Pakistan Journal of Neurological Sciences (PJNS)

Volume 2 | Issue 1 Article 11

4-2007

ABSTRACTS 13th Annual Meeting Pakistan Society for Neurology March 23-24, 2007 Lahore

13th Annual Meeting Pakistan Society for Neurology

ABSTRACTS

13TH ANNUAL MEETING

PAKISTAN SOCIETY FOR NEUROLOGY

MARCH 23-24, 2007

LAHORE

Neurophysiologic evaluation of patients presenting with foot drop. *M. Wasim, Mazhar Mobin, Afshan Saeed, Naveed Uddin, Farrukh Shohab Khan, Asiya Bano, Feroza Saleem, Liaquat National Hospital, Karachi.*

Background: Foot drop is defined by an inability to raise the foot at the ankle (dorsiflexion). Causes vary, and include local injury to the peroneal nerve. Electrodiagnostic studies have high sensitivity and specificity in detecting the level of nerve injury leading to foot drop. Objective: We undertook this study to define the clinical and electrodiagnostic characteristics of patients with foot drop. Subjects and methods: We retrospectively collected data on patients who presented with the question of foot drop to our lab during the year 2006. Records of our neurophysiology laboratory were reviewed for electrodiagnostic characteristics. All patients underwent a standardized protocol for nerve conduction studies and electromyography. Results: There were 19 patients in all (16 males, 3 females). Mean age was 38 years. Etiologic factors were identified as trauma in 14 patients; surgery in 2 patients, both of whom had concurrent diabetes mellitus; bed-ridden status in 2 patients, 1 of whom was diabetic; and prolonged sitting with crossed leg in 1 patient. Peroneal nerve injury was diagnosed in 7 patients (5 at fibular head, 1 at wound site, 1 proximally in the thigh. Four patients were diagnosed to have a lesion of the sciatic nerve in the thigh, 3 patients had lumboscaral radiculopathy (2 with L5-S1 radiculopathy and 1 with polyradiculopathy), 1 patient had peripheral neuropathy, 3 patients had multiple lesions. Nerve conduction abnormalities were as follows: peroneal nerve (6 times), tibial nerve (9 times), sural nerve (14 times), superficial peroneal nerve (17 times), and H-reflex (11 times). Conclusion: Foot drop is not an uncommon presentation in the clinical neurophysiology laboratory. The commonest abnormality is a lesion of the peroneal nerve at the fibular head.

Osseous spinal sarcoidosis: A rare but important entity. *Ali Bin Sarwar Zubairi, Mughis Sheerani, Humera Ahsan, Omer Ashraf . Aga Khan University, Karachi.*

Sarcoidosis can be a very deceiving disease especially in countries where tuberculosis is very common. Bone involvement is infrequent and vertebral involvement is exceedingly rare. Thus bony involvement may be very helpful in the diagnosis, if the typical radiological picture is recognized by the radiologist. We report a case of confusing 'granulomatous disease of lung', thought to be tuberculosis initially, but which was eventually diagnosed as sarcoidosis. Diagnosis emerged from typical radiological features, recognized by the radiologist, that were distinct from the typical picture of tuberculosis.

Persistent hyperglycemia predicts mortality and long-term disability in intracerebral hemorrhage. *Ayeesha K. Kamal, Fazeel M. Siddiqui, M. Talha Khan, Shane Abbas, Shafquat Rozi, Scott E. Kasner. Aga Khan University, Karachi.*

