardioembolic stroke from V-AF to NV-AF.

SPO3/81
Clinicoradiological profile of superficial middle cerebral vein thrombosis
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Introduction: The diagnosis of isolated cortical vein thrombosis (ICVT) remains challenging even in the present era of modern protocols. Until date, there are very few case reports on ICVT involving the superficial middle cerebral vein (SMCV). Aim: The aim of this study is to assess the clinical and imaging characteristics of patients with SMCV thrombosis. Methods: Clinical and radiological profile of patients diagnosed with SMCV thrombosis in our institute from September 2015 to August 2016 was collected and analyzed. Results: Four patients of SMCV thrombosis were identified, all of them had it on the left and presented with focal seizures. None had features of raised intracranial pressure. Neuroimaging showed edema (with or without hemorrhage) involving the cortex and white matter of inferior frontal gyrus, temporal pole, superior temporal gyrus, insular cortex, external, and extreme capsule. Three of them received anticoagulation. All improved rapidly in a week. Discussion: Considering the rarity of isolated SMCV thrombosis and its nonspecific clinical presentation, recognition of this entity is difficult. Knowledge about the anatomical course and drainage territory of SMCV is essential for suspecting thrombosis in the presence of signal changes in the perisylvian region. Dedicated imaging with thin sections, echoplanar susceptibility weighted imaging, T2-weighted gradient echo and post contrast three-dimensional T1-weighted imaging may aid in confirmation. Conclusion: High index of clinical suspicion is required for the diagnosis of ICVT involving SMCV. It should be considered in patients with parenchymal edema and/or hemorrhage in the perisylvian region.

SPO4/89
Steroid-responsive cerebral amyloid angiopathy related inflammation in a young female: A potentially treatable condition not to be missed
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Background: Cerebral amyloid angiopathy (CAA) is a degenerative disease of cerebral vessels commonly presenting in old age as lobar hemorrhage or progressive cognitive decline. A rare and underrecognized form of CAA that presents as subacute encephalopathy with or without focal neurological deficits in a relatively younger population is labeled as cerebral amyloid angiopathy-related inflammation (CAA-RI) and shows an excellent response to steroids. Clinical and radiological description of an encephalopathy like the presentation of CAA-RI in a 48-year-old female is described in this case report. Case Report: A 48-year-old right-handed female with a history of diabetes and hypertension developed new onset focal seizures with secondary generalization and right frontal lobar hemorrhage with perihematomal edema. She responded to the antiepileptic drugs and decongestants and steroids. Her hypertension and diabetes were well controlled. Her biochemical parameters were normal. However, she developed fresh headaches, behavioral changes, and progressive confusional state as the steroids were tapered. Repeat imaging showed multiple cortical and subcortical microbleeds with patchy large asymmetric bilateral T2-FLAIR hyperintensities, cerebrospinal fluid was acellular with raised protein (133 mg/dl) and normal glucose. The viral, metabolic, and autoimmune profile was noncontributory. The clinical and imaging features satisfied the diagnostic criteria for probable CAA-RI and patient showed an excellent clinical and radiological response to steroids. Conclusion: CAA-RI is an under-recognized but potentially treatable condition. A high index of clinical suspicion supplemented by characteristic brain imaging findings may help in early recognition of this disorder, obviating the need for brain biopsy.
SPO5/91
To study the etiological and clinical profile in patients of cerebral venous thrombosis and its correlation with serum high density lipoprotein, 25(OH) D and fibrinogen levels
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Objective: The aim is to study the etiological and clinical profile in patients of cerebral venous thrombosis (CVT) and its correlation with serum high density lipoprotein (HDL), 25 (OH)D and fibrinogen level. Materials and Methods: A prospective analysis was conducted, selecting 27 patients diagnosed with CVT over a 2-year period. Patient data, risk factors, symptoms and signs, and laboratory findings were noted. Results: Of the 27 patients, 12 (44.4%) were men and the mean age was 28.2 years. The clinical presentations were headache in 25 (92.59%), seizures in 8 (29.6%), blurred vision in 11 (40.7%), and 6 (22.2%) patients had altered sensorium. Hemiparesis in 4 (14.8%), dysarthria in 1 (3.7%), and aphasia in 1 (3.7%) were less common. Papilledema in 9 (33.3%), cranial nerves involvement was found in 3 (11.1%) patients. Majority of patients 23 (85.18%) had Glasgow Coma Scale score of 15. Common risk factors were anemia in 18 (66.6%), Norethisterone intake in 2 (7.4%), postpartum state in 4 (14.8%), previous history of DVT in 1 (3.7%) patient. Of the 27 patients, 14 (51.8%) had high fibrinogen, while 24 (88.8%) had low HDL levels, whereas low serum 25(OH) D was detected in all patients. Transverse sinus was the most common sinus involved in 21 (isolated in 7) followed by sigmoid sinus in 11, superior sagittal sinus in 9 (isolated in 5) patients. Conclusion: Cerebral venous thrombosis has a varied presentation of which a headache is the most common. High fibrinogen and low HDL levels and 25(OH)D levels were found in a high number of cases of CVT.

SPO6/98
Stroke in young: Rare associations
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The issue of stroke in young in India has long been of interest to neurologists in the country. Although the traditional risk factors of stroke play a significant role in young age group also, the presence of a high number of cryptogenic strokes, cardioembolic, and venous strokes make a diagnostic evaluation in this age group more challenging. We report two cases of stroke in young, a common entity with rare associations. Our first patient was a young female of 35 years with recurrent stroke (two episodes until now and this time 2nd episode), few episodes of transient ischemic attack followed by aphasia and right hemiparesis with skin lesions in the form of livedo reticularis and digital infarction and 1 episode of left focal seizure. She was diagnosed to have Sneddon syndrome. Our 2nd patient was a young female of 13 years with young onset acute right hemiplegia, global aphasia with absent left carotid, brachial, and radial pulse. She was diagnosed to have Takayasu arteritis with APLA syndrome. A total of nine cases of TA with antiphospholipid syndrome have been reported as yet.

SPO7/103
Clinical profiling of headache in relation to first ever stroke: A hospital-based study in a tertiary care center of Eastern India
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Objectives: The aim is to study the characteristics and association of headache with first ever hemorrhagic and ischemic stroke. Design: Observational, prospective case series. Setting: Bangur Institute of Neurosciences, Kolkata, India. Materials and Methods: We have prospectively studied headache features in 106 patients with first-ever acute hemorrhagic and ischemic stroke. We assessed the characteristics of headache symptoms and different variables influencing headache in relation to first-ever stroke with special reference to age, gender, and location of the stroke. Results: The study included 156 patients with hemorrhagic and ischemic stroke. Cases were randomly recruited thrice in a week, among which the first three cases were selected. Out of these 89 patients (57.5%) had ischemic and 67 patients (42.4%) had hemorrhagic stroke. Sixty-eight of these (43.58%) had headache during stroke onset. Headache was more common with hemorrhagic stroke than ischemic stroke. 21 patients (13.46%) with headache during stroke had a history of headache. Headache was present in 33% of the patients with anterior circulation stroke and in 72% of the patients with posterior circulation stroke (P = 0.001). Large artery disease was more frequent with than without headache (42.7% vs. 16%, P = 0.04). 38 patients (55.8%) had headache with clinical characteristics of tension-type headache, 18 (26.4%) of migraine and 12 (17.6%) unspecified. Conclusions: In conclusion, the headache was present in ~40% of patients with first ever stroke. Patients with a positive history for a headache had a headache during stroke onset. Headache was more common in hemorrhagic stroke than ischemic stroke and much more common in the posterior circulation stroke than the anterior circulation. Headache was more common when the cause of stroke was large artery disease.

SPO8/106
Blood urea nitrogen/creatinine ratio as a predictor of poor outcome in ischemic stroke
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Background: Ischemic stroke (IS) is one of the leading causes of disability and mortality worldwide. Blood urea nitrogen (BUN) and creatinine concentrations in blood are markers for kidney function. In recent studies, it has been shown that high BUN concentration increases the risk of mortality in patients with heart failure. However, very limited evidence exists regarding the BUN/creatinine ratio and poor outcome after acute ischemic stroke (AIS). Objective: The aim of this study is to determine whether high levels of BUN/creatinine ratio are associated with the poor clinical outcome on discharge in AIS patients. Methods: A total of 200 patients with AIS were recruited from the Department of Neurology, All India Institute of Medical Sciences, New Delhi from July 2017 to
The aim of this study is to compare tenecteplase and alteplase in acute ischemic stroke in a tertiary care center. We have included 19 consecutive patients with acute ischemic stroke, admitted to our tertiary care hospital from January 2017 to June 2018. Patients presented within 3 h were given choice of alteplase or tenecteplase. Those who presented within 3–4.5 h were given alteplase. We have used tenecteplase in 10 and alteplase in 9 patients. Approximately 90% of patients were male in both groups. Mean age was 50 (21–75) in the tenecteplase group and 56 (35–66) in alteplase group. Improvement in National Institutes of Health Stroke Scale score was 6 (12 on admission and 6 on discharge) in tenecteplase group and 4 (12 admissions and 8 on discharge) in alteplase group. Tenecteplase group had four patients with severe stroke (NIHSS ≥16), while the alteplase group had only 1. On 90 days follow-up, good mRS (0–1) was achieved in 7 patients in tenecteplase group and 7 patients in the alteplase group. Asymptomatic intraplaque hemorrhage (IPH) occurred in 1 patient of tenecteplase and 2 patients of alteplase. Symptomatic IPH occurred in 1 patient of tenecteplase (who expired). Out of 19 patients, three patients were expired. Conclusion: In this small observational cohort, we did not find any major difference in safety and efficacy between tenecteplase and alteplase at our center.

**SPO9/117**

**Risk factors and clinico radiological correlation in acute cerebrovascular accident**

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**Objective:** The aim of this study is to study about the risk factors and clinico radiological correlation in acute cerebrovascular accident. **Methods:** This study is done in acute stroke division of neurology department in Coimbatore medical college hospital from December 2017 to May 2018. **Inclusion Criteria:** All patients presented with acute cerebrovascular accident were included in the study. **Exclusion Criteria:** All patients presented with a neurological deficit due to nonvascular causes were excluded from the study. **Results:** This study is carried out in 106 patients presented with acute stroke. Out of a total, males were 67.9%, females were 32.1%. Mean age in males (55.2 years), mean age in females (61.8 years). Anterior circulation (AC) stroke (64.1%), Posterior circulation (PC) stroke (30.1%). Acute venous stroke (5.6%). Among the AC stroke, ischemic stroke (88.7%), hemorrhagic stroke (5.6%). Common risk factors include hypertension, diabetes mellitus, and coronary artery disease. Patient with single risk factor (45.2%) more than one risk factors (49.0%).**Discussion:** Hypertension, diabetes mellitus had statistically significant risk of stroke (P < 0.00001). AC stroke showed the statistically significant involvement of internal capsule (P < 0.00001) and parieto temporal cortex. PC stroke revealed the statistically significant involvement of cerebellum (P < 0.00001). In AC stroke, the common vessel involved is middle cerebral artery (P < 0.00001). PC stroke the common blood vessel involved is the posterior inferior cerebellar artery (P < 0.00001). **Conclusion:** Hypertension, diabetes, and heart disease were common risk factors for acute stroke. Middle cerebral artery and posterior inferior cerebellar artery are commonly involved. Lifestyle modification, risk factor management reduces the incidence of acute stroke and its complications.

**SPO10/118**

**Our clinical experience of usage of tenecteplase and alteplase in acute ischemic stroke in a tertiary care center**

Samra M, Shah H, Patel M, Shah S

The aim of this study is to compare tenecteplase and alteplase in “real world” clinical scenario in acute ischemic stroke. **Inclusion Criteria:** Patients with acute ischemic stroke presented within 4.5 h of symptom onset. **Materials and Methods:** We have included 19 consecutive patients of acute ischemic stroke, admitted to our tertiary care hospital from January 2017 to June 2018. Patients presented within 3 h were given choice of alteplase or tenecteplase. Out of 19 patients, three patients were expired. **Results:** In this small observational cohort, we did not find any major difference in safety and efficacy between tenecteplase and alteplase at our center.

**SPO11/124**

**An uncommon type of stroke: Deep cerebral venous thrombosis**

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**Introduction:** Deep cerebral venous thrombosis (DCVT) is an uncommon cause of stroke. The term deep cerebral thrombosis (DCVT) is used for thrombosis of the internal cerebral vein, vein of Galen, and the basal vein of Rosenthal. About 10% of cases of CVT because of thrombosis of the deep cerebral vein. Herein, we present a case of DCVT. **Case Vignette:** A 14-year-old female had generalized headache and vomiting 2 days with slurring of speech and weakness of left upper limb and lower limb. She was drowsy. Fundus normal left hemiparesis (4/5) no neck stiffness, magnetic resonance imaging (MRI) brain with MR venography (MRV) with contrast done which showed T2/flair hyperintensity and T1-hypointensity involving the bilateral thalami and basal ganglia and patchy diffusion restriction on diffusion-weighted imaging with contrast enhancement and MRV showed thrombosis of straight sinus, bilateral internal cerebral vein, and vein of Galen. She was treated with low-molecular-weight heparin and oral warfarin. She showed improvement in sensorium and left hemiparesis. Her serum homocysteine level was high it was corrected. **Discussion:** CVT is an uncommon cause of stroke. The DCVT term is used for thrombosis of the internal cerebral vein, vein of Galen, basal vein of Rosenthal and its tributaries. Due to the varied clinical presentation, diagnosis of CVT is often missed or delayed. **Conclusion:** High index of suspicion is needed for early diagnosis. It has favorable outcome if recognized and treated.

**SPO10/118**

**Our clinical experience of usage of tenecteplase and alteplase in acute ischemic stroke in a tertiary care center**

Samra M, Shah H, Patel M, Shah S

**Aim:** The aim of this study is to compare tenecteplase and alteplase in acute ischemic stroke. **Inclusion Criteria:** Patients with acute ischemic stroke presented within 4.5 h of symptom onset. **Materials and Methods:** We have included 19 consecutive patients of acute ischemic stroke, admitted to our tertiary care hospital from January 2017 to June 2018. Patients presented within 3 h were given choice of alteplase or tenecteplase. Those who presented within 3–4.5 h were given alteplase. **Results:** We have used tenecteplase in 10 and alteplase in 9 patients. Approximately 90% of patients were male in both groups. Mean age was 50 (21–75) in the tenecteplase group and 56 (35–66) in alteplase group. Improvement in National Institutes of Health Stroke Scale score was 6 (12 on admission and 6 on discharge) in tenecteplase group and 4 (12 admissions and 8 on discharge) in alteplase group. Tenecteplase group had four patients with severe stroke (NIHSS ≥16), while the alteplase group had only 1. On 90 days follow-up, good mRS (0–1) was achieved in 7 patients in tenecteplase group and 7 patients in the alteplase group. Asymptomatic intraplaque hemorrhage (IPH) occurred in 1 patient of tenecteplase and 2 patients of alteplase. Symptomatic IPH occurred in 1 patient of tenecteplase (who expired). Out of 19 patients, three patients were expired. **Conclusion:** In this small observational cohort, we did not find any major difference in safety and efficacy between tenecteplase and alteplase at our center.

**SPO11/124**

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**Department of Neurology, V. S. General Hospital, Ahmedabad, Gujarat, India**

**Aim:** The aim of this study is to compare tenecteplase and alteplase in acute ischemic stroke. **Inclusion Criteria:** Patients with acute ischemic stroke presented within 4.5 h of symptom onset. **Materials and Methods:** We have included 19 consecutive patients of acute ischemic stroke, admitted to our tertiary care hospital from January 2017 to June 2018. Patients presented within 3 h were given choice of alteplase or tenecteplase. Those who presented within 3–4.5 h were given alteplase. **Results:** We have used tenecteplase in 10 and alteplase in 9 patients. Approximately 90% of patients were male in both groups. Mean age was 50 (21–75) in the tenecteplase group and 56 (35–66) in alteplase group. Improvement in National Institutes of Health Stroke Scale score was 6 (12 on admission and 6 on discharge) in tenecteplase group and 4 (12 admissions and 8 on discharge) in alteplase group. Tenecteplase group had four patients with severe stroke (NIHSS ≥16), while the alteplase group had only 1. On 90 days follow-up, good mRS (0–1) was achieved in 7 patients in tenecteplase group and 7 patients in the alteplase group. Asymptomatic intraplaque hemorrhage (IPH) occurred in 1 patient of tenecteplase and 2 patients of alteplase. Symptomatic IPH occurred in 1 patient of tenecteplase (who expired). Out of 19 patients, three patients were expired. **Conclusion:** In this small observational cohort, we did not find any major difference in safety and efficacy between tenecteplase and alteplase at our center.
early. MRI brain with MRV is the gold standard investigation. Any reversible causes of thrombosis should be treated.