Background and purpose: Acute hyperglycemia worsens outcome from ischemic stroke by recruiting infarct into ischemic penumbra. This study was performed to identify if hyperglycemia affected outcome from primary ICH and which hyperglycemic parameter was the strongest predictor of ICH mortality and severe long-term disability. Methods: A prospectively identified population of patients with primary hypertensive intracranial hemorrhage admitted to a large tertiary care hospital in Pakistan from 2001-2005 was studied. Risk factors, complications, parameters of hyperglycemia during hospital stay, and stroke severity were analyzed in relation to short (in-hospital) and long-term (3 months) morbidity and mortality. Results: 331 patients with primary ICH presented within 48 hours of symptom onset. Hyperglycemia did not independently predict acute mortality at 48 hours. Hyperglycemia was independently associated with in-hospital and 3-month mortality and morbidity. The strongest glucose variable predicting in-hospital and 3-month mortality and morbidity (modified Rankin score >3) was mean in-hospital blood glucose, especially in patients without diabetes: for every 10 mg/dl rise in the mean blood glucose, there was a significant increase in in-hospital mortality (OR 1.17; 95% CI=1.06-1.30) and mortality or severe disability at 3 months (OR 1.13; 95% CI=1.03-1.23). There was a 4-point NIHSS worsening at discharge in patients with raised blood glucose levels at admission. Conclusion: Hyperglycemia appears to have an active role in worsening the course and prognosis of ICH. Its effect becomes important in those who survive the initial insult and lasts for at least the first few days after ICH.

Natural history of hyperglycemia after primary ICH. *Ayeesha K. Kamal, Fazeel M. Siddiqui. Aga Khan University, Karachi.*

Background and purpose: The natural history of hyperglycemia after intracranial hemorrhage has not been described. Interventions designed to correct hyperglycemia should be based on observations of the course of hyperglycemia after ICH. Methods: This is a prospectively identified clinical cohort followed after ICH with serial measures of blood glucose to describe the temporal course of hyperglycemia after ICH. Patients with sudden onset of neurologic deficit and a CT scan confirming ICH from 2001-2005 were included in this study. Diabetics and those with secondary ICH were excluded. Serial

glucose measurements were reviewed. Results: 116 patients and their associated hyperglycemia variables were studied within 6 hours of admission. Admission hyperglycemia correlated with severe ICH. In those with severe ICH, there was a steep rise and fall of blood glucose over 4 -6 days. In patients who died, hyperglycemia did not resolve. In patients with mild to moderate stroke, the same "wave" was observed albeit at lower glucose levels and with less pronounced peaks. Conclusion: Hyperglycemia after ICH is sustained over days and correlates with NIHSS scores. Opportunity for intervention is prolonged and not restricted to a few golden hours.

Isolated deep venous thrombosis - case series, literature review and long-term follow-up. *Ayeesha K. Kamal, A Itrat, S Shoukat, BA Khealani, K Kamal. Aga Khan University, Karachi.*

Cerebral venous sinus thrombosis may rarely be isolated to a cortical vein or to the deep venous system. When the deep venous system is involved, prognosis is generally poor. In addition, long-term follow-up is not reported. We conducted a retrospective review of all patients admitted to a major tertiary care center with the diagnosis of isolated deep venous thrombosis. Two patients were identified with isolated involvement of the deep venous system, they are reviewed in detail with long-term follow-up. Two young South Asian women in their 30s with rapid onset of neurologic signs and symptoms are reported. Even though one patient required intubation and mechanical ventilation for stupor, both had excellent neurologic recovery. Over 6 years of follow-up there has been no recurrence. In spite of stupor at presentation, complete recovery is possible without long term recurrence.

Pathophysiology of cerebral venous thrombosis - an overview. *A Itrat, S Shoukat, Ayeesha K. Kamal AK. Aga Khan University, Karachi.*

Cerebral venous sinus thrombosis (CVST) is a disorder with a unique pathophysiology which needs to be described. A MEDLINE search of all articles detailing pathophysiology of CVST was done using the keywords cerebral, venous, thrombosis, and pathophysiology. In addition, major texts were reviewed for additional references. The pathophysiology of CVST depends on two interconnected events - focal signs due to venous infarct (e.g., hemiparesis) and global signs due to raised ICP from an obstructed venous system, such as papilledema and isolated intracranial hypertension. Pathophysiology of CVST is diverse and makes it easier to understand the diversity of clinical presentations.

Moyamoya disease: Clinical spectrum, literature review, and case series from a tertiary care hospital. *Sana S. Memon, Ahmed Itrat, Ayeesha K Kamal. Aga Khan University, Karachi.*

Objective: To describe the clinical experience with Moyamoya disease in a tertiary care hospital in Pakistan. Patients and methods: We conducted a retrospective review of thirteen patients who presented to Aga Khan University Hospital and were diagnosed with Moyamoya disease during the period 1988 - 2006. Results: There were seven males and six females. Mean age at presentation was 16.5 years and a female predominance was found in the pediatric age group (71.4%). Stroke (n=11, 84.2%) was the most common presentation with motor deficit being the universal cortical symptom. Blindness and aphasia were present in one patient each. Fever was a common symptom in the lower age groups (n=4, 51.7%). Six patients presented with seizures and three were found to suffer from repeated transient ischemic attacks. Two patients had a history of congenital cardiac defects. One female patient had a history of repeated abortions. One had raised serum homocysteine levels. Cerebral angiography and magnetic resonance angiography showed bilateral involvement of the vessels in eleven patients and unilateral in two. Subarachnoid and interventricular hemorrhage appeared in two adults. Twelve patients were discharged on independent function with minor deficits, regardless of surgical or conservative medical treatment. One patient expired during hospital stay. Conclusion: Moyamoya disease should be considered by physicians when dealing with childhood strokes and characteristic deficits in adult population. However, further clinical studies must be carried out locally to determine exact prevalence and patterns in Pakistan.

Characteristics of patients presenting with TIA and their management in a tertiary care hospital in Pakistan. *Ayeesha K. Kamal, Farhad Khimani, Rushna Raza. Aga Khan University, Karachi.*

Background: With the rising incidence of TIA (transient ischemic attack) in South Asian countries including Pakistan, it is important to know whether this is due to genetics, changing lifestyle or improved diagnostic capacity. This retrospective study was done to analyze risk factors related to TIA, its presentation and prognosis, and to ascertain the immediate management it receives in a tertiary care hospital setting in Pakistan. Method: A retrospective chart review was done for 158 patients who were admitted with the diagnosis of TIA from January 2003 to December 2005 in Aga Khan University Hospital, Karachi. A comprehensive proforma was made for

documenting presenting symptomotology, risk factors, co-morbid conditions, investigations including radiological findings, and treatment. In each patient, the mechanism of TIA was classified by an expert stoke neurologist. Data were analyzed in SPSS version 14.0. Results: 57.6% of the 158 TIA patients were male. Of all the TIA patients studied, 9.5% developed stroke in the first year after initial TIA, with 50% developing it in the first 24 hours. The common presenting symptoms were motor (51.3%), speech impairment (43%), sensory (34.8%), loss of balance and vertigo (29.1%), and loss of vision (8.2%). Mean delay in presenting to the hospital was 20.76 hours. The most common co-morbid conditions were hypertension (77.2%), hypercholesterolemia (45.6%), diabetes mellitus (38%), smoking (20.9%), previous MI (14.6%), previous CABG (12.7%), angina (12%), obesity (11.4%), and atrial fibrillation (5.1%). The study showed that 60.8% of all patients presenting with TIA received immediate treatment, most (27.2%) being given aspirin, followed by other anti-platelet agents (12.7%), enoxaparin (8.2%), heparin (6.3%), and statins (1.9%). Radiological modalities were used in 91.1% patients (MRI in 53.2%, carotid doppler in 47.5%, MRA in 41.8%, and CT scan in 27.2%). Echocardiography was performed in 57.6%. Classification of TIA showed the most common type to be undetermined and under-investigated (24.1%), followed by presumable cardio-embolic (20.3%), large artery atherosclerosis (18.4%), probable lacunar warning syndrome (15.8%), and lastly the truly undetermined type (1.3%). Conclusion: Co-morbidities that are identified as risk factors for TIA are prevalent in patients who present with this condition. Diagnosis is established in most TIA patients by radiological modalities. Even in a tertiary care hospital, a large percentage of patients are still not receiving initial treatment as described in available guidelines.