**SPO12/126**

The study of risk factors, etiology, and clinical profile of acute thalamic stroke in a tertiary care center

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**Introduction:** Incidence of stroke in India varies from 84 to 256/100000 to 334–424/100000 population of which isolated thalamic involvement occurs in <2.4%. Thalamic lesions have varied clinical manifestations depending on the vascular territory involved. **Aims and Objectives:** The aim is to assess the risk factors, etiology, and clinical presentation of acute thalamic stroke depending on the vascular territory involved in a tertiary care center. **Materials and Methods:** The study was conducted in the Department of Neurology, MMC, Chennai. Patients with acute thalamic stroke (ischemic and hemorrhagic) in the last 6 months were included (n = 50). Patients with cerebrovascular accident involving other areas of central nervous system and thalamic lesions other than vascular events were excluded from the study. Detailed history and neurological examination were taken. Risk factors were assessed. Findings in magnetic resonance imaging brain with magnetic resonance angiography and MR venography and coefficient of variation Doppler/cardiac evaluation that aided in diagnosis were recorded and clinical and radiological findings were correlated and assessed with appropriate statistical tools. **Results and Conclusion:** In our study of 50 patients, 36 (70%) were male and 14 (30%) females. Mean age of presentation was 53.24. Risk factors assessed were diabetes in 19 (38%) patients, hypertension in 25 (50%) patients, Smoking in 34 (68%) patients, alcohol abuse in 22 (44%) patients, dyslipidemia in 18 (36%) patients, and cardiac illnesses in 6 (12%) patients. The most common presentation of thalamogeniculate artery involvement was identified to be hemisensory loss (48%), and that of posterolateral hemorrhage is identified to be hemisensory loss/hemiparesis (14%). Language abnormalities were commonly seen with medial hemorphages. Cognitive disturbances were seen with paramedian and polar arterial territory involvement.

**SPO13/127**

Transient palilalia as the sole manifestation of the left gangliocapsular infarct

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**Background:** Palilalia is an involuntary repetition of syllables, words, or phrases of the ongoing discourse. It can occur as one among the various clinical features of Parkinsonism, pseudobulbar State, ischemic/hemorrhagic stroke, Gilles de la Tourette syndrome, schizophrenia, etc. **Case Report:** A 57-year-old shopkeeper from Nagpur presented with sole complaint of inadvertently repeating his own words for nearly 20 s while dealing with a customer. Just few minutes earlier, he had quarreled with the neighboring shopkeeper. He suffered from diabetes mellitus and hypertension for the last 3 years. He was vegetarian, without addictions. He presented to me 2 days after the event. That time his thorough neurological examination was normal (including extracranial movements, speech, tone, power, sensations, deep tendon reflexes, plantars, coordination, and gait). He had no pronator drift/clumsiness in fingers/bradykinesia. This raised a query as to whether his problem was organic or psychogenic. However, he had traveled nearly 725 km from Nagpur to Pune (where his son had settled) to seek neurology consultation. A serious thought was given to evaluate him. Magnetic resonance imaging brain was done and it showed left gangliocapsular infarct. **Conclusion:** This patient had palilalia for few seconds as the sole manifestation of left gangliocapsular infarct—a presentation of stroke rarely noted. “Learn neurology stroke by stroke” as remarked by Miller Fisher is so very true. A doctor’s work is very much like a detective to find the culprit and one should not be in hurry to make a diagnosis of “psychogenic” etiology easily.

**SPO14/130**

Completely recovered transient ischemic attack with middle cerebral artery occlusion presenting with in window period: A management dilemma

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Completely recovered transient ischemic attack (TIA) with middle cerebral artery (MCA) occlusion presenting within the window period pose a management challenge and dilemma. We report three cases, two of which underwent intravenous thrombolysis and did well. Third patient who was managed conservatively developed an infarct later. The pros and cons of thrombolysis for completely recovered TIA with major vessel occlusion is discussed. Risk of stroke after TIA, secondary deterioration following TIA and progression of stroke are high in patients with major vessel occlusion. Ischemia rather than recurrent stroke cause deterioration. Risk of hemorrhage with thrombolysis is low. However, adequate collateral circulation and hemodynamic TIAs may not warrant thrombolysis. Furthermore with thrombolysis only a fraction will recanalize and fewer reperfuse. Partial recanalization may expose more surfaces and promote thrombosis. Thrombolysis also has the danger of distal embolization. With the careful assessment of collateral circulation, perfusion, and identification of tissue at risk thrombolysis may be done for selected cases of recovered TIA with culprit major vessel occlusion.

**SPO15/134**

A cross-sectional analytical study of cognitive impairment in survivors of spontaneous intracranial hemorrhage

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**Aim of the Study:** To determine the frequency of cognitive impairment in a cohort of patients hospitalized for spontaneous intracranial hemorrhage (ICH). **Methodology:** A cross-sectional analytical study was performed in patients with
spontaneous ICH and subjected to cognitive testing. Cognitive impairment is defined if evidence of cognitive decline exists from a previous level of performance in one or more cognitive domains: learning and memory (or) language (or) executive function (or) complex attention (or) Perceptual-motor social cognition. Add enbrooks cognitive examination scale was used to assess cognitive domains. Survivors of spontaneous ICH in the age group of >18 years after 6–12 months after the date of ictus were included, and secondary causes of ICH were excluded. Results: A total of 120 patients were recruited of which 44 (36.66%) were female. Mean age of the study population is 62.3 years (26–86 years). Moreover, it was found that 94 (78.33%) out of 120 were subcortical in location, 19 (15%) were cortical, and 7 (5.8%) were infratentorial in location. Out of 120 patients examined 34 patients (28.3%) were found to have cognitive impairment, of which 11 of 19 (57.89%) cortical, 21 of 94 (22.34%) subcortical, and 2 of 7 (28.5%) of infratentorial. The predominant impairment was observed in executive function in majority followed by working memory impairment. Conclusion: The prevalence of cognitive impairment in general population was found to be 5%–7%, in comparison to the high prevalence of cognitive impairment following spontaneous ICH which is 28%, and this cognitive impairment needs to be studied further to accurately prognosticate their functional ability.

**SPO16/136**  
Use of surpass flow diverter device (Stryker Neurovascular, Fremont, CA, USA) in the treatment of an acutely ruptured aneurysm  
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Background: Use of surpass flow diverter (FD) device (Stryker Neurovascular, Fremont, CA, USA) in the treatment of acutely ruptured aneurysm has not been well studied and reported in the literature. Methods: We retrospectively reviewed patients having subarachnoid hemorrhage who were treated by surpass FD placement at our hospital between June 2016 and March 2018. Detail analysis of medical records was done to obtain patient age, gender, clinical history, Hunt-Hess grade, Fisher grade, results of radiographic, and procedural details including technical success and complication, clinical outcome, and follow-up angiographic results. Results: Our search identified 16 patients with 16 aneurysms who were treated with surpass flow diverter out of which 13 (81%) aneurysms were in the anterior circulation and 3 (19%) aneurysms in the posterior circulation. Only one surpass FD was used in each patient with size ranging from 3 mm × 25 mm to 4 mm × 50 mm. Fifteen (94%) patients achieved the favorable clinical outcome (mRS 0-1) at 3 months. One patient died due to invasive fungal infection. Angiographic follow-up results were assessed using O’Kelly-Marotta grading scale in 15 surviving patients and showed Grade D result (no filling) in 13/15 aneurysms (87%) at 3 and 6 months. Conclusion: Surpass FD can be safely and effectively utilized for the treatment of ruptured intracranial aneurysm which are difficult to treat by conventional clipping and coiling, however larger and comparative studies with long-term follow--up are needed to confirm our findings.

**SPO17/138**  
Effect of public health insurance scheme on direct health care cost of stroke: A cost of illness study at Western Rajasthan  
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Objective: A public health insurance scheme “Bhamashah swasthya bima yojna (BSBY)” implemented at Rajasthan. We aimed to study the out of pocket (OUP) cost of stroke at western Rajasthan. Materials and Methods: A prospective cohort study was done between January and June 2018. All consecutive stroke patients were enrolled after informed written consent. Sociodemographic as well as data related to direct and indirect cost at admission and at 3 months follow-up visit was obtained. Data related to patients’ stroke outcome in form modified Rankin scale (mRS) score were also collected at 3 months visit. The study outcomes were mean OUP direct health-care cost in beneficiary and non-beneficiary stroke patients, mean direct non health care cost of all, mean indirect cost of all and effect of stroke outcome on direct cost. The outcome was presented as mean cost with 95% confidence interval. Results: A total of 50 consecutive stroke patients were enrolled with a mean age 54.7 ± 12 years and 18 (36%) female. The beneficiary of insurance scheme was 14 (28%) patients and mean direct health care cost was Rs.38000 INR (32800–41200) per patient in comparison to Rs.63600 INR (59300–78900) per patient in nonbeneficiary patients. The mean direct non-health care cost was rupee 4000 (31220–46380) per patient. The mean indirect cost was Rs.33000 (27680–56800) per patient. Poor outcome (mRS >2) was significant direct cost driven factor (P = 0.001). Conclusions: BSBY reduced the OUP direct healthcare cost of stroke patients.

**SPO18/156**  
Recurrent small vessel stroke in a case of Henoch-Schönlein purpura  
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Introduction: Henoch-Schönlein purpura (HSP) is a small vessel disease affecting children with manifestations of arthralgias, gastrointestinal issues, palpable purpura, and renal dysfunction. Recurrent stroke is rare in HSP. Case: A 22-year-old man was diagnosed HSP at the age of 5 years for complaints of abdominal pain, bleeding per-rectum, purpuric rash, and ulcerations and was started on immune-modulator therapy following histological confirmation of leukocyctoclastic vasculitis with a predominant immunoglobulin-A deposit in skin biopsy. Due to irregular treatment, he still has active nonhealing lower limb ulcers and suffered three episodes of stroke involving small intra-cerebral vessels for the last 3 months, first episode; acute infarction in pons and right cerebellum occurred 3 months back, the second episode; inferior fornix infarction involving subcallosal artery occurred 1 month back and third episode; focal peri-mesencephalic subarachnoid hemorrhage in the inter-peduncular cistern occurred immediately. Discussion: HSP is a disease of small vessels causing systemic vasculitis, but central nervous system involvement may be seen in 1%–8% of cases. Both ischemic
and hemorrhagic stroke has been reported in HSP patients. Pro-thrombotic state generated by specific antibodies has been implicated as cause of ischemic stroke, whereas cerebral vasculitis or reduced levels of factor XIII and prothrombin may be the cause for hemorrhagic stroke. **Conclusion:** To the best of our knowledge, this is the first description, where both ischemic and hemorrhagic stroke occurred in the same patient of HSP in the different time frame. Therefore, HSP may be considered an important cause of recurrent stroke.

**SPO19/165**

**Iron deficiency anemia causing cerebral venous sinus thrombosis**  
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Two patients presented with cerebral venous sinus thrombosis (CVST) and had associated iron deficiency anemia. A 34-year-old male had thrombosis of superior sagittal sinus and right transverse sinus who presented with new-onset headache and seizure. His laboratory findings were showing severe iron deficiency anemia. As he was working in silver melting factory, severe dehydration had induced CVST. A 45-year-old female presented with recent onset headache, vomiting, and poor nutrition. Her imaging showed superior sagittal sinus thrombosis. Her laboratory findings showed iron deficiency anemia (low iron and low ferritin). Both patients received symptomatic treatment and iron supplementation. This may suggest iron deficiency may be a risk factor for CVST.

**SPO20/166**

**Experience with intravenous thrombolysis in acute ischaemic stroke in a tertiary care hospital in Kolkata**  
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Ever since the landmark results of the National Institute of Neurological Disorders and Stroke trial was published in 1995, intravenous thrombolytic therapy has become the standard of care in the management of acute ischemic stroke, both regarding dramatically reducing mortality as well as minimizing long-term residual disability. **Aim:** The aim of this study is to evaluate the efficacy of intravenous thrombolysis in acute ischemic stroke. **Settings and Design:** Nonrandomized, observational study carried out at Medical College and Hospital, Kolkata between February 2017 and January 2018. **Materials and Methods:** Forty-six patients of acute ischemic stroke who presented within the window period were thrombolysed with IV tissue plasminogen activator 0.9 mg/kg. The mean baseline National Institutes of Health Stroke Scale (NIHSS) was 13 ± 4.4 (range 4–24). The mean time to reach the emergency was 2.6 h (1.1–4.0 h). The mean door to central time was 36 min (25–60 min) and mean door to injection time was 57 min (36–74 min). **Results:** A total of 26 patients (56.5%) showed a significant improvement of NIHSS score ≥4 points from the baseline. Three patients developed intracranial hemorrhage of whom 1 (2.2%) died. Thirty-two patients (69.6%) showed a significant functional improvement on the Barthel index (≥30%) at 30 days follow-up. **Conclusion:** Intravenous thrombolysis is a highly effective treatment option for hyperacute ischemic stroke with significant mortality and morbidity benefits. The high cost of therapy and a small window of drug administration, however, preclude this treatment modality in a significant number of patients.

**SPO21/168**

**Tenecteplase versus alteplase in acute ischemic stroke: An updated meta-analysis**  
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**Objectives:** Efficacy and safety of tenecteplase compared to alteplase in acute ischemic stroke is of great clinical significance. In the present meta-analysis, we intended to update the previous meta-analysis to determine the relative difference in efficacy and safety outcome between intravenous tenecteplase and intravenous alteplase in ischemic stroke. **Materials and Methods:** PubMed, Cochrane Central Register of Controlled Trials and clinical trial registries websites were searched for trials comparing tenecteplase with alteplase in acute ischemic stroke. We considered six outcomes as follows: early major neurological improvement, the excellent functional outcome at 3 months, the good functional outcome at 3 months, any intracranial hemorrhage, symptomatic intracranial hemorrhage, and mortality at 3 months. **Results:** Five randomized controlled trials involving 1536 patients were included in the study. The tenecteplase group compared to the alteplase group had significantly better early major neurological improvement (Relative risk (RR) = 1.28, 95% confidence interval (CI): [1.01, 1.63], P = 0.05). There was no significant difference between tenecteplase and alteplase in other functional and safety outcomes. In the sensitivity analysis, the summary risk ratio of excellent and good functional outcome was significantly better in the tenecteplase group than alteplase group, on the exclusion of Logallo et al. (2017). The meta-regression analyses found that a higher proportion of stroke mimics significantly reduced RR of excellent functional outcome (P = 0.027) and good functional outcome (P = 0.028). **Conclusions:** Our meta-analysis found tenecteplase to be significantly favoring one outcome: early major neurological improvement. Other outcomes did not differ between the tenecteplase and alteplase groups.

**SPO22/170**

**Hyperadiponectemia, an acute phase response to stroke: Correlation between adiponectin and severity/functional outcome of stroke**  
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**Background and Objective:** Role of hypo-adiponectinemia as cardiovascular risk factor is well established, but in the scenario of the stroke there are very few studies. In the current study, we evaluated the correlation between the level of adiponectin and neurological severity and functional outcome of stroke. **Materials and Methods:** A cross-sectional, analytical, observational study was performed including 105 cases of stroke. Clinical information comprising stroke severity was...
Background and Purpose: Stroke in adults has special significance in developing countries as it affects the most economically productive group of the society. Cardioembolic stroke is common and disproportionately more disabling than nonembolic mechanisms of stroke. We identified different demographic profile and risk factors of cardioembolic stroke in tertiary care hospital in South India. Methods: Data collected from patients who presented with stroke from December 2015–2017 regarding demographic characteristics, risk factors and clinicoradiological profile of a patient who qualified the criteria for cardioembolic stroke and analyzed. Results: Of the 803 patients admitted with ischemic stroke, 115 (14.3%) had cardioembolic stroke, the majority of whom (71.8%) were >40 years, of which 57.4% were males with hypertension and diabetes as comorbidities in 46% and 47.8%, respectively, 70.4% had stroke in anterior circulation. The most common risk factors were cardiomyopathy (35.6%), atrial fibrillation (31.3%), and chronic rheumatic heart disease (28.7%). Most common mechanism of stroke was chamber abnormality (47.82%) followed by, the dual mechanism (20%), isolated arrhythmias (16.5), and isolated valvular cause (15.6). Cardiac disease was de novo detected in (57.4%) and known (42.6%). Among those with the known cardiac disease only 23.4% were compliant with drugs and reasons for being noncompliant are ignorance, un-education and financial constraints. Conclusions: Cardioembolic stroke was seen in 14.3% of patients with ischemic stroke with the majority in males >40 years with most strokes in anterior circulation and major risk factors being cardiomyopathy, atrial fibrillation, and chronic rheumatic heart disease.

SPO25/198
Experience with stroke thrombolysis in a rural secondary care government hospital in Kerala
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I am sharing the experience with stroke thrombolysis in a rural government hospital at Pathanamthitta district Kerala state. During the period from May 1, 2017 to June 30, 2018 we could successfully thrombolysis 25 patients. Mean National Institutes of Health Stroke Scale score was 10. Computed tomography-based imaging protocol was used. Recombinant tissue plasminogen activator was the only drug used for intravenous (IV) thrombolysis. Good results were obtained in 20 patients. No immediate complications were observed in the cohort. Standard indications and contraindications for IV thrombolysis were strictly followed. Result: From our experience, IVRTPA could serve as a feasible option in limited resource government hospitals in rural India.