Disease modifying treatment and role of campath-1H in multiple sclerosis. *Ahmad Fawad. Plymouth University, UK.*

Clinical variability of multiple sclerosis contributes to difficulties developing patient-specific interventions. Campath provides evidence for the hypothesis that there is a 'window of opportunity' early in the course of multiple sclerosis during which it is possible to achieve a significant and sustained effect on disease progression.

Nummular headache: A coin-shaped cephalgia.
Ahmad Fawad. Plymouth University, UK.

Nummular headache has recently been included in the International Headache Classification. To the best of our knowledge, no cases have previously been described in the UK or Pakistan literature. The topography and signs of sensory dysfunction suggest that nummular headache is a benign extra-cranial headache of unknown etiology.

Neurological complications of pregnancy.
Ahmad Fawad. Plymouth University, UK.

Evaluation and treatment strategies of pregnancy-related issues can be divided into five major areas: neuromuscular disease, headache, infections, stroke, and epilepsy. The awareness of diagnostic and therapeutic skills in the management of major neurologic complications of pregnancy increases sensitivity and improves therapy for mother and fetus.

Role of IVIG in malignant status epilepticus.
Fowzia Siddiqui, Aga Khan University, Karachi.

Objective: To report clinical experience with intravenous immunoglobulin (IVIG) in malignant status epilepticus. Background: Malignant status epilepticus (MSE) is defined as failure of the conventional status epilepticus protocol (phenytoin and valproate, followed by phenobarbital, midazolam, thiopental or propofol coma) to abort seizure activity. Several intravenous agents have been used for MSE. IVIG has been used routinely with some benefit in children; however, use in adults has not been studied. Methods: Over a 16-month period, IVIG was administered to 6 patients with MSE. They has all been in status epilepticus for over a month. All were tried on pulses of methyl prednisolne with some benefit, followed by IVIG. These cases are reviewed in this study and their outcome and etiologies discussed. Results: In 5 out of the six patients, seizures stopped after administration of IVIG. Conclusion: IVIG may have therapeutic benefit in malignant status epilepticus that is refractory to standard protocols.

Neuropsychiatric manifestations of vitamin B12 deficiency and response to replacement. *Fowzia Siddiqui, Haroon Daniel. Aga Khan University, Karachi.*

Objective: To note the frequency of vitamin B12 deficiency in a general neurology outpatient population and monitor clinical response to replacement therapy. Methods: We retrospectively reviewed patients who presented with a spectrum of neuro-psychiatric signs and symptoms and had their serum B12 levels tested. Patients with low B12 levels were given parenteral supplementation in the form of mecobalamin or combination B1, B6, B12. Clinical response was monitored over a period of six months. Results: Out of 590 patients reviewed, 43 had B12 levels done on clinical suspicion. Of these, 32 patients had low

B12 levels (74%). Only 4 patients had associated macrocytic anemia, 6 patients (18%) had hyperhomocystenemia and stroke-like symptoms, whereas 2 patients were carrying a diagnosis of multiple sclerosis. Mean age was 33 years. Psychiatric manifestations responded more rapidly than did the neurological symptoms. Conclusion: Vitamin B12 deficiency is fairly common and under-diagnosed in Pakistan. Neuropsychiatric complications can occur without anemia and are common in a younger age group than internationally reported. Neurological symptoms respond more gradually and depending on the duration of symptoms may become irreversible, warranting early diagnosis and management.