SPO26/210
“Man in the barrel Plus” Syndrome: A rare presentation of stroke
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Background: Man in the barrel syndromes has well been described in high cervical cord pathologies and bilateral cortical
SPO28/235
Lenticulostriate vasculopathy: A case of infantile hemiplegia
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Introduction: A distinct clinicoradiological entity termed lenticulostriate vasculopathy was described recently. It presents as a Basal ganglia stroke following trivial head trauma. We report a 4-month-old boy who developed basal ganglia stroke following trauma. Case Description: A 4-month-old male infant 1st born to nonconsanguineous parentage with normal parental history presented to Neurology OPD with history of the paucity of movements of right upper limb and lower limb of 3 days duration following a fall from the bed. There was no history of loss of consciousness, Seizures, subsequently, on the 2nd day of fall the infant developed weakness of right upper limb and lower limb. There was no previous similar episodes and family history was not significant. On systemic and neurological examination, no neuropsychiatric markers, normal fundus. There was a paucity of limbs on right side with decreased tone and depressed reflexes. Cardiac, respiratory, and other systemic examination are within the normal limits. Laboratory investigation revealed thrombotic workup is normal, sickling test negative retroviral screening negative 2D Echo normal. Computed tomography findings: Axial sections-bilateral punctate lentiform nuclei calcifications, sagittal-mineralization of lenticulostriate artery. Treatment: He was started on 3 mg/Kg/day of oral aspirin, iron supplements and physiotherapy, for which he showed gradual improvement.

Discussion: A few case reports of basal ganglia stroke following head trauma have been described. The proposed mechanisms include transient arterial spasm, mechanical of flow in the presenting arteries, with subsequent lenticulostriate

SPO27/229
Unusual presentation of palinopsia due to left occipital hemorrhage in a patient with idiopathic thrombocytopenic purpura
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Neurological complications are rare in idiopathic thrombocytopenic purpura. They are mainly due to intracranial hemorrhages. Other rare causes are subarachnoid hemorrhages and subdural hematomas. They occur mainly due to severe thrombocytopenia and associated factors such as use of nonsteroidal analgesics, head trauma, infections, and vasculitis. In the earlier studies, the incidence of intracranial hemorrhage ranged from 0.65%-26%. However recent studies reported incidence of intracranial hemorrhage to be 0.19%-0.78%. The occurrence of palinopsia with intracranial hemorrhage is a rare manifestation in acute ITP and has never been seen in the literature. Hence, we are presenting a case who presented with acute onset palinopsia with headache who subsequently was diagnosed to be intracranial hemorrhage due to thrombocytopenia, the cause of thrombocytopenia being acute idiopathic thrombocytopenic purpura.

SPO28/234
The role of the electroencephalogram in acute ischemic stroke-prediction of poor outcome?
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Objective: The role of electroencephalogram (EEG) in early acute ischemic stroke and to measure the outcome.

Methods: We included 15 patients of acute ischemic stroke in the Middle cerebral artery territory. Ten patients had >1/3rd territory infarct, and five had lacunar infarct. All patients were subjected to EEG within 48 h of admission. EEG changes such as focal slowing or hemispheric or bilateral slowing or epileptiform activities (sharp waves, spike, and wave discharges) are noted. Based on these changes outcome of these patients were observed after 1 week, based on National Institutes of Health Stroke Scale (NIHSS) score or mortality of the patient. Results: Out of 15 patients, 5 patients had lacunar infarct with NIHSS score <4, 10 patients had >1/3rd territory involved with NIHSS score >10. Out of these 10 patients, 6/10 patients had no changes. 1/10 patient had focal slowing (Theta range frequency), 1/10 patient had ipsilateral slowing in theta range with intermittent sharp waves in the site of infarction, 2/10 patients had bilateral cerebral slowing in theta range with sharp waves in the site of infarction. Patient with L/L slowing with intermittent sharp waves was expired and patient with a bilateral slowing in theta range with sharp waves in the site of infarction had NIHSS score >10 after the first week of admission. Others were improved. Conclusion: Those patients with slowing with epileptiform discharges had a poor outcome. EEG is a simple, easily available tool which can be used as a prediction of outcome. Our study is a pilot study, and a small number of subjects was involved.

SPO29/235
Lenticulostriate vasculopathy: A case of infantile hemiplegia
Teja S, Kumar SS, Poli N
Department of Neurology, Narayana Medical College, Nellore, Andhra Pradesh, India

Introduction: A distinct clinicoradiological entity termed lenticulostriate vasculopathy was described recently. It presents as a Basal ganglia stroke following trivial head trauma. We report a 4-month-old boy who developed basal ganglia stroke following trauma. Case Description: A 4-month-old male infant 1st born to nonconsanguineous parentage with normal parental history presented to Neurology OPD with history of the paucity of movements of right upper limb and lower limb of 3 days duration following a fall from the bed. There was no history of loss of consciousness, Seizures, subsequently, on the 2nd day of fall the infant developed weakness of right upper limb and lower limb. There was no previous similar episodes and family history was not significant. On systemic and neurological examination, no neuropsychiatric markers, normal fundus. There was a paucity of limbs on right side with decreased tone and depressed reflexes. Cardiac, respiratory, and other systemic examination are within the normal limits. Laboratory investigation revealed thrombotic workup is normal, sickling test negative retroviral screening negative 2D Echo normal. Computed tomography findings: Axial sections-bilateral punctate lentiform nuclei calcifications, sagittal-mineralization of lenticulostriate artery. Treatment: He was started on 3 mg/Kg/day of oral aspirin, iron supplements and physiotherapy, for which he showed gradual improvement.

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vasculopathy due to mineralization of arteries and thrombosis. This entity has good short-term outcome.

**SPO30/283**

**Thrombolysis for acute ischemic stroke-public awareness**

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**Background:** Stroke is an acute vascular event producing a neurological deficit. The outcome of ischemic stroke is significantly affected by thrombolytic therapy (time window-4.5 h). **Aim:** The aim of this study is to assess public awareness regarding thrombolysis in acute ischemic stroke. **Methods:** A total of 250 patients (and caregivers) diagnosed with acute ischemic stroke were questioned about the awareness of thrombolytic therapy. **Results:** Average time delay to reach the hospital was 3 h. The average time for CT brain to be taken was 1.5–2 h. 165/250 (66%) patients did not have any knowledge about thrombolytic therapy. 85/250 (34%) patients had knowledge about the thrombolytic treatment, but none of the above patients had knowledge about the presence of time window for thrombolysis for ischemic stroke as opposed for cardiac thrombolysis (myocardial infarction) as around 143/250 (57.2%) had knowledge about this treatment for myocardial infarction. **Conclusion:** Knowledge regarding thrombolysis for acute ischemic stroke is poor among the public population.

**Saturday, September 29, 2018, 7:30-10:00 h**
**Poster Session 05: Infections and Stroke**

**IPO1/8**

**Unusual neuroradiological manifestations of dengue infection**

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**Introduction:** Dengue transmitted by Aedes mosquitoes, has a variable spectrum ranging from asymptomatic infection to dengue hemorrhagic fever and shock syndrome. Neurological complications are unusual but have been observed more frequently in the recent past. Pathogenesis includes neurotrophic and immune-mediated effects. **Case Reports:** (1) Dot Sign-patient presented with fever, motor aphasia. MRI revealed the focus of restricted diffusion in the splenium of corpus callosum, hypointense T1-weighted, hyperintense FLAIR-appearance of a “Dot.” This was reversible, disappeared after 4 weeks. (2)acute disseminated encephalomyelitis-patient presented with fever and status epilepticus. Magnetic resonance imaging (MRI) showed hemorrhagic foci in demyelinating lesions. (3) Acute cortical infarct-patient presented with fever, headache, and hemiparesis. MRI revealed acute frontal infarct. Dengue-associated coagulopathy and vasculopathy can result in vascular thrombosis and ischemic stroke. (4) The diffuse microhemorrhages-patient presented with fever, jaundice, and altered sensorium. MRI showed diffuse cortical-subcortical microhemorrhages. (5) The transverse myelitis-patient had a sudden onset of sensorimotor quadriparesis and sphincter disturbances. Hyperintensity in T2-weighted signals found in cervical spinal MRI scan supported transverse myelitis diagnosis. He partially responded to intravenous steroids. It has been shown that post-infection autoimmune reactions and direct infection are associated with transverse myelitis. (6) Brachial neuritis-patient presented 2 weeks after recovery of dengue infection with neuralgic pain over his right upper limb. MRI brachial plexus and cervical spine were normal. He improved with steroids. The pathogenesis is related to immune reactions. **Conclusion:** We report these cases to highlight the varied neuroradiological presentations of commonly encountered Dengue infection.
and other supportive treatment. He improved with treatment and liver function test normalized after 3 weeks.

**IPO4/102**

**Beyond optic neuritis: An unusual case of visual loss with splenic infarcts**

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**Background:** Acute-onset painless visual loss can pose diagnostic challenges. We report an unusual case.  
**Case Report:** A 40-year-old male, chronic alcoholic, smoker, hypertensive, and diabetic presented with painless visual loss of both eye for the past 2 days. He had a fever for 1 month that subsided 1 week back. No other history was present. Examination revealed a conscious patient with reduced visual acuity (only perception of light) with relative afferent pupillary defect in lupus-erythematosus-cell and bilateral disc edema with normal macula. Magnetic resonance imaging (MRI) brain and spine were normal. MRI orbit showed bilateral orbital nerves enhancement. The only biochemical abnormality was raised erythrocyte sedimentation rate (100 mm/1^st^ h). Cerebrospinal fluid was noncontributory. Diagnosis of atypical optic neuritis was made. He received injection methyl prednisolone (5 days) without any improvement. Then, a repeat fundus examination after 5 days showed bilateral macular star with disc edema. Thus, a revised diagnosis of neuro-retinitis was made. Further investigations showed positive Lyme’s serology, confirmed by the Western Blot analysis. Contrast-enhanced computed tomography abdomen revealed multiple splenic infarcts. Oral doxycycline 100 mg BID for 6 weeks resulted in significant improvement in visual acuity (6/18 RE and 6/24 LE). Fundus showed B/L mild disc pallor and hard exudates around macula with retinal pigment epithelial atrophic patches. Fluorescein angiography post-treatment did not show any active vasculitis. At 9-month follow-up, the patient was asymptomatic with the mild residual visual loss.  
**Conclusion:** Macular star suggesting neuro-retinitis may evolve over days after a visual loss. Lyme’s disease, a treatable disease can have protean manifestations including neuro-retinitis and splenic infarcts.

**IPO5/128**

**A rare case of dual fungal infection presenting as “Orbital Apex-Cavernous Sinus Plus” syndrome**

Tomar L, Chowdhury D, Datta D, Gupta S  
Department of Neurology, G B Pant Institute of Postgraduate Medical Education and Research, New Delhi, India

**Background:** We report a case of dual fungal infection presenting as orbital apex-cavernous sinus plus syndrome in an uncontrolled diabetic patient.  
**Case Report:** A 62-year-old female, known diabetic (without any treatment) presented with intermittent fever, right peri-orbital pain, eyelid swelling and conjunctival redness for 7 days. Examination revealed a conscious patient with decreased visual acuity (6/16), dilated and fixed pupil, complete ophthalmoplegia, and proptosis of the right eye. She had reduced sensation in the right face, loss of corneal reflex and lower motor neuron right facial nerve palsy. Contrast-enhanced MRI showed increased signal intensity in the right retro-orbital fat, proptosis, coal muscle edema, effacement of peri-optic subarachnoid space, bulky right cavernous sinus. Right maxillary sinus had mucosal thickening and secretions with air-fluid level. Biochemical investigations revealed raised erythrocyte sedimentation rate (100 mm/1^st^ h), high sugars, deranged kidney function test, and proteinuria. Nasal mucosal scrapings were negative for gram stain, KOH, and culture. Cerebrospinal fluid (CSF) was noncontributory. Subsequently, a biopsy of the nasal and right maxillary sinus showed a large area of fibrinoid necrosis interspersing ribbon-like non-septate hyphae suggestive of mucor along with spores and invasive pseudohyphae of candida. Thus, a dual rhino-sino-cerebral fungal infection in the form of rhinoencephalic mucormycosis and invasive candidiasis was made. The patient responded to liposomal amphotericin B and fluconazole and regained her ocular motility although partial ptosis persisted.  
**Conclusion:** Diagnosis for fungal infections is difficult but must be rigorously pursued even if initial CSF and local scrapings are noncontributory. A dual rhino-sino-cerebral fungal infection is extremely rare.

**IPO6/140**

**“Pres”sing on an infectious cause!!**

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**Introduction:** Posterior reversible encephalopathy syndrome (PRES) is characterized by headache, confusion, seizures, visual loss due to causes such as hypertension, acute kidney injury, eclampsia, sepsis, and autoimmune diseases. An infectious cause of PRES is a rare entity. We report a case of the left 3rd nerve palsy and visual loss with a headache, diagnosed to have Atypical PRES due to Leptospirosis.  
**Case Report:** A 42-year-old female had bilateral painless loss of vision and headache for the past 3 days with fever of 5 days. She had bilateral papilledema. Next day she developed left complete 3rd nerve palsy. Magnetic resonance imaging (MRI) brain showed asymmetric areas of T1 hypointense and T2 and FLAIR hyperintense lesions in parietooccipital areas, and in the midbrain. MR venogram, renal functions were normal. Vasculitic workup was negative. She had pancytopenia with hemoglobin of 10 g%, total count of 2570 (cum), platelet count of 20,000. Liver function tests were abnormal with serum glutamic-oxaloacetic transaminase of 153, Glutamic Pyruvate Transaminase of 152 and alkaline phosphatase of 983 with normal bilirubin. Given an infectious cause to explain pancytopenia, hepatic dysfunction, and posterior reversible encephalopathy syndrome (PRES), leptospira Immunoglobulin M antibody was sent which was positive. The patient was started on crystalline penicillin and doxycycline for 14 days. Counts normalized in 3 days, visual loss and the 3rd nerve palsy started to improve on the 5th day with normalization in 10 days.  
**Discussion:** About 28% of PRES can be asymmetrical, and 18.3% can involve brainstem on MRI. Conclusion: It’s imperative to search for the cause of PRES with a high index of clinical suspicion, especially in atypical PRES with definitive etiology. Infections need to be ruled out, especially in the presence of sepsis/pancytopenia.

**IPO7/160**

**Aphasia as a manifestation of status epilepticus in a post-HSV1 encephalitis case: A rare entity**

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Aphasic status epilepticus presenting in awake patients is a rare entity. Acute onset aphasia is seen commonly due to stroke involving the language network. We present a case of diagnosed and treated herpes encephalitis, who presented with abrupt onset loss of speech and comprehension with preserved consciousness. She was diagnosed and treated as a case of herpes simplex encephalitis (HSV) based on cerebrospinal fluid (CSF) and MRI 3 weeks back. Her repeat magnetic resonance imaging (MRI) of the brain showed laminar necrosis along the left medial temporal gyrus but no new infarct. Electroencephalogram (EEG) showed periodic or quasiperiodic sharp waves involving the posterior temporal and frontal head regions on the left side with some sharps involving the right frontal regions. A repeat CSF examination was negative for HSV polymerase chain reaction and was acellular with normal proteins and sugar. Based on acute-onset aphasia, negative imaging for stroke and an EEG which showed periodic discharges she was diagnosed a case of aphasic status epilepticus. She was treated with intravenous midazolam infusion and other antiepileptic drugs, following which her EEG and her clinical status improved. New onset and prolonged aphasia without acute MRI changes should warrant continuous EEG monitoring to look for non-convulsive status epilepticus. The presence of aphasic symptoms and electrographic seizure pattern is sufficient to diagnose aphasic status epilepticus.

IPO8/179
Platelet dysfunction and coagulation assessment in patients with tuberculous meningitis
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Background and Aim: Tuberculous meningitis (TBM) is the most severe form of tuberculosis. Approximately 50% of patients presenting in stage III TBM die. About 20%–30% of survivors manifest a variety of neurological sequelae. Only 1% of all patients with tuberculosis have meningeal involvement. The aim of this study is to look for platelet dysfunction and coagulation profile in patients with TBM.

Methodology: All consecutive patients of TBM diagnosed according to the consensus case definition will be included in the study. All included patients underwent detailed clinical history and examination. The subjects were investigated as per a predetermined algorithm of investigations which included magnetic resonance imaging brain, cerebrospinal fluid studies, routine blood investigations and specific investigations such as platelet morphology study, total platelet count, mean platelet volume, prothrombin time, international normalized ratio, activated partial thromboplastin time, platelet aggreometry with Aggregation of platelets. Results and Observation: A total of 83 patients were enrolled in the study. 49 males and 34 females, with age range of 14–70 years. A total of 24 patients (28%) have developed stroke. The mortality rate associated with tuberculous meningitis is 16 (20%). A number of patients with quantitative platelet dysfunction 23. (TPC <1 Lakh), Out of which 18 had stroke. A number of patients with qualitative platelet dysfunction 3, all of which had stroke. Coagulation profile is normal in all patients. Conclusion: In our study, stroke in TBM occurred in 28% of patients, especially those in advance stage and severe illness, of which a larger proportion had quantitative and qualitative platelet dysfunction. Hence, platelet dysfunction may have some role in the development of stroke in TBM patients. Larger studies are needed to confirm this hypothesis.

IPO9/181
A study of cerebrospinal fluid lactate and C reactive protein in bacterial, tuberculous and Viral Meningitis
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Differentiating various types of meningitis is still a challenge as the yield of microbiological tests is generally low in these disorders. Aim: The aim of this study is to find out the usefulness of two tests, cerebrospinal fluid (CSF) lactate and CSF c reactive protein (CRP) for the differentiation of bacterial, tuberculous (TB), and viral meningitis. Methods: CSF lactate and C reactive protein (CRP) measurements were done in 26 patients of TB meningitis, 23 patients of bacterial meningitis and 43 patients of viral meningitis. Results: The mean CSF lactate level in bacterial, TB and viral meningitis was 10.67, 4.46, and 2.84, respectively. The mean CSF lactate level was significantly raised in bacterial compared to TB and viral meningitis (P < 0.001). In a pairwise comparison, the mean CSF lactate in bacterial meningitis group differed significantly from both viral (P < 0.001) and TB meningitis (P < 0.001). However, CSF lactate did not differ between viral and TB meningitis. With a cut-off value of 4.35 mmol/L, CSF lactate was useful in differentiating bacterial from TB and viral meningitis with a sensitivity of 90.5% and specificity of 82.6%. The mean CSF CRP level in bacterial, TB and viral meningitis was 4.44, 3.04 and 3.16, respectively. The difference was not significant (P = 0.39). Conclusions: Lactate levels in CSF can be used as a good rapid screening test to differentiate bacterial meningitis from nonbacterial meningitis such as TB and viral meningitis along with other CSF parameters.

IPO10/194
Tuberculosis and chronic inflammatory demyelinating polyradiculoneuropathy-correlation or coincidence
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Chronic inflammatory demyelinating polyradiculoneuropathy (CIDP) is an acquired neuropathy that commonly has symmetric, proximal, and distal limb weakness, distal sensory loss that progresses over >2 months. A number of medical conditions may occur contemporaneously with CIDP and have been implicated in its pathogenesis. Although the association of CIDP and tuberculosis is not reported. We observed that out of our cohort of 51 patients fulfilling the European Federation of Neurological Societies/Peripheral Nerve Society criteria of CIDP, 4 (7.8%) patients were diagnosed cases of tuberculosis and were receiving anti-tubercular treatment. Three patients were suffering from pulmonary tuberculosis, and one patient had tubercular lymphadenopathy. The neuropathy associated with anti-tubercular drugs is primarily axonal. Among the
IPO11/204
Clinico-radiological profile of patients with multiple neurocysticercosis

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Background and Aim: Neurocysticercosis (NCC) is one of the most common causes of secondary Seizure disorders in India. About, 29% of seizures in endemic zones are due to NCC. A solitary form of the disease (solitary cysticercus granuloma) is the most common presentation, reported in nearly two-thirds of all patients. Multiple neurocysticercosis cause seizures in 60% of patients. Much research has been done on solitary NCC, but, clinical presentation of multiple NCC is varied and widely studied. We present clinical and radiological profile of patients on presentation. Methodology: All newly diagnosed patients of neurocysticercosis; diagnosed according to consensus case definition, having seizures with magnetic resonance imaging (MRI) brain s/o Multiple NCCs (>20) were included in the study. Only patients having primary seizure disorder were excluded from the study. Complete clinical examinations of the patients were done. Routine hematological and biochemical investigations were done for every subject. HIV serostatus was checked. MRI Brain with GAD * with SPGR sequence was done in every patient. Result: Until now, we have enrolled 40 patients having Multiple NCCs, out of which 29 were male, 11 were female. The study included patients ranging from 7 years to 76 years of age. All presented with seizures, 22 (55%) had generalized tonic-clonic seizures and 18 (45%) had focal seizures. 80% had diffuse headache, 32.5% presented in encephalopathy, 12.5% had obscuration of vision; 2 patients (5%) had hemiparesis. Ten patients had innumerable neurocysticercal cysts. A total of 15 patients had significant perilesional edema.

IPO12/228
Unusual association of leprosy with Lucio’s phenomenon with antiphospholipid antibody syndrome with ischemic stroke

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Antiphospholipid antibody syndrome (APLAS) is a rare systemic disorder having diverse neurological manifestations such as transverse myelitis, arterial stroke, and venous stroke. It is commonly associated with autoimmune diseases and sometimes secondary to infectious diseases. Peripheral neuropathy is a rare manifestation of APLAS and manifests with mononeuritis multiplex. One of the most common causes of mononeuritis multiplex is Hansen’s disease. It presents with maculoanesthetic patches, enlarged nerves and sometimes with systemic symptoms. Antiphospholipid antibodies can sometimes be elevated in chronic infections and can create diagnostic difficulties. Patients with secondary APLAS due to leprosy can have thrombotic manifestations, but the occurrence of ischemic stroke has never been mentioned in the literature. We report this rare and interesting case of Hansen’s neuropathy with Lucio’s phenomenon with APLAS with ischemic stroke.

IPO13/261
AIDP as a presenting feature of HIV infection: A case report

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HIV infection can present with a multitude of neurological symptoms. These neurological complications can present at any stage of the HIV infection. Acute inflammatory demyelinating polyneuropathy (AIDP) as a presenting feature of HIV infection is reported rarely. The case presented here is a case of HIV infection presenting first time with features of AIDP. A 60-year-old previously healthy man presented with tingling in hands and feet followed by progressive weakness of both lower limbs for the last 1 month. In the last 10 days, he became bed bound. He also developed mild weakness of both the hand grips. Of late, in the last 2 days, he developed a change of voice and difficulty in swallowing. On examination, the higher mental function was normal, speech slurred, bi-lateral lower motor neuron (LMN) type of facial weakness. LMN type of weakness in limbs with the more severe involvement of lower limbs. There was generalized areflexia. Plantars were bilateral flexor. Vibration sensation was absent in bilateral great toe, rest of the sensory examination was normal. Tests for co-ordination were normal. Complete blood count and other routine investigations were normal. Nerve conduction study suggested sensory-motor axonal plus demyelinating polyradiculoneuropathy. Found positive for HIV in both the screening and confirmatory test. CSF showed albuminocytological dissociation. CD4 cell count was 450 cells/ml. Started on Intravenous immunoglobulin and anti-retroviral treatment. Over the next 3–4 weeks, he started showing improvement in his weakness. In conclusion, AIDP may be the presenting feature of HIV infection so every patient presenting with AIDP-like features should be screened for the HIV status.

IPO14/264
Predictors of outcome of CNS TB; study from a University Hospital, India

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Hepatitis E is the most common cause of acute viral hepatitis in the world. Hepatitis E is known to cause a variety of neurological manifestations, the common ones being Guillain Barre Syndrome, neuralgic amyotrophy and encephalomyelitis. Here, we present a case series of hepatitis E with varied neurological manifestations.

Materials and Methods: Patients presented to our center with viral meningoencephalitis and demyelinating diseases were worked up for infectious causes including Hepatitis E.

Results: Hepatitis E was identified to be the etiologic agent in three cases of viral meningoencephalitis. All three were females in the 20–50 age group. The first case presented with viral meningitis with raised intracranial tension leading to bilateral lateral rectus palsy. Second case presented with fever and brainstem encephalitis. The third case presented with fever and acute demyelinating encephalomyelitis.

Conclusions: Hepatitis E virus infection is well known to have myriad extrabiliary manifestations that include neurological complications. Harry et al. in their comprehensive review in Nature Neurology compiled the range of neurological complications. Bilateral lateral rectus palsy and brainstem encephalitis as seen in our case series have not been described as clinical manifestations of Hepatitis E and add to the expanding clinical spectrum. Hence, it is important that HEV testing be a norm in cases of viral meningoencephalitis so that the entire spectrum of neurological manifestations can be studied and outcomes optimized.
occlusions. NIHSS and mRS scores compared at the time of admission and discharge (mean NIHSS1, mRS1) showed significant improvement. The scores compared at the interval of 3 months were also better. Only one patient had hemorrhagic transformation on repeat imaging and 1 patient had minimal GI bleed. There was no mortality. **Conclusion:** Tenecteplase was associated with higher chances of early major neurological recovery and a trend for the better functional outcome at 3 months. Lower cost, single IV bolus injection, more fibrin specificity, and less chances of bleeding makes it an ideal thrombolytic agent in the Indian context.

**SPO32/320**

**A retrospective study on young stroke patients regarding the etiological factors, in our part of the country**

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**Background and Purpose:** Young stroke is defined as the cerebrovascular accidents that occur below 40 years of age, conventionally. It differs from the stroke we commonly encounter in post middle age, and geriatric patients in certain aspects, one among them is its etiology and comorbidity. Usual atherosclerosis and atheroemboli of stroke in aged persons may not be the most common cause in young patients with stroke. Hence, we determine to analyze the common etiological factors that caused stroke in young, to make use of it in prevention and treatment. **Methods:** A total of 100 young stroke patients were analyzed retrospectively, their details were taken up from our Hospitals stroke registry. The underlying causative factors analyzed well. Factors such as age, sex, comorbidities, and underlying etiological factors were analyzed through blood investigations, electrocardiogram, echocardiogram (ECHO), etc., the results were statistically analyzed. **Results:** The most common etiological factor was RHD, i.e., rheumatic valvular heart disease about 67%, vasculitis and Antiphospholipid Antibody Syndrome in 4 females, and in the among the 67% of rheumatic heart disease 10% had Atrial fibrillation, 3 males had cryptogenic stroke and on further ECHO with agitated saline one of them had patent foramen ovale. **Conclusion:** Early screening at school health level and detection of valvular heart disease with repair or replacement of valve, along with keen anticoagulant therapy may prevent young stroke to a major extent.

**SPO33/342**

**Comparative study on initial and recurrent strokes**

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Stroke is the foremost cause of disability worldwide. Recurrence risk is 1 in 5 persons. Recent studies have shown that recurrence has increased with intracranial atherosclerosis. **Aim:** Investigate the causality of an initial stroke and connection with recurrence. **Methods:** Retrospective study on 500 patients presenting to SRMC neurology department with ischemic stroke from January 2016 to June 2018. **Results:** A total of 500 stroke patients were analyzed with 52 (10.4%) patients showing recurrence. A total of 180 patients had a large artery atherosclerotic stroke (LAAS) classified as extracranial or intracranial. Totally 60 patients had extracranial LAAS with 17 patients (28.3%) having recurrence and 6/17 (35.3%) had first stroke causation. A total of 120 patients had intracranial LAAS with 12 patients (10%) having recurrence and 10/12 (83.3%) had first stroke causation. Totally 120 patients had a small artery atherosclerotic stroke with four patients (3.3%) having recurrence and 3/4 (75%) had first stroke causation. A total of 60 patients had cardiac embol related stroke with 8 (13.3%) patients having a recurrence and 6/8 patients having first stroke causation. 110 patients had stroke having no apparent cause of which 10 patients (9.1%) had a recurrence. 3/10 patients (30%) with recurrence have no apparent cause, whereas 5/10 patients (50%) have recurrence due to new LAAS. **Conclusion:** Extracranial LAAS has the highest rate of recurrence. Intracranial LAAS and cardioembolic strokes have the highest rate of recurrence due to initial stroke causation. Atherosclerotic strokes due to no apparent cause have recurrence due to newly developed LAAS.

**SPO34**

**SPO35/349**

**Dorsolateral medullary ischemic infarction causing autonomic dysfunction and headache: A case report**

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Headache can be an accompanying symptom of the cerebrovascular disease. Common in posterior inferior cerebellar artery infarction with an increase in frequency in Wallenberg/Wallenberg’s syndrome. We hereby present a case of a headache with autonomic dysfunction in right dorso lateral medullary infarction. A 61-year-old male admitted with a case of difficulty in swallowing and slurring of speech– 1 day. O/E conscious oriented, extraocular muscles full, right Horner’s syndrome present. Fundus normal. Right palatal weakness (+), right cerebellar sign (+). Power (N), DTR (+). Plantar flexor. Diagnosed with the right lateral medullary syndrome. Magnetic resonance imaging: right lateral medullary syndrome. Treated with anticoagulants, antiplatelets and stating during the treatment patient developed a severe headache unilateral right side throbbing in nature with congestion of the right eye, lacrimation with nasal congestion. Diagnosis as cluster/type allocation Code type of a headache treated with verapamil and nasal O2 and patient recovered. **Discussion:** In our patient, ischemic infarct was in the right dorsolateral medullary region. In this area, descending fibers of the hypothalamic spinal tract caring sympathetic innervation to the periaridot plexus present. Horner’s syndrome orthostatic hypotension symptoms of sympathetic impairment while tearing, congestive congestion reflects parasympathetic activation. We conclude that due to stroke, the damage in the hypothalamic spinal tract causes dysfunction of sympathetic descending control of peripheral vascular tertiary and aberrant trigeminovascular hyperactivation via peri-aqueductual gray matter. This supports...
the dysfunction of the hypothalamic-spinal tract in the pathophysiology of both pain and autonomic features of TACs.

**SPO36/370**

Our experience with stroke thrombolysis at tertiary care public hospital

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**Objective:** A report of thrombolysis in acute ischemic stroke in our hospital from March 2016 to June 2018. Methodology: We present data of patients undergoing thrombolysis for acute ischemic stroke from March 2016 to June 2018 in tertiary public hospital. Thirty-three patients were thrombolysed, 31 with alteplase, and 2 with tenecteplase. **Results:** The average age of the patient was 55.90 years. There were 24 males (72.72%) and 9 females (27.27%). The main risk factors were hypertension (54.54%), diabetes mellitus (DM) (18.18%), ischemic heart disease (IHD) (9.67%), and atrial fibrillation (9.67%). Of 33 cases, 31 (93.93%) cases were due to anterior circulation stroke. Mean NIHSS on admission was 10 and on discharge were 5. Mean door to needle time was 1 h 1.8 min despite logistic hurdles associated with a public hospital. Two (6.06%) patients had hemorrhagic transformation type 2. Two (6.06%) patients had expired; causes were symptomatic hemorrhage and cardiac complication. Seven patients (21.21%) required postthrombolysis intensive care unit (ICU). Mean duration of hospital stay was 13 days. Twenty-nine (87.87%) patients paid for tPA while three patients (9.67%) did not pay due to financial problems. The tPA was sanctioned from the hospital for one patient (3.03%). **Conclusions:** NIHSS improved by mean of 5 in thrombolysed patients. The main risk factors were hypertension, DM, IHD, and atrial fibrillation. The implementation of stroke thrombolysis protocol helped to achieve door to needle time of an hour. Furthermore, close monitoring of stable postthrombolysis patients in wards may yield similar outcomes if ICU cares not available in a hospital.

**SPO37/377**

Angioplasty and stenting in acute stroke intervention

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Switzerland

**Background:** Acute ischemic stroke is one of the major sources of morbidity and mortality in the industrialized countries. The outcome depends on the length of time between onset of symptoms and revascularization, the recanalization rate, and on whether intracranial hemorrhage occur. Recent studies have examined whether mechanical recanalization techniques can accelerate the process of recanalization, increase the recanalization rate, and even expand the window of opportunity. **Aim:** Here, we review the current literature on stenting, with and without angioplasty, used alone or as a part of multimodal therapy for recanalization in ASI. **Materials and Methods:** Forty-two patients who undergone stenting with or without angioplasty as a part of acute ischemic stroke treatment at University hospital Zurich Neuroradiology Department. Patients were scheduled for follow-up at 3 months after treatment for clinical evaluation [mRS] score. **Results:** Of 42 patients (median NIHSS 12.24, median MRS: 4.1, and mean age 72 years) were treated with intracranial stents with or without angioplasty for acute ischemic stroke. Occlusions were in M2 middle cerebral artery 5.6%, M1 38.9%, total internal carotid artery (ICA) occlusion 11.1% ICA 30.5% and BA 8.3%. About 77.5% of them undergone Stent placement and 22.5% needed only angioplasty. The immediate outcome resulted in partial or complete recanalization (TIMI 2/3) in 89.1%. Symptomatic intracerebral hemorrhage occurred in 3% and embolization to new territory occurred in 24%. **Clinical Outcome:** About 46% had a good outcome (mRS 0–2), 41% a moderate outcome (mRS 3), and 12% a poor outcome (mRS 4–6). Mortality was 1%.

**Conclusion:** Stenting with or without angioplasty is a feasible and safe treatment option for achieving recanalization in acute stroke intervention.