A twist of fate with a turn of the neck. *M. Hashmi, F.S.Khan, S. Mustafa, N.U. Ahmed, N. Ahmed, K. Siddiqui, Liaquat National Hospital, Karachi.*

Chiropractic manipulation of the cervical spine has long been known to cause posterior circulation strokes secondary to vertebral artery dissection. However, neck massage, a common practice in this region of the world, resulting in subclavian artery dissection and consequent embolic stroke in the posterior circulation territory, has not been reported before. Case report: A 45-year-old man presented with headache, blurring of vision, vomiting and left-sided numbness and weakness. Examination revealed bilateral horizontal nystagmus, left hemiparesis and decreased sensation on the left side. He had a history of neck massage by professional masseurs, with one episode of brief loss of consciousness during these sessions, two weeks prior to presentation. On cranial MRI there were multiple ischemic infarcts in the left cerebellar, occipital and thalamic regions; an intraluminal thrombus was visualized in left vertebral artery. MRA showed complete occlusion of left vertebal artery A substracted 3-D CT angiography was performed revealed dissection along the postero-superior aspect of the left subclavian artery, involving the origin of the left vertebral artery. This most likely resulted in multiple emboli, as evident by presence of all ischemic lesions on the side of the vessel affected. He was started on anticoagulation and discharged with almost complete recovery. Conclusion: Neck massage involving cervical manipulation is a frequent practice in Asian countries, and can result in serious devastating complications. It is important to recognize this infrequent entity so early diagnosis and treatment can be instituted.

Ischemic stroke with ovarian hyperstimulation syndrome. *Amna Qazi, Aamir Nazir Ahmed, Mah Parveen Qazi, Arsalan Ahmad. Shifa International Hospital and College of Medicine, Islamabad.*

Background: Ovarian hyperstimulation syndrome is a rare and serious complication of hormonal treatment for induction of ovulation. Haemoconcentration owing to a large fluid shift from the intravascular to the peritoneal cavity results in increased blood viscosity and sometimes a coagulopathy that can lead to arterial and venous occlusion. Thromboembolic stroke, cerebral venous thrombosis and systemic arteriovenous thrombosis have been reported in ovarian hyperstimulation syndrome. Case report: We report a case of a 30-year-old female who had undergone in vitro fertilization and presented in the emergency department with sudden onset of left side hemiplegia. Her CT scan showed a full thickness right middle cerebral artery infarct. The patient was treated with oral aspirin, intra venous plasma expanders and mannitol. MRI of the brain two days later showed hemorrhagic conversion of infarct. The patient made a good recovery and was independent in activities of daily living when seen for follow up after six months. Conclusion: Incidence of ovarian hyperstimulation syndrome is reported to be between 0.3 % and 6% and the risk is increased by pregnancy. The most commonly reported mechanism of stroke in this condition is large artery occlusion, usually of the middle cerebral artery. Our patient also had a full thickness right middle cerebral artery infarction. To our knowledge, ovarian hyperstimulation syndrome has not been previously reported from Pakistan.

Itraconazole before surgical biopsy of suspected cerebral aspergillosis may improve outcome.
Mohammad Wasay, Junaid Patel, Iqbal Azam, Muhammad Aslam Khan. Aga Khan University, Karachi.

Background: Cerebral aspergillosis is considered to be a fatal disease with a reported mortality of more than 90%. Systemic amphotericin with or without flucytosine or itraconazole is currently considered the standard of care. Itraconazole alone has been reported to be effective in patients with cerebral aspergillosis. Objective: We retrospectively reviewed all patients with biopsy-proven cerebral aspergillosis and compared baseline characteristics and outcome of patients treated with either amphotericin or itraconazole. Methods: 25 patients were included in the study. They were divided into two groups - the amphotericin group(n=12) and the itraconazole group (n=13). Patients treated with both medications were included in the amphotericin group. Results: The two groups were not different at baseline, with similar age (p=0.09), sex (p=0.15), course of disease (p=0.10), immune status (p=0.12), number of MRI lesions (p=0.09), and mass effect on MRI (p=0.056). The amphotericin group received intravenous amphotericin 30-100 mg per day for three to fifteen days. Treatment was started after surgical biopsy of brain lesions confirmed the diagnosis of cerebral aspergillosis. Seven patients (58%) in