**SPO38/376**

Occurrence and pattern of poly vascular atherosclerotic disease and its impact on outcome in patients of ischemic stroke: A tertiary care center study from North India

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**Background:** Ischemic stroke (IS) patients may have the simultaneous atherosclerotic affection of other vascular beds which may be clinically inapparent but may portend a worse outcome. **Objectives:** The objective of the study is to study occurrence and pattern of poly vascular atherosclerotic disease (PolY VA) and its association with outcome in patients of IS. **Materials and Methods:** IS patients were assessed for the involvement of four vascular beds, namely extracranial (by Doppler), intracranial (by MRA), coronary (by CTA), and peripheral (by ABPI). More than 50% stenosis was considered significant. PolY VA patterns (defined as >1 vascular bed involvement) and its influence on outcome at 6 months was studied. **Results:** One hundred and thirty-two IS patients (mean age 53.85 ± 15.11 years; M:F = 3:1) were recruited and 126 underwent complete evaluation. PolY VA was detected in 51 patients (40.5%). The most common pattern was the involvement of intracranial and extracranial (24%) and intracranial and coronary (24%). Significant asymptomatic extracranial (33%) and intracranial atherosclerosis (47%) was seen. Latent coronary artery disease was detected in > 50% of patients. PAD was found in 27% of patients (>90% undiagnosed previously). At 6 months’ follow-up, PolY VA patients when compared to those without PolY VA had a higher recurrence rate (5.9% vs. 1.3%), mortality (7.8% vs. 4%), and higher disability (60.8% vs. 40%); disability significantly increased with increasing vascular beds involvement (P < 0.05). **Conclusions:** PolY VA is common and may remain subclinical in IS patients. It is an independent predictor of outcome. Outcome worsens with increasing involvement of vascular beds. Intracranial atherosclerosis with coronary involvement was more common than the West.

Saturday, September 29, 2018, 10:15-14:00 h
Poster Session 06: Autoimmune Disorders

**APO1/10**

An interesting case of Rosai Dorfman disease

Subir A, Ghafoor F, Krishnadas NC
A 56-year-old female with a 4-year history of insidious onset progressively disabling diplopia which worsened to a complete bilateral vision loss within 6 months was now admitted with unilateral severe headache to the neurosurgery department with a diagnosis of left-sided subdural hemorrhage/effusion based on the computed tomography brain report. On examination, she had absent perception in her left eye with the perception of light in the right eye with severe ophthalmic dysfunction. Her magnetic resonance imaging (MRI) brain was done with contrast showed pachymeningeal thickening predominant in the left parietal region extending into the chiasmatic region. Contrast revealed the typical half of the “Eiffel in night” appearance found in diffuse pachymeningeal thickening. We considered the diagnosis of pachymeningeal thickening with etiology considered were tuberculobus, sarcoidosis, lymphoma, metastasis, IgG4-related disease, autoimmune disease, and vasculitis. Pathology of the meningeal biopsy came as IgG4-related pachymeningitis. However, later emperipolosis was identified, and further immunohistochemistry confirmed Rosai-Dorfman disease (positive for CD 68, SI100). Thus, the final diagnosis of an interesting pachymeningeal thickening was intracranial Rosai-Dorfman disease without any other systemic manifestations or lymphadenopathy. She was started on methotrexate and steroid following which her headache subsided, and follow-up imaging showed clearance of the pachymeningeal enhancement. Photos of MRI picture of half of the “Eiffel in night appearance, and posttreatment resolution, tissue histopathology (emperipolosis) included.

APO2/145
Case reports of Hashimoto’s encephalopathy in territory care hospital
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Hashimoto’s encephalopathy (HE) is an uncommon syndrome and rare disease, associated with Hashimoto’s thyroiditis. It is characterized by an acute to chronic loss of cognitive dysfunction, subacute onset of confusion with altered level of consciousness, stroke such as episodes, neuropsychiatric manifestations, seizures, and myoclonus. HE is believed to be an immune-mediated disorder rather than representing the direct effect of an altered thyroid state on the central nervous system HE or steroid-responsive encephalopathy associated with autoimmune thyroiditis and a more general term, nonvasculitic autoimmune meningoencephalitis is also used to describe this condition. Here, we are reporting three cases of HE in the tertiary care center who presented with acute to chronic memory loss, neuropsychiatric disturbances, complex partial seizures visual hallucinations, and myoclonus and responded to steroids. A negative microbiological screen of the cerebrospinal fluid (CSF) and serum along with raised CSF protein, elevated serum antithyroid antibodies, characteristic electroencephalogram, and neuroimaging findings yielded the diagnosis.

APO3/66
Extracocular muscle paralysis secondary to IgG4-related cranial pachymeningitis: A case report
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IgG4-related disease (IgG4-RD) is an immune-mediated inflammatory multisystem disease characterized by swelling of involved organs, “storiform fibrosis” with obliterative phlebitis and lymphocytic infiltrates rich in IgG4-positive plasma cells. IgG4-RD can involve any organ, for example, pancreas and salivary glands, but the central nervous system is less commonly involved. It produces primarily pachymeningitis which may be cranial or spinal. We report one of the early cases of extracocular muscle paralysis secondary to IgG4-related cranial pachymeningitis. A 49-year-old female presented with a history of drooping of both eyelids for the past 3 months. Examination revealed bilateral ptosis (left > right), left medial rectus involvement without proptosis. Routine investigations revealed raised erythrocyte sedimentation rate (ESR) and antinuclear antibody was 4+. Repetitive nerve stimulation was negative. Magnetic resonance imaging brain (plain and contrast) showed thickened and enhancing meninges along cavernous sinus extending anteriorly up to superior orbital fissure (left-right), with thickened and edematous bilateral superior recti muscles. Subsequent investigations showed raised Serum IgG4 levels (243 mg/dl). These findings were consistent with “possible” diagnosis of IgG4-related pachymeningitis. She responded to corticosteroids, and on serial follow-up after 2 months, her symptoms were completely resolved, and Serum IgG4 level was reduced. IgG4-related pachymeningitis should be considered as a differential diagnosis in all cases of idiopathic pachymeningitis as there is a high potential for recovery with treatment.

APO4/70
Search for an etiology of periodic paralysis: How it unmasked multiple autoimmune diseases: A case report
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Background: Secondary hypokalemic periodic paralysis (HPP) can have varied causes. Identifying a specific cause may be important for proper treatment. Case Report: A 32-year-old woman presented with acute onset ascending pure motor quadriplegia with bulbar involvement. She had severe hypokalemia (serum K + 1.6 meq/L; prominent U waves in electrocardiography). The patient improved quickly following potassium supplementation. The patient wanted discharge; however, as serum potassium levels were very low and age was >25 years, she was further investigated. Her arterial pH was 7.29, urinary pH 6.8, and spot urinary potassium 28 mEq/L thereby suggesting distal renal tubular acidosis (dRTA). The patient on specific inquiry confirmed symptoms of photosensitivity, dry eyes, and mouth with hair loss in the past. Her antinuclear antibody (2+ speckled) and dsDNA were positive. Her urinary protein-creatinine ratio was high. Her SGPT was 51 and serum albumin 3.4 and serum total IgG.
level was elevated. Her ultrasonography abdomen, computed tomography abdomen, and liver fibroscan (31.6 kPa) confirmed the chronic liver disease. Viral markers were negative. She had punctate epithelial defects in cornea and positive Schirmer’s test. Anti-LKM and anti-Ro/La were negative. Lip biopsy was suggestive of moderate lymphocytic infiltration in mucinous glands consistent with Sjogren’s syndrome. Thus, the final diagnosis was systemic lupus erythematosus (SLICC criteria) with secondary Sjogren’s syndrome (European Study Group criteria) and autoimmune hepatitis presenting as HPP. Conclusion: HPP with dRTA can be the first manifestation of underlying autoimmune disorders. Patients of HPP need high suspicion index and workup to detect occult secondary causes which may have great bearing on management.

APOS/174

Study of the seasonal trends in relapses of multiple sclerosis
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Multiple Sclerosis (MS) is a primary demyelinating disease which is characterized by a relapsing-remitting course. A seasonal trend in relapses has been demonstrated in this observational retrospective study, MS patients presenting to the Institute of Neurology, Rajiv Gandhi Government General Hospital Chennai, as well as the Department of Neurology Tamil Nadu, Government Multi Super Specialty Hospital, Omandurar Chennai, were recruited after informed consent. Relapses in MS were ascertained by history and confirmed by documentary evidence. The correlation between the month of relapse and environmental factors were studied. Of 54 patients with MS 19 (35.2%) were male. The mean age of disease onset was 26.20 years. The mean duration of disease was 4.93 years. Most patients had remitting relapsing MS (53, 98.14%). Cerebrospinal fluid oligoclonal bands were positive in 20 (37%) and negative in 26 (48%). Of a total of 165 relapses, the onset of 45 (27.27%) were not known. A total of 142 relapses occurred before initiation of disease-modifying therapy and 23 relapses occurred afterward. The relapses were classified into opticospinal (30, 18.18%) and brain type (133, 80.60%). In 43 patients, who received DMT for >1 year the relapses significantly reduced (CI 0.40–0.73, P < 0.001). The frequency of relapses was greatest between April and December (11.6% each). There appears to be a bimodal distribution of relapses in MS. There is a peak in April just before the onset of summer and another peak in December which has the lowest temperatures.

APOS/195

Case report: Myasthenia gravis and Sarcoidosis: A rare co-association
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Introduction: Here, we present an interesting case with myasthenia gravis and sarcoidosis which is very rare. The coexistence may be due to a common autoimmune pathology. Case Presentation: A 55-year-old woman presented with atypical bulbar onset symptoms, with fatigability, electrophysiological findings, characteristic positive anti-acetylcholine receptor antibodies, and response to appropriate medications for myasthenia. She was found to have asymptomatic generalized lymphadenopathy on computed tomography imaging. Serum angiotensin-converting enzyme and lactic dehydrogenase levels were elevated, and biopsy of lymph nodes revealed noncaseating granulomas and Langhans giant cells suggestive of sarcoidosis. Discussion: It is well-known that disorders of immune response may coexist. Both myasthenia gravis and sarcoidosis are autoimmune disorders. Sarcoidosis is an exaggerated immune response to unidentified antigens which is a T-cell-mediated response. The association may be a heightened T-cell immune reactivity triggering one or the other disease. Coexistence of both has been reported in few patients, and one was reported to have developed myasthenia due to sarcoid granulomatous involvement of the thymus tissue. In our case, the thymus is normal and common autoimmune triggering mechanism may be the causation factor. Conclusion: It is noteworthy to report this case because of the rarity of its occurrence. Both the disorders have a common T-cell-mediated autoimmune pathology, and the possibility of each individual disease entity acting as a trigger in the pathogenesis of each other cannot be ruled out. This case highlights the importance of investigating for other autoimmune diseases when we manage a case of autoimmune disorder.

APOS/227

Case report of paroxysmal dysarthria and ataxia in a patient with multiple sclerosis and review of the literature
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Background: Paroxysmal dysarthria with or without ataxia (PDA) is a rare entity. Objective: The objective of the study is to present a case of PDA in a patient with multiple sclerosis (MS), first from India and to review cases available in literature. Materials and Methods: Patient with PDA presenting to us and patients available in literature. Results: Sixty-five patients were available in literature. Forty-eight patients including our patient had a diagnosis of MS; five patients had clinical isolated syndrome, six had GLUT1 deficiency syndrome, three patients had episodic ataxia, one patient each had Bickerstaff encephalitis, Behcet’s disease, and acute midbrain infarct. Mean age of patients with MS was 38.7 + 13.1 years, 48.6% being males. Twenty patients had PDA, 20 patients had paroxysmal dysarthria only, and four patients had paroxysmal ataxia with diplopia. Eighteen patients responded and two patients did not respond to carbamazepine. Four patients responded to acetazolamide; one did not respond. Three patients responded to phenytoin, one patient responded to valproate. One patient responded to oxcarbazepine. One patient responded to fingoalimod. Ten patients including our patient had PDA at the onset of MS. Electroencephalography was normal in all cases including our case. Magnetic resonance imaging brain revealed
midbrain involvement with occasional pontine, periventricular and cerebellar white matter involvement. Probable mechanism is ephaptic transmission at midbrain level leading to disruption of cerebellothalamocortical pathway. **Conclusion:** Patent ductus arteriosus is a rare treatable symptom of MS which is due to ephaptic transmission

**APO8/236**

**Clinical, radiological, and electrophysiological profile of suspected cases of autoimmune encephalitis from Government T D Medical College, Alappuzha in the last 1 year**

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**Objective:** The objective of the study is to study the clinical, radiological and electrophysiological profile of suspected cases of autoimmune encephalitis. **Methods Used:** Direct interview and investigations. **Results:** Thirty-six cases of clinically suspected autoimmune encephalitis were there. Of these, 16 were males and 20 females. Only five of these cases found to have antibody positivity. Of these two were anti-N-methyl-D-aspartate receptor antibody, 1 was CASPR2 antibody, 1 was anti-Thyroid peroxidase antibody and 1 was anti-Yo antibody positive. Rapidly progressive cognitive decline in 26 patients. The second-most common manifestation was neuropsychiatric manifestations. Hyperkinetic movement was there in 2. Seizure was there in 4. Autonomic system involvement and peripheral neuropathy were there in 1 patient each. Neuroradiology revealed cortical laminar necrosis in a patient. Eleven patients had diffuse cerebral atrophy. One patient with initial normal magnetic resonance imaging later had multiple infarcts. Electroencephalography showed extreme delta brushing in a single patient. Sixteen patients had diffused cerebral dysfunction. Seven had beta fast activity. Cerebrospinal fluid study was done in 30 patients. None showed pleocytosis. Protein was elevated in 22. Steroid was given to all patients. Rituximab given to five patients in which steroid was not effective. Four improved and one was not improving. The death occurred in two. One with multiple infarcts and the other with aspiration pneumonia. **Conclusion:** The most common clinical feature was rapidly progressive cognitive decline. Most of the neuroimaging were normal, and EEG was showing diffuse dysfunction.

**APO9/238**

**Neuropsychiatric symptoms, cognitive impairment, and ego defense mechanism in the patients with relapsing-remitting type and secondary progressive type of multiple sclerosis**

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**Background:** Multiple sclerosis (MS) is a common form of autoimmune disorder affecting the mostly central nervous system, occurring due to demyelination. Neuropsychiatric Symptoms and cognitive impairment are frequently observed in patients with MS. Ego Defense mechanism are the unconscious process to assist a person to cope up with anxiety when uncovered to traumatic circumstances. **Objectives:** The objectives of the study are (1) to find out the prevalence of neuropsychiatric symptoms, and cognitive impairment in patients with MS, and compare them with disease severity. (2) To find out the personality type and ego defense mechanism in patients with MS. **Methods:** We recruit 24 patients of MS according to the McDonald Criteria (2010) from Neurology department of Sri Aurobindo Seva Kendra Hospital. Expanded disability status scale (EDSS) was used to assess the disease severity; cognitive impairment was assessed by ACE III, MINI, DSQ 40, and BFI were utilized to estimate the prevalence of neuropsychiatric symptoms, ego defense mechanism, and personality type, respectively. **Results:** Mean EDSS step score was 3.76 (standard deviation ± 1.37) (1.0–9.5). On cognitive examination, we found that 16 (66.7%) patient had MCI. On neuropsychiatric examination, we observed that 20 (83.3%) patients had generalized anxiety, 16 (66.7%) had depression. Based on scores on BFI perhaps, the patients were relatively more imaginative, artistic, and unconventional. Patients used immature defense more to cope with their uncovered anxiety. **Conclusions:** Significant number of MS patients demonstrated mild cognitive impairment and various Neuropsychiatric symptoms, generalized anxiety was highest among these, and it is significantly correlates with disease severity. They often adopt immature defense to cope up with their anxiety.
APO11/258

A rare variant of demyelination: Balo’s concentric sclerosis

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Introduction: Balo’s concentric sclerosis is often regarded as a rare variant of multiple sclerosis. Patients usually present with acute or subacute neurological deterioration, with magnetic resonance imaging (MRI) showing one or more concentrically layered ring-like lesions in white matter. However, how to treat an acute lesion and when or whether to start are less well understood. Discussion: A 19-year-old male presented with complaints of the right upper limb and right lower limb from 2 months which initially started as weakness in the right upper limb in the form of difficulty mixing food, and difficulty feeding himself as he was unable to lift his arm and forearm, which was insidious in onset and gradual in progression. Later, after 15 days, he also noticed weakness in the right lower limb which is insidious in onset in the form of difficulty in walking which gradually progressed over the next 10 days, associated with tingling sensation over right upper right and right lower limb. Also associated with deviation of angle of mouth to the left and slurring of speech. With above complaints, first, a slowly progressive lesion involving left frontoparietal region was considered, and imaging was ordered. MRI revealed multiple ill-defined lesions which were concentrically appearing T1 hypointense, T2 hyperintense, with patchy peripheral contrast enhancement which was suggestive of the demyelinating lesion, subsequently treated with IV steroids, for which patient showed improvement. Conclusion: As the radiological and clinical improvement was seen with steroid treatment, the diagnosis was considered as Balo’s concentric sclerosis, which is a rare variant of demyelination.

APO12/282

A rare case of familial multiple sclerosis

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Introduction: Multiple sclerosis inflammatory autoimmune disorder of the central nervous system characterized by recurring neurologic symptoms. Clinical Details: A 44-year-old female with complaints of acute onset of slurring of speech, tingling sensation of the right upper limb, and difficulty in holding objects for 2 days. History of similar complaint 10 years back which recovered after 1 day. Magnetic resonance imaging multiple oval-shaped nonenhancing periventricular white matter hyperintensities on fluid-attenuated inversion recovery T2, flame-shaped on T2 sagittal section in callosomis interface perpendicular to ventricles, frontal, subcortical, pontomedullary, optic nerve, and spinal cords suggesting of demyelinating plaques. CSF-OCB, autoimmune profile, and neuromyelitis optica antibody was negative. Discussion: Most of the MS cases occur sporadically, but about 20% of them can be familial. Familial aggregation of MS is very rare in Asia. The risk of familial MS had been reported to be increased from 12- to 38-fold in siblings, 6–25-fold in children of MS patients and from 7- to 26-fold in parents. Familial MS is more common among siblings, with sister–sister relationship having the highest rate. The lowest relation was among father–son and mother–son.

APO13/287

Is flair contrast imaging a better imaging modality to demonstrate leptomeningeal inflammatory pathology

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Background: The diagnosis of meningitis is established by history, physical examination, and cerebrospinal fluid (CSF); however, contrast MRI increases the diagnostic yield. Contrast-enhanced fluid inversion recovery (FLAIR) images have been shown to be superior to contrast-enhanced T1-weighted images in the visualization of leptomeningeal inflammatory disease. This study is to compare the two imaging modalities in patients with meningitis. Materials and Methods: Retrospective review of case records of patients admitted for meningitis to a tertiary care hospital between May 2015 and May 2018. Study Cohort: Thirty patients with meningitis irrespective of etiology. The diagnosis was based on clinical features and CSF analysis. Imaging Protocol: gadolinium-enhanced T1 and FLAIR MR sequences were performed on 1.5 T Siemens unit in addition to routine sequences. Parameters Studied: proportion of subjects with basal and superolateral meningitis on gadolinium-enhanced T1 (Technique 1) and FLAIR (Technique 2). Results: Age (Mean ± standard deviation): 38.5 ± 8.2; M:F– 7:6; Proportion of subjects (Technique 1 vs. Technique 2) with superolateral meningitis: 2versus 8 (P 0.02); The proportion of subjects with basal meningitis: 1 versus 4 (P 0.02). Conclusion: This study suggests that probably contrast FLAIR is more sensitive to diagnose leptomeningeal inflammatory pathology compared to contrast T1W imaging. However, this observation needs to study in a larger cohort.

APO14/364

Longitudinal extensive transverse myelitis: Its not all Neuromyelitis Optica

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Introduction: Longitudinal extensive transverse myelitis (LETM) is defined as a spinal cord lesion that extends over three or more vertebrae, as seen on magnetic resonance imaging (MRI) of the spine. The clinical presentation consists of paraparesis or tetraparesis, sensory disturbances,
bladder, and bowel dysfunction. LETM is a characteristic feature of neuromyelitis optica, but such lesions can also occur in other disorders. Here, we present two patients with LETM with different etiologies. **Case Vignette 1:** A 31-year-old male presented with bilateral visual loss and progressive quadriaparesis. He had generalized lymphadenopathy, absent bilateral pupillary response, quadriaparesis, LETM, on MRI extending from C4 to D7. Antinuclear antibody (ANA) profile, AB, anti-myelin oligodendrocyte glycoprotein (MOG) AB negative. Cervical lymph node biopsy showed Hodgkin’s lymphoma. Patients were treated with methyl prednisolone, later started on chemotherapy. His vision improved and able to walk with support. **Case Vignette 2:** A 55-year-old female presented with progressive weakness of limbs and bilateral visual loss 5 days. She had absent pupillary response with quadriaparesis, LETM on MRI extending from brainstem to D12 levels. Antinuclear antibody profile, AB, anti-MOG AB negative. Her serum angiotensin converting enzyme levels elevated and was diagnosed as neurosarcoïdosis. She improved with parenteral methyl prednisolone. **Conclusion:** The above two cases presented as neuromyelitis optica like illness with bilateral optic neuritis and LETM. However, they were seronegative for antibody and on further evaluation diagnosed to have Hodgkin’s lymphoma and probable neurosarcoïdosis. A thorough workup of patients with suspected LETM is essential to determine the underlying cause of the lesion.

**APO14/380**

**Outcome of rituximab in patients with refractory neuromyelitis optica in a tertiary care setting in South India**

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**Background:** Neuromyelitis optica (NMO) is a severe autoimmune disease targeting optic nerves and spinal. The monoclonal anti-CD20 B-cell antibody Rituximab is a treatment option in refractory NMO. The prevalence of NMO in south India is around 2.6/lakh population. This study was conducted to evaluate the outcome of rituximab over 12 months in refractory NMO. **Materials and Methods:** Fourteen patients of refractory NMO treated with rituximab who attended the demyelination clinic from January 2017 were studied. Refractory NMO was cases of NMO with at least one relapse on immunosuppressive therapy. A fixed treatment scheme of 1 g Rituximab weekly for 2 weeks and 1 g repeated every 6 months was given for refractory NMO. The mean annualized relapse rate (ARR) and the median expanded disability status scale (EDSS) were analyzed before treatment and after 1 year on Rituximab. **Results:** After a mean follow-up of 13 months, we observed a significant reduction of median ARR from 2.9-0.14 and of the median EDSS score from 3.2-3.3. Only one patient had a relapse while on rituximab. **Conclusion:** The therapy with Rituximab was found to significantly reduce the frequency of relapses, with subsequent stabilization or improvement in disability.
Dynamic MRI with neck flexion showed mild prominence of the posterior epidural space from C3 to D4 levels which measures 1.7–2.8 mm. Surface electromyography showed fasciculations on spontaneous activity and recruitment large amplitude polyphasic motor unit action potential suggestive of denervation were present. Motor nerve conduction studies were suggestive of right ulnar axonopathy.

Hypokalemic periodic palsy masquerading as Guillain–Barré syndrome
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Introduction: Reduced compound muscle action potential (CMAPs) during paralytic attacks of hypokalemic periodic palsy (HPP) have been infrequently reported earlier. However, reversible conduction block with nonrecordable F waves have never been reported earlier. We report a 35-year-old man with HPP with severely reduced CMAPs with conduction block with nonrecordable F waves on nerve conduction velocity (NCV) masquerading as Guillain–Barré syndrome (GBS) which recovered completely with the treatment of hypokalemia.

Case Report: A 35-year-old male, laborer, presented with weakness of all four limbs after getting up in the morning. Weakness was not associated with sensory, bladder bowel, and cranial nerve involvement. History of similar undocumented complain 5 years back which improved completely over 24 h. Power was one-fifth in all tested muscles, and deep tendon reflexes were globally absent. Routine blood investigations were remarkable for hypokalemia (potassium: 2.5 meq/l). ECG done showed U waves. NCV done showed reduced CMAPs in all the tested motor nerves with nonrecordable F waves and conduction blocks in ulnar, tibial and peroneal nerves with normal distal latencies, conduction velocities, and normal sensory studies. Based on reports, the patient received both IVIG and IV KCL with cardiac monitoring. However, the weakness improved completely after 48 h. Repeat NCV was completely normal. IVIG was stopped, considering NCV findings to be due to HPP. To the best of our knowledge, this is the first report of reversible conduction block with nonrecordable F waves in a patient with HPP. Conclusion: This report highlights that hypokalemia might masquerade as GBS in NCV testing. The prompt recognition may prevent the undue use of expensive IVIG in such case.

Nerve conduction studies in a suspected carpal tunnel syndrome
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Background: Carpal tunnel syndrome (CTS), a common neurological disorder, is often missed because of poor sensitivity of routine nerve conduction studies (NCS). Objective: The objective of the study is to report neurophysiological abnormalities of patients with suspected CTS and usefulness of mid-palm latency differences (LDs). Method: Clinical and electrophysiological data of all clinically suspected cases of CTS (the year 2014–2017) were analyzed. Along with routine NCS, mid-palm LD of mixed median and ulnar nerve was calculated in all patients and LD > 4 ms was considered abnormal. Patients with incomplete records were excluded. Result: A total of 386 patients (316 females; 81.9%) were included in this study. Mean age of patients with normal and abnormal NCS were 39.8 ± 12.3 years versus 45.8 ± 10.7 years (P < 0.001). Routine NCS was abnormal in only 214 patients (55.4%), and mid-palm LD study could diagnose additional 119 patients (30.8%). Neck/shoulder pain was reported by 153 patients (39.8%), out of which, 116 patients (30%) had abnormal NCS. Bilateral CTS was present in 228 (58%) and unilateral in 82 (21.2%) patients. CTS was very mild in 119 hands, mild in 97, moderate in 261, severe in 22, very severe in 27, and extremely severe in 10 hands. Conclusion: mid-palm LD between median and ulnar mixed nerve study should be done in all patients with suspected CTS. Associated neck/shoulder pain should not be used as exclusion criterion. However, additional sensitive NCS techniques or ultrasonography of median nerve should be included and evaluated for better diagnosis.

Hypokalemia-induced rhabdomyolysis: A case report
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Rhabdomyolysis is usually associated with hyperkalemia due to renal failure. We hereby present a case of hypokalemia with rhabdomyolysis which is very uncommon. A 34-year-old man presented with a history of painful muscle cramps due to renal failure. We hereby present a case of hypokalemia-induced rhabdomyolysis which is very uncommon. A 34-year-old man presented with a history of painful muscle cramps and progressive pure motor ascending quadriparesis for 1 day. He had no history of diarrhea, fever, arthralgia, rash, licorice ingestion, any chronic illness, drug intake, or recent intramuscular injection. Examination revealed blood pressure of 140/90 mm of Hg. On initial evaluation, power in lower limb muscles was 3/5 and 4/5 in upper limb muscles. Muscle tone was decreased with depressed deep tendon reflexes and flexor plantar response. There was no bulbar weakness, cranial nerves, or sphincter involvement, fasciculation, myoclonus, or muscular atrophy observed. Investigation showed hypokalemia (1.9 mEq/L), highly raised creatine phosphokinase (CPK) (15323 IU/L), and metabolic acidosis with high serum lactate. His serum creatinine was 2.1 mg/dL and serum Na was 138 mEq/L. Urinalysis and computed tomography abdomen were normal. He was diagnosed as a case of hypokalemia causing rhabdomyolysis. He was treated with fluid replacement and IV potassium replacement. After 3 days, muscle weakness recovered following a rise in serum potassium. On discharge, his CPK had decreased to 3200 IU/L, which normalized after 2 weeks. Hypokalemia leads to relative ischemia in active muscle leading to muscle cramps, and severe hypokalemia may cause muscle necrosis and rhabdomyolysis. In addition, hypokalemia-induced impairment in muscle metabolism may also contribute to muscle dysfunction.
Aim: This study aims to assess the clinical profile of motor neuron disease in relation to the demographics, clinical characteristics and outcome. **Inclusion Criteria:** All the cases of motor neuron disease, diagnosed on clinical and electrophysiological study basis were included; with the exclusion of secondary causes. **Materials and Methods:** This is a retrospective review of the patients with motor neuron disease, presented to our hospital from January 2016 to June 2018. Thirty-three patients fulfilled diagnostic criteria. They were divided into three categories: Pure UMN, Pure LMN, and UMN + LMN variants. **Results and Discussion:** In our study, there was male preponderance (M:F = 3:1). Mean age at onset was 48 years and mean disease duration to diagnosis was 15 months. In UMN + LMN variant, there were 23 patients of amyotrophic lateral sclerosis; 21 definite and 2 probable. Of these, 13 had upper limb onset, 4 had lower limb onset, and 6 had bulbar onset. Only one had a positive family history. We found 2 patients with associated Frontotemporal dementia. In 10 patients with pure LMN variant, 4 fulfilled Hirayama’s criteria, 3 had brachial amyotrophic diplegia, 2 were probably Kennedy’s disease, and one was of progressive muscular atrophy. We did not have any “Pure UMN variant” of MND in our cohort. During 2-year follow-up, 8 patients expired; out of which 7 patients were of amyotrophic lateral sclerosis (ALS) subset. **Conclusion:** Compared to western literature, we found relatively younger age of onset. ALS remains the most common phenotype. Hirayama variant of LMN type was also common in our cohort.

**NPO7/116**

**Bilateral gluteal compartment syndrome due to alcohol intoxication: A rare cause of bilateral sciatic neuropathy**

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**Background:** Bilateral sciatic neuropathy is a rare condition. We describe a case of bilateral sciatic neuropathy due to alcohol intoxication. **Case Details:** A 47-year-old male presented with acute onset bilateral foot drop of 2 days’ duration. On the night before onset, he had consumed excessive alcohol and was found sleeping on the road in the sitting (lotus) position. On examination, he had bilateral complete flap foot with mild weakness of the knee flexors and bilateral peroneal sensory loss. Nerve conduction studies were suggestive of bilateral sciatic neuropathy. Magnetic resonance imaging (MRI) of pelvis showed hypertense signal on T2 and short tau inversion recovery sequence images in bilateral gluteal muscles and along the course of both sciatic nerves. MRI of lumbosacral spine was normal. His creatine phosphokinase was elevated (1200 IU) while other blood investigations were normal. A diagnosis of bilateral sciatic neuropathy due to gluteal compartment syndrome was made. The patient was treated with intravenous methyl prednisolone for 3 days. At 3 months, he made a partial recovery and was able to walk without support. **Discussion:** There are only seven previous reports of bilateral sciatic neuropathy due to gluteal compartment syndrome in patients with alcohol intoxication. Prolonged immobilization under the influence of alcohol and increased pressure in confined spaces during sitting in lotus position cause ischemic damage to gluteal muscles and sciatic nerves. Patients with severe compartment syndrome can also develop rhabdomyolysis and acute renal failure. **Conclusion:** The early recognition of this condition is important to avoid unnecessary investigations and to prevent more severe complications such as renal failure.

**NPO8/123**

**Hypokalemic periodic paralysis: A rare complication of a rare disease**

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Hypokalemic periodic paralysis (HOKPP) is a condition in which affected individuals may experience paralytic episodes with concomitant hypokalemia. The paralytic attacks are characterized by reversible flaccid paralysis. Acute paralytic crises usually last at least several hours and sometimes days. The major triggering factors are carbohydrate-rich meals and rest after exercise; rarely, cold-induced hypokalemic paralysis has been reported. **Case Report:** A 45-year-old female presented in the emergency department with unable to move all four limbs symmetric with pain for 3 days and difficulty in breathing for 1 day. History revealed pectechiae over trunk and extremities, for 3 years. The patient also had painful parotidomegaly for which she had undergone ultrasonography parotid, and fine-needle aspiration cytology which revealed hypoechoic lesions and mononuclear inflammatory infiltrates, respectively. She had hypokalemia with potassium of 2.8 and deranged renal parameters at urea of 44 and creatinine of 1.6. Blood gases showed evidence of normal anion gap metabolic acidosis. Urine pH-7.0, urine potassium-20.9, fits into type 1 RTA, and pHe being 5.5. Connective tissue basis was thought in view of skin rashes and parotidomegaly. RA factor was positive and ESR was high (90 MM/HR).ANA was positive. ssA, ssB, and Ro52 were strongly positive. Hence, the diagnosis of Sjogren’s syndrome was established. Lip biopsy showed focal areas of scanty lymphocytic infiltration. Skin biopsy showed evidence of vasculitis. **Discussion:** Primary Sjogren’s syndrome is a disorder of lymphocytic infiltration of the exocrine glands with varying degrees of systemic involvement. Renal tubular acidosis (RTA) is a common extra-glandular manifestation of pSS. Hypokalemic paralysis is a rare complication of severe distal RTA.

**NPO9/125**

**Evaluation of clinical parameters and vascular endothelial growth factor in relation to disease progression in amyotrophic lateral sclerosis**

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**Objective:** Amyotrophic lateral sclerosis (ALS) is a progressive, fatal neurodegenerative disease. Vascular endothelial growth factor (VEGF) was previously evaluated as a potential biomarker in ALS, but the results were inconsistent. Our
Sarcoidosis is a multisystem granulomatous inflammatory disorder of unknown etiology that can affect nervous system also. Among neurological manifestations, sarcoid polyneuropathy is a rare disorder that may be the initial presentation of sarcoidosis. Very few cases of neurosarcoidosis masquerading as subacute demyelinating polyneuropathy have been reported so far making the diagnosis challenging. Methods: We report a patient who carried a diagnosis of subacute inflammatory demyelinating polyneuropathy (SIDP) but was ultimately found to have sarcoidosis. Results: A 54-year-old female presented with complaints of progressive weakness of all limbs with altered sensorium. Her nerve conduction velocity test was suggestive of sensorimotor demyelinating polyneuropathy, and she was being managed somewhere else with IVIG but did not show any improvement. Endoscopic ultrasound-guided fine-needle aspiration cytology showed epithelioid granulomatous inflammation without necrosis. She was treated with steroids and showed dramatic improvement. Conclusions: Every areflexic quadriparethesia is not acute/subacute demyelinating polyneuropathy. Although SIDP and sarcoid peripheral neuropathy are clinically indistinguishable, the use of appropriately targeted investigations can lead to the correct diagnosis in a challenging case. In a patient presenting with atypical polyneuropathy, characteristic systemic symptoms, poor response to standard treatment, and a tissue biopsy can help diagnose this treatable disorder.

NPO10/146

Neurosarcoïdosis presenting as subacute inflammatory demyelinating polyneuropathy

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Introduction: Sarcoidosis is a multisystem granulomatous inflammatory disorder of unknown etiology that can affect nervous system also. Among neurological manifestations, sarcoid polyneuropathy is a rare disorder that may be the initial presentation of sarcoidosis. Very few cases of neurosarcoidosis masquerading as subacute demyelinating polyneuropathy have been reported so far making the diagnosis challenging. Methods: We report a patient who carried a diagnosis of subacute inflammatory demyelinating polyneuropathy (SIDP) but was ultimately found to have sarcoidosis. Results: A 54-year-old female presented with complaints of progressive weakness of all limbs with altered sensorium. Her nerve conduction velocity test was suggestive of sensorimotor demyelinating polyneuropathy, and she was being managed somewhere else with IVIG but did not show any improvement. Endoscopic ultrasound-guided fine-needle aspiration cytology showed epithelioid granulomatous inflammation without necrosis. She was treated with steroids and showed dramatic improvement. Conclusions: Every areflexic quadriparethesia is not acute/subacute demyelinating polyneuropathy. Although SIDP and sarcoid peripheral neuropathy are clinically indistinguishable, the use of appropriately targeted investigations can lead to the correct diagnosis in a challenging case. In a patient presenting with atypical polyneuropathy, characteristic systemic symptoms, poor response to standard treatment, and a tissue biopsy can help diagnose this treatable disorder.

NPO11/149

An interesting case of Guillain–Barre syndrome

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Guillain–Barré syndrome (GBS) is characterized by rapidly evolving ascending weakness, mild sensory loss, and hypo- or areflexia, progressing to a nadir over up to 4 weeks. Apart from common variants, other rare phenotypic variants have been recently described. Here, we present a variant of GBS with a rare imaging finding. Case Report: A 40-year-old male presented with acute onset motor weakness of both lower limbs which progressed to complete paraplegia within few hours from the time of onset, without any sensory deficit. The patient had mild bladder disturbance in the form of urgency and frequency of micturition which recovered in 1 week. Cranial nerves examination was normal. Motor system examination revealed paraplegia. Deep tendon reflexes were absent on the lower limbs but preserved in the upper limbs. Sensory examination was normal. Superficial reflexes present. The magnetic resonance imaging lumbosacral spine was done in view of acute onset disease with bladder symptoms, which showed long segment T2 hyperintensity involving lower dorsal and lumbar spinal cord with contrast enhancement. Serum autoimmune workup negative. Since the patient had persistent lower motor neuron sign without any upper motor neuron sign and improved bladder symptom, nerve conduction study was done which fulfilled criteria for GBS. Hence, a diagnosis of paraparetic variant of GBS was made with a rare finding of spinal cord demyelination. Conclusion: Paraparetic variant of GBS presenting with spinal cord demyelination is a rare finding with only a few cases reported worldwide.

NPO12/153

Myelin-oligodendrocyte glycoprotein antibody-associated demyelinating diseases: Our experience

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Background: Antibodies to myelin-oligodendrocyte glycoprotein (MOG) have been associated with central nervous system demyelinating disorders. The phenotype of demyelinating diseases associated with MOG antibodies has unique clinical, radiological, and therapeutic profile and it is different from conventional demyelinating diseases such as neuromyelitis optica and multiple sclerosis (MS). There are very limited data about the long-term outcomes of this disease. There are limited reports of MOG antibody associated demyelination from India. Objective: The objective of the study is to analyze the clinical profile and treatment pattern in patients with MOG antibody-associated demyelinating diseases. Methods: We included 4 patients with inflammatory central nervous system disorders who were Aquaporin 4 seronegative and not fitting into criteria of MS and were positive for MOG antibody using a live cell-based assay. This is a retrospective analysis of these data. Results: Of four patients, 2 (50%) were females and 2 males (50%). Among the four patients, 2 patients had (50%) recurrent optic neuritis (ON), while other 2 (50%) had...
recurrent acute disseminated encephalomyelitis (ADEM). MRI of 3 patients (75%) showed multifocal brain and spine white matter (WM) lesions and one patient (25%) showed only brain WM lesions. All 4 patients (100%) had recurrent attacks while being on steroids. One patient received azathioprine and 3 patients received Rituximab. Conclusion: (1) MOG antibody associated disorders are not rare. (2) Recurrent ON and recurrent ADEM were the clinical syndromes in this series and spinal involvement was less common. (3) Steroid is the mainstay of treatment, but in cases of patients relapsing on steroids, second-line immunosuppressive agents are needed in some patients.

NPO13/319
A prospective study of long-term outcome of Guillain–Barre syndrome

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Introduction: Guillain–Barré Syndrome (GBS) is an acute inflammatory polyradiculoneuropathy. The main clinical feature is progressive bilateral and relatively symmetrical flaccid weakness of the limbs that progresses over 12 h to 28 days before plateau is reached. Aims and Objectives: This study aims to assess the long-term outcome of patients with GBS at 1-year follow-up after diagnosis. To evaluate the factors that determine long-term disability, quality of life in GBS.

Materials and Methods: This is observational cross-sectional cohort study of patients (above 18 years old) diagnosed with GBS from August 2014 to December 2016 at NIMS hospital. All patients fulfilled the diagnostic criteria of GBS or Miller Fisher syndrome was included. Disability was assessed by GBS disability score, ranges from 0 (no symptoms) to 6 (dead).

Results: Mean GBS disability score was 0.33 in our study. Factors associated with higher odds of poor GBS disability score were presence of facial weakness (OR 4.6), truncal weakness (OR 4.8), grade 5 disability (OR 42.0), presence of bulbar weakness (OR 14.7), paresthesia (OR 19.9), and need for mechanical ventilation (OR 41.8) with P < 0.05 at admission.

Conclusion: The presence of certain baseline characteristics such as facial weakness, truncal weakness, grade 5 disability, presence of bulbar weakness, paraesthesia, and need for mechanical ventilation were significantly associated with poor outcome at 1-year follow-up in GBS.

NPO14/375
Role of adenovirus gene therapy and antisense oligonucleotide in spinal muscular atrophy

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Introduction: Spinal muscular atrophy (SMA), an autosomal recessive neurodegenerative disease of spinal motor neurons; is caused by homozygous loss/mutation of survival motor neuron (SMN) gene. SMN1 gene at locus 5q13, while retention of SMN2 gene correlates inversely with the severity of disease. SMA is the most common genetic cause of infant deaths and ranges in severity from infantile paralysis and death (Type I) to limited motor neuron loss in adults (Type 4). Aim: Improved genetic diagnosis has the potential to override conventional nutritional, rehabilitative and palliative care to more radical, neuroprotective approach using gene modulation and replacement. The scope of disease-modifying SMA therapy is the subject of our review. Discussion: Research on gene therapies aimed at altering the natural history of SMA at molecular level such as replacement of SMN1 or modulation of misspliced SMN2 has generated encouraging data. Single high-dose intravenous infusion of adenovirus double-stranded DNA containing SMN1 gene through adeno-associated viral serotype 9 has achieved significantly improved motor function and improved CHOP-INTEND scores. Intrathecal Antisense Oligonucleotide (Nusinersen) therapy augments CNS SMN protein in time-dose dependant manner by including misspliced exon 7 in SMN2 gene and improves motor function, sitter-walker conversion, and life expectancy although prohibitively expensive. Accelerated progression of SMA necessitates rapid, pilot presymptomatic newborn screening to initiate prompt SMN augmentative agents combined with neuroprotective and rehabilitative therapy.

Conclusion: Clinical translation of improved molecular understanding of SMA is possible through disease-modifying gene therapies, however careful evaluation of combined treatments and their long-term impact is crucial.

CNPO1/151
A study on correlation between the clinical profile (DNE) and electrophysiological studies in patients with diabetic neuropathy

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This is a prospective study to assess the usefulness of DNE Scoring in correlation to electrophysiological studies for detection of diabetic neuropathy. Objective: The objective of the study is to correlate the use of nerve conduction velocity studies with DNE (1) and HbA1c levels. Methods: This study was performed over 70 participants with diabetic neuropathy over a period of 2 years. Patients were subjected to a detailed history and clinical examination by DNE scoring, which consists of eight items, two testing muscle strength (quadriceps femoris; extension of the knee and tibialis anterior; and dorsiflexion of the foot), tendon reflex (ankle reflex), five sensations (pinprick over index finger and big toe, sensitivity to touch, vibration perception, and joint position). A score of >3 points is considered abnormal. Electrophysiological study was done for tibial and peroneal motor nerves and sensory testing of the sural nerve. Observation: Correlation coefficient of DNE score versus nerve conduction velocity (NCV) score is 0.61 indicates that a strong linear relationship exists between DNE and NCV scores. P < 0.001. The correlation coefficient between NCV and HbA1C is 0.64 which denotes a strong positive relationship between the two. The P value between DNE and HbA1C is <0.05 and NCV and HbA1C is <0.001. Thus, both DNE and NCV show a positive correlation with HbA1C.

Conclusion: The diagnosis and grading of neuropathy can be done by the combination of clinical score and glycemic control of the patients. The early diagnosis of diabetic neuropathy and stringent glycemic control can limit the morbidity associated with the disease.
CNPO2/196
Sialidosis Type 1: Giant somatosensory evoked potential and novel mutation
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Sialidosis is an autosomal recessive lysosomal storage disease caused by mutations in neuraminidase-1 (NEU1) gene encoding the enzyme neuraminidase. It is clinically divided into two types based on the age of onset and severity. Sialidosis type I, called cherry-red spot myoclonus syndrome, is the mild form with late-onset phenotype. Sialidosis type II is an early onset form and presents with Hurler-like phenotype. A 16-year-old girl presented with progressive cerebellar ataxia and myoclonic syndrome with the cherry red spot. She had normal mentality, the giant cortical potential in tibial somatosensory evoked potential. Cranial magnetic resonance imaging revealed bilateral posterior parietal atrophy. She had raised serum anti-Thyroid peroxidase antibody and elevated cerebrospinal fluid Ig G antimeasles antibody. Genetic analysis revealed a pathogenic heterozygous missense mutation c.838C > T in exon 5 of NEU1, and missense mutation g.2869A > T in exon 5 of NEU1 gene. The novel mutation g.2869A > T in exon 5 of NEU1 gene was predicted to be a pathogenic variant by mutation prediction software like mutation transfer. On family screening, mother was heterozygous for the variant c.838C > T in exon 5 of NEU1 and father was heterozygous for the variant g.2869A > T in exon 5 of NEU1 gene. In this presentation, we discuss the patient’s differential diagnosis, novel mutation, ultimate diagnosis, and clinical outcome.

CNPO3/199
Delayed neurological manifestation of snake bite: Guillain–Barre syndrome
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Acute neuromuscular paralysis resulting from snake venom is due to defective neuromuscular junction transmission which is relatively much common. We report a case of Guillain–Barre Syndrome (GBS) which is a rare presentation of snake envenomation. Case Report: A 32-year-old man presented with acute flaccid quadriplegia with bilateral facial paresis without bladder and bowel involvement of 5 days’ duration preceded by a snake bite on his right leg and right leg cellulitis 20 days prior. Nerve conduction study was suggestive of predominant demyelinating neuropathy with secondary axonal dysfunction. Cerebrospinal fluid examination showed mild albumino-cytological dissociation (protein 80 mg/dL, sugar 90 mg/dL, and cells Nil). Discussion: There are only four cases reported of GBS following snake bite envenomation till date by Chuang et al., Shrivastava et al., Neil el al and Revista et al. Our patient had leg swelling, pain, and cellulitis which are prima facie evidence of cytotoxic envenomation. The most common cytotoxic snake in India is viper species. This patient had also received tetanus vaccine and ASV therapy. There was temporal association between vaccination with tetanus toxoid and GBS, but no causal relationship has been proved, and no case has been reported to date following administration of anti-snake venom. On the other hand, Neil et al. proved the autoimmunological etiology of GBS based on molecular mimicry mechanisms between venom proteins and GM2 ganglioside. Conclusion: To the best of our knowledge, this is the fifth case of GBS preceded by snake bite. All cases of GBS developed following cytotoxic snake envenomation further confirming a causal relationship.

Saturday, September 29, 2018, 16:15-20:00 h
Poster Session 08: Epilepsy
EPO1/28
Acquired epileptiform aphasia in children
(Kandau-Kleffner syndrome)
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The association of a language disorder with epilepsy is frequent in children, but there is usually no causal relationship. In acquired epileptiform aphasia (AEA), the so-called Landau-Kleffner syndrome, there is increasing evidence that the language disorder is directly caused by epileptic discharges in critical language areas and must be viewed as a special kind of epileptic aphasia. We are reporting to case of acquired aphasia with complex partial seizures in 6-year-old child with sudden onset of aphasia. Electroencephalography of child shows, epilepsy with continuous spike-waves during slow sleep which probably has the same pathophysiology as AEA mainly benign partial epilepsy with centrotemporal spikes. AEA start early in development and present as developmental dysphasia. It is only one among other cognitive or behavioral disturbances that can be epileptic manifestations of some particular epileptic syndromes. AEA must be seen, at least in some cases, as a particular form of resistant epilepsy. AEA is an important model because it suggests that isolated cognitive and behavioral disturbances can be epileptic manifestations in children.

EPO2/67
Clinical evaluation and psychiatric profile in children and adolescents with psychogenic nonepileptic seizures in a tertiary care hospital
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This study was carried out to analyze the clinical characteristics and psychiatric profile of psychogenic nonepileptic seizures (PNEs) in children and adolescents. This prospective study included 71 patients (M:F = 17:54; mean age: 14.42 ± 2.64 years) diagnosed as PNEs based on video?electroencephalography (Video?EEG) recording. Detailed semiological characteristics of the recorded events were analyzed and classified accordingly. Age at onset of PNEs was 12.97 ± 3.56 years (range: 3–18; median: 14 years), and age at diagnosis was 14.42 ± 2.64 years (range: 7–18; median: 15years). Ten (10/71, 14.08%) patients had discontinued school due to the severity of their illness. History of psychosocial stressors was present in 45 (63.38%) patients with school-related issues being the most common (33/45, 73.33%). None of the patients had coexisting epilepsy; however, 10/71 (14.08%) patients were already put on antiepileptic...
drugs prior to video? EEG. All the recorded PNES events were broadly categorized into PNESs with prominent motor activity (32/71, 45.07%), and PNESs with absent/subtle motor activity (39/71, 54.92%). Among the various semiological features: tight closure of eyes (81.69%), unresponsiveness (77.46%), jaw clenching (61.97%), hyperventilation (57.76%), and whole body flaccidity (56.33%) were found to be the most common ones. Psychiatric comorbidities were diagnosed in 45/71 (63.38%) patients among which generalized anxiety disorder (71.11%) and depression (31.11%) was most prevalent. Knowledge regarding the common profile of PNES gives confidence to its diagnosis and prevents unnecessary sufferings of the patients.

EPO4/74
Arterial spin labeling in localization of the possible epileptogenic focus in focal epilepsies

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Introduction: Arterial spin labeling (ASL) provides a non-invasive means of measuring cerebral blood flow. The hypothesis is that focal ASL perfusion changes may occur peri-ictally in patients with focal epilepsy. Materials and Methods: ASL perfusion changes in the per-ictal period were studied in patients with focal epilepsy. Based on the magnetic resonance imaging (MRI) findings, patients were grouped: Group A: MRI positive for lesion; Group B: MRI positive for >2 lesions; and Group C: MRI negative for lesion. Areas of hyper- or hypo-perfusion were correlated with seizure semiology, inter-ictal electroencephalographic, and MRI findings. Results: During the study, 27 patients (mean age: 39.3 years and range 10–73 years; M:F 9:18) with focal epilepsy were studied. The time interval between seizure and ASL study ranged 15–72 h, mean 21.28 h. Group A (19 patients): 15 (79%) had ASL changes (7 hypoperfusion and 8 hyperperfusion) correlating with MRI lesion. Group B (4 patients): 3 (75%) had ASL perfusion of only one lesion. Group C (4 patients): All (100%) had ASL perfusion abnormalities corresponding to the epileptogenic focus in the EEG. Time interval between seizure and ASL study: hyperfusion-mean 3 h (range 0.25–7 h); hypoperfusion-mean 17 h (range 1–48 h); and no ASL perfusion changes-mean 61 h (range 52–72 h).

Conclusion: Peri-ictal ASL helps in localizing the possible epileptogenic focus in patients with focal epilepsy, even in MRI negative patients. The earlier the study, the higher the yield.

EPO5/77
Hyponatremia: levetiracetam an uncommon cause

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Introduction: Hyponatremia is an adverse event with some of the antiepileptic drugs (AEDs) commonly with carbamazepine, oxcarbazepine, and very occasionally with valproate, eslicarbazepine, lamotrigine, levetiracetam, and gabapentin. To date, hyponatremia associated with levetiracetam has been documented in ≤5 cases. Case Report: A 50-year-old male was started on prophylactic levetiracetam for closed head injury with normal imaging in November 2015. Since then he had three admissions for hyponatremia: 1st for seizures; 2nd for dizziness; and 3rd for seizures. During the three admissions, the investigative workup was suggestive of inappropriate antidiuretic hormone secretion. During the first admission, the patient was on levetiracetam 1000 mg q12 and dose was reduced to 500 mg q12 at discharge. The patient was put on Tolvaptan 15 mg q24 at discharge in the first admission (December 25, 2015) which he continued to take intermittently till he visited our outpatient clinic in August 2017. After going through the records, he was diagnosed to have hyponatremia associated with levetiracetam and levetiracetam was discontinued. Since then he had no episode of hyponatremia. Lesson Learnt: This case illustrates that chronic hyponatremia in a patient with epilepsy on AEDs; one should check the AEDs list to exclude the possible AED that can be associated with hyponatremia.

EPO6/121
Hemiplegia-hemiconvulsion-hemiatrophy syndrome: A case report

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Introduction: Neuronal migration disorder is a rare cause of seizure, weakness and developmental delay. Seizures, hemiplegia, and hemiatrophy irrespective of etiology have been considered as Hemiconvulsion-hemiplegia-epilepsy syndrome. Prolongedictal activity that acts on blood–brain barrier permeability, genetic factors, and focal epileptogenic lesion predispose to this syndrome. In type I or closed-lip schizencephaly, the cleft walls are in apposition and type II or open lip schizencephaly, in which the walls are separated. Schizencephaly type II occurs more commonly than type I. Case Report: A 14-year-old female born of nonconsanguineous marriage presented with the history of infantile hemiplegic, recurrent seizures involving the right half of the body, and wasting of the right half of the body with mental retardation. Her antenatal-perinatal-family
history was uneventful. In view of diagnosis of Hemiparesis-Hemiatrophy-Hemiconvulsion syndrome, she was subjected to CT brain which showed open lip type of schizencephaly. She was managed with physiotherapy, two anticonvulsants and is doing fine at follow-up. **Discussion:** Schizencephaly is an extremely rare congenital brain anomaly and is the most severe form of neuronal migration defect. Schizencephalic clefts denote defects occur early in the 2nd to 5th month gestation, before the end of neuronal migration. There is very scant literature on schizencephaly in Indian population. **Conclusion:** Motor deficits are the predominant manifestations in open-lip schizencephaly. In patients of congenital hemiparesis, hemiatrophy, and hemiconvulsion one should consider the presence of neuronal migration disorders such as schizencephaly.

**EPO7/122**  
**Seizure in tuberculous meningitis and acute encephalitis syndrome: comparative study**  
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**Background:** Central nervous system infections are common causes of seizures. **Objective:** We report the spectrum of seizures and their effects on outcome in patients with acute encephalitis syndrome (AES) and tuberculous meningitis (TBM). **Subjects and Methods:** The consecutive patients with AES and TBM admitted to the neurology from 2014 to 2018 were included in the study. Seizures were classified as focal, generalized, and focal to bilateral and unknown onset and their possible etiologies defined. Three-month outcome was assessed using Modified Rankin scale (mRS) as good (mRS < 2) and poor (mRS > 2). In-hospital deaths were included in the poor outcome group. For specific diagnosis of AES, the patients were investigated for common etiologies. **Results:** There were 75 patients with AES and 79 with TBM. Seizures were insignificantly more common in AES compared to those in TBM (42.7% vs. 34.2%, \( P = 0.28 \)). Time to seizure onset was significantly earlier in AES compared to TBM (median 6 vs. 30 days, \( P < 0.01 \)). In patients with TBM, seizures were focal in 11 (13.9%), focal to bilateral in 9 (11.4%), generalized in 7 (8.9%), while those in AES, it was 9 (28.1%), 13 (40.6%), and 10 (31.2%), respectively. Status epilepticus was insignificantly more common in patients with AES compared to TBM (53.1% vs. 22.2%, \( P = 0.21 \)). In-hospital mortality (\( P = 0.48 \)) and 3 months (\( P = 0.76 \)) outcome was however similar in both AES and TBM. **Conclusion:** Seizures and status epilepticus were more common in AES and were earlier in onset compared to TBM.

**EPO8/154**  
**Sensory seizures presenting as paraneoplastic syndrome: Case report**  
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**Aim of Presentation:** Simple partial seizures presenting only with sensory symptoms (sensory seizure) on the investigation led to the diagnosis of metastatic adenocarcinoma - presented for the rarity and rapid progression of disease. **Case History Clinical Course:** A 61-year-old serviceman presented with a history of electric shock-like the sensation of rt UL/LL lasting for 2–5 min, 7–10 episodes per day for 3 days’ duration in March 2018. No weakness or sensory deficit noted. Electroencephalography showed Lt centro parietal sharp waves. Magnetic resonance imaging (MRI) brain was normal. Pt was treated with AEDS. Pt continued to have sensory symptoms though frequency had come down with 2nd/3rd AED. 4 weeks later pt presented with weakness of Rt LL. Repeat MRI with contrast showed Lt parietal hyperintense signals with leptomeningeal enhancement. Hence, autoimmune encephalitis was considered, and cerebrospinal fluid (CSF) sent for AIE panel. **Investigation and Clinical Course:** CSF cell count and biochemical analysis were normal. AIE panel was positive for ANNA-1 (anti-Hu). Search for underlying neoplasm were done. CT thorax– normal. CT Abdomen revealed enlarged para-aortic and iliac nodes. CT-guided biopsy of iliac node showed metastatic adenocarcinomatous deposits. Pt was referred to oncology center. **Conclusion:** Simple partial seizures though presented initially as benign in nature with normal clinical examination and imaging progressed to fatal diagnosis insisting the need for repeating the imaging as and when needed.

**EPO9/158**  
**Genetic epilepsy due to SCN2A – CNTNAP2 mutation: A rare case report**  
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**Case Report:** Baby T was referred to us at 2.5 years of age with recurrent seizures for 7 months of age. She had developmental delay and regression of milestones for 1.5 years of age. She was walking on her toes with frequent falls. She also had involuntary stereotypical movements involving both lower limbs. She had frequent eye blinking episodes, gradually reduced interaction with others and history of tantrums and hyperactivity. She was on multiple antiepileptic drugs with poor seizure control. On examination, she was right-handed and there were no lateralizing deficits. A provisional diagnosis of early-onset epileptic encephalopathy was made, and investigations were done. Electroencephalography (EEG) revealed bilateral sharp transients and generalized epileptiform discharges. Video EEG recording showed independent events with onset in both left and right hemispheres. Her routine blood investigations were normal. A tandem mass spectrometry result was normal. Her brain magnetic resonance imaging revealed bilateral globus pallidus hyperintensity. Genetic analysis (targeted gene sequencing) showed homozygous variation in CNTNAP2 gene and heterozygous variation in SCN2A gene. Ketogenic diet was initiated, and the patient attained good seizure control. **Discussion:** Early onset epileptic encephalopathy (EOEE) is a devastating neurological condition that causes a progressive decline in cerebral functions. One-third of EOEE cases are classified as cryptogenic where genetic factors are considered to play an important role. The genetic diagnosis helps in avoiding unnecessary testing, invasive biopsies and presurgical workup. Ketogenic diet is an established first line of treatment for genetic epilepsies.
Efficacy and safety of perampanel as adjuvant treatment in adolescents with refractory epilepsies: Inferences from published literature

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Introduction: Perampanel, a first in class, selective, non-competitive AMPA receptor antagonist approved in India for adjunctive therapy of POS ± SGS in patients aged ≥12 years.

Methods: PubMed and Google Scholar search for published articles from 2012 to June 2018. Results: Five published studies were considered for analysis. (1) 25 adolescents with refractory epilepsies, given adjunctive perampanel, followed up for 16 weeks, mean number of previous antiepileptic drugs (AEDs) were 9.7. Responder rate (RR) 32% and 8% seizure free. (2) Of 1480 patients enrolled in POS Phase III program, 143 were adolescents who entered into OLE (study 307). About 82% were taking 2 or 3 concomitant AEDs. RR 39% in all POS and 63.9% in SGS after 40–52 weeks of treatment. Eight adolescent patients on perampanel experienced TE aggression. (3) In cohort of 133 POS patients, 85 received perampanel and 48 received placebo, median age 14 years included in 19 weeks RDB study (study 235). Perampanel did not differ from placebo in global cognitive score. (4) 114 patients of study 235 entered into the extension phase. Seventy-three patients were on perampanel. After 40–52 weeks of treatment, 66% responders and 35.5% seizure free. No clinically relevant adverse effects on cognition, growth, and development recorded on perampanel. (5) Italian study observed 54 adolescents and 8 children with refractory epilepsies, with add-on perampanel for mean 6.6 months. About 50% of responders and 5% seizure free at the end of observation with 77.4% retention rate. Overall, in these studies, dizziness, somnolence, headache, fatigue, aggression, and irritability were common ADRs. TE behavioral effects deserve special attention in adolescent. Conclusion: In adolescents with refractory epilepsy, perampanel is effective and well tolerated as an adjunctive therapy. Perampanel has no clinically relevant effects on cognition, growth, and development in adolescents. However, the incidence of behavioral effects may be higher than the adult population and should be looked for.

Nontraumatic fracture: Do not miss seizure – Seizure: Do not miss nontraumatic fracture

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Introduction: People with epilepsy or single unprovoked seizure are at greater risk of musculoskeletal injuries than normal population due to seizure-induced repeated muscular contractions. Seizure-induced injuries can be classified as injuries without trauma; vertebral body fracture, shoulder dislocation, and fracture, Manubrio-sternal fracture, talar avulsion fracture, temporomandibular joint dislocation. Injuries with trauma: Burn injury, head injury, dental injury, other. Case Oresentation: Case 1: Nontraumatic fracture:

Don’t miss seizure; A 41-year-old male without a history of seizure presented with spontaneous four-part fracture of the left humerus. One evening after hectic schedule patient felt tired and slept on the bed, few minutes after that the patient was not responding to verbal commands and was cutoff from surroundings. He spontaneously regained consciousness and felt a sudden pain in his left shoulder. At presentation, neurological examination was normal except tongue bite. Laboratory investigation, magnetic resonance imaging brain, and electroencephalography were normal. CT shoulder confirmed the fracture. The patient treated conservatively for orthopedic injury and single unprovoked seizure. Case 2: Seizure: Don’t miss non-traumatic fracture; A 49-year-old male with acute hemorrhagic stroke with seizure presented with refractory back pain. CT spine revealed compression fracture lumbar vertebrae. Discussion and Conclusion: Vigorous muscular contractions lead to pull on the bony skeleton and subsequent fracture at muscular attachments. In cases of nontraumatic fracture with a history of cutoff, tongue bite, and severe grade of fracture, one should not miss the seizure. Similarly, in cases of seizure with significant refractory musculoskeletal pain, one should not miss the fracture.

A study comparing neurological disease depression inventory for epilepsy and Beck’s Depression Inventory in diagnosing depression in epileptic patients

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The prevalence of depression in patients living with epilepsy is as high as 20%–30%. However, because of difficulty in performing a formal psychiatric interview in the outpatient clinical setting, it is underdiagnosed and undertreated. The aim of this study is to compare the diagnostic value of the Neurological Disease Depression Inventory for Epilepsy (NDDI-E) and Beck’s Depression Inventory in diagnosing depression in patients with epilepsy. A total of 100 patients with epilepsy in the age group of 20–60 years were included in the study. The data regarding basic demographic profile, semiology of the epileptic seizures, imaging of brain, frequency of seizures, electroencephalography, and antiepileptic drug treatment were recorded. All the 100 patients were subjected to depression screening with Beck’s Depression Inventory and NDDI-E in their own native language. The total scores of each patient for both the inventories were recorded and statistical analysis done. Thirty out of the 100 patients (n = 30) showed evidence of depression By Beck’s Depression Inventory and 26 out of the 30 patients who showed evidence of depression by Beck’s Depression Inventory also showed evidence of depression by NDDI-E with a statistically significant positive correlation. NDDI-E is a 6-item questionnaire validated for diagnosing depression in patients with epilepsy and can be administered by the neurologists themselves in outpatient department setting, whereas Beck’s Depression Inventory and other structured psychiatric interview are time-consuming and difficult to be performed in a busy out-patient neurological setting.
EPO13/279
Levetiracetam-induced acute kidney injury and Steven Johnson syndrome: A case report
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Levetiracetam is a newer antiepileptic drug. Due to its good oral tolerability, wide therapeutic range and minimal systemic adverse effects. There have been a few reports suggesting possible detrimental effects of levetiracetam on renal function. Cutaneous adverse effects are uncommon with levetiracetam (1%), with the incidence of Steven–Johnson syndrome being 0.3%. Here, we report a patient with brainstem bleed, who developed acute kidney injury and Steven–Johnson syndrome secondary to levetiracetam therapy.

EPO14/295
A retrospective study of “use of anticonvulsants for seizure management” in tertiary hospital: Has the trend changed?
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Background: In the past second-line AEDs were only used as add-on therapy to the first line. However, as knowledge and experience expand, a change in trend among physicians and pediatrician to prefer second-line AEDs over the first line as monotherapy and/or as a part of polytherapy. Aims and Objectives: This study aims to study AEDs prescribed among physicians and pediatricians for seizure treatment in tertiary care hospital. Materials and Methods: A retrospective study done after collecting data from inpatient admission files through minimal residual disease of SSIMS and RC using ICD No. R56.8 (seizure disorder) from January 2015 to December 2017. Details entered into Microsoft Excel sheet and categorized under epileptic/nonepileptic, age, gender, diagnosis, AED used, and monotherapy versus polytherapy. Results were analyzed, and descriptive statistical method was applied. Results: Of 250 patients, 197 (78.8%) were prescribed monotherapy and 53 (21.2%) patients were prescribed polytherapy. Of 197 patients of monotherapy, levetiracetam was most commonly prescribed drug in 89 (45.17%) patients, clobazam was next commonly prescribed drug in 49 (24.89%) patients mainly in pediatric age group, and phenytoin in 37 (18.78%) patients. Moreover, the most common drug used as a part of polytherapy was levetiracetam in 35 (66.03%) of patients. Conclusion: Above study highlights the change in the seizure management strategies among pediatricians and physicians. Second-line AEDs are preferred over the first line. Levetiracetam being most commonly used as monotherapy- and polytherapy-based regimen. Clobazam is mostly used by pediatricians for seizure control in children. This trend raises quite a few possibilities. Scare of older AEDs or overhyped second-line AEDs.

EPO15/362
A study of clinical and imaging features of refractory epilepsy in patients attending Osmania General Hospital
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Background: The incidence of refractory epilepsy remains high despite the influx of many new antiepileptic drugs (AEDs) over the past 10 years. Factors that may be used to predict whether or not a patient will respond favorably to AED therapy include the type of epilepsy, underlying syndrome, etiology, and the patient’s history of seizure frequency. Hence, detailed evaluation and analysis of the clinical and imaging features is helpful in understanding the refractory epilepsy. Objectives: The objective of the study is to evaluate various etiological factors for refractory epilepsy. Materials and Methods: We have analyzed 100 patients of epilepsy admitted for refractory epilepsy in our institute from January 2017 to January 2018. Of these 80 patients were found to be refractory epilepsy. Inclusion Criteria: Patients with refractory epilepsy. Age >1 year is included in the study. Exclusion Criteria: Patients with pseudoseizures, patients with poor drug compliance. Results: A total of 80 patients of refractory epilepsy are analyzed. The most common cause in children is congenital anomalies, we found 19 patients with anomalies such as focal cortical dysplasia, schizencephaly, and hemiatrophy. Twelve patients were of posthypoxic-ischemic encephalopathy sequelae, 2 patients of Rasmussen’s encephalitis is found. In adults, the most common cause is calcifications, we found 27 cases of calcifications secondary to tuberculosis and NCC. There are 8 patients with postischemic stroke gliosis. We have 7 patients with posttraumatic sequelae and 5 patients are with tumors.

EPO16/378
Cognitive and neuropsychological assessment in people with epilepsy
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Aims and Objectives: This study aims to study the incidence of Cognitive and Neuropsychological aspects in people with epilepsy attending a tertiary care hospital of North coastal Andhra Pradesh. Materials and Methods: This is a case–control study conducted from April 2017–May 2018 on 52 patients with epilepsy from the Department of Neurology, KGH, Visakhapatnam. Patients with acute symptomatic seizures, major psychiatric illness, major systemic illness, progressive neurological condition, and pregnancy with epilepsy were excluded from the study mini-mental status examination (MMSE), montreal cognitive assessment (MOCA), Epworth sleepiness scale and MINI neuropsychiatric inventory were the scales used. Results: In epilepsy patients (n = 52), majority were male (57.6%). The mean age of symptom onset was 17 years and mean duration was 11.7 years. Juvenile myoclonic epilepsy is seen in 21%, temporal lobe epilepsy (TLE) in 28%, focal seizures with bilateral spread in 8%, and other seizures types with GTCS as predominant seizure type in the rest. Patients with TLE had low scores with MMSE and MOCA and high scores on Epworth sleepiness scale. We found a significant association between the long duration of temporal lobe epilepsy and poor scores with MMSE and MOCA P < 0.002 and P < 0.04, respectively. Conclusions: In our study, the incidence of cognitive dysfunction is seen more with TLE patients. JME patients performed well in the cognitive scales. This is one of the cross-sectional studies to show the incidence of cognitive and psychiatric abnormalities in different types of epilepsy which needs to be further validated in large population studies.