this group died during treatment. Five patients completed the treatment but only one showed significant neurological improvement. Seven patients in this group were also treated with steroids. The itraconazole group received 200-400 mg itraconazole orally for 28 days to 6 months. Diagnosis was confirmed by brain biopsy in eight patients and nasal scrapings in five patients. Five patients received concomitant steroids. Three patients (23%) died in this group, seven patients improved, and 3 patients had no significant neurological improvement. Itraconazole was started before surgery in nine patients, all of whom survived. Conclusion: Cerebral aspergillosis was largely a disease of immuno-competent people (80%) in our series. Overall mortality was 40% (Amphotericin group, 58%; itraconazole group, 23%). Mortality was significantly low in the itraconazole group (p= 0.05), especially if treatment was started before surgical biopsy was taken.

Brachial amyotrophy: A review of cases. *Mussarat Shaheen, Naveed Uddin Ahmed, Anil Kumar, Feroza Saleem. Liaquat National Hospital, Karachi.*

Background: Brachial amyotrophy is a syndrome affecting the brachial plexus or individual upper extremity nerves. Many cases are preceded by a viral illness, immunization or occasionally surgery. Shoulder pain is a prominent feature, followed a few weeks later by muscle weakness and atrophy. All or part of the brachial plexus may be affected. In some cases, individual upper extremity nerves are involved, especially the long thoracic, axillary and anterior interosseous nerves. Most cases are unilateral but sometimes bilateral involvement is seen. Objective: To emphasize the existence of a common but under appreciated illness that is self-limiting and carries a relatively good prognosis. Methods: Charts of patients presenting to our neurophysiology laboratory for evaluation of non-traumatic brachial plexus lesions were reviewed. Motor nerve conduction studies included bilateral median, radial, ulnar, axillary and musculocutaneous nerves. Sensory nerve conduction studies included bilateral median, radial, ulnar and antebrachial nerves. Results: 11 patients with non-traumatic brachial plexopathy were identified; 2 of these had evidence of brachial plexus involvement secondary to breast carcinoma. The remaining 9 patients had no obvious direct etiologic factor responsible for the plexopathy; all of these were male, mean age was 31.7 years, all complained of pain in the shoulder and arm, all had unilateral symptoms, the upper trunk alone was involved in 7 patients, the upper and middle trunks together were involved in 1 patient, and in 1 patient middle and lower trunk involvement was seen. Conclusion: Brachial amyotrophy is an under-diagnosed entity. It is important to recognize this condition as it is self-limiting and carries a relatively good prognosis. Appropriate rehabilitation measures, if instituted early in the illness, can prevent an immobilized and contracture-ridden extremity.

Cerebral Venous thrombosis: AKUH Experience. *BA Khealani. Aga Khan University, Karachi.*

Cerebral venous sinus thrombosis (CVST) is an under-recognized disease entity. It carries a fairly good prognosis if recognized and treated early. Literature on the subject from Pakistan is scant. We reviewed the case records of all patients admitted to AKUH with a diagnosis of CVST. The diagnosis was made on an established radiological basis. Demographic, clinical, laboratory and radiologic data was recorded and analyzed.

Types of childhood onset hedaches - a descriptive study. *Arif Herekar. Dow University of Health Sciences, Karachi.*

Objective: To evaluate the prevalence and variety of childhood onset headaches in a Pakistani population. Design: Descriptive study. Setting: Neurodiagnostic Centre at Hamdard University Hospital (Taj Medical Complex), Karachi, from July 2006 to December 2007. Patients and methods: 50 headache patients were included in this study who reported to a private neurology centre and complained of headaches. Results: Ages ranged between 1 and 17 years (age of onset ranged between 03 months and 17 years). 41 patients (82%) were diagnosed as migraine, 5 patients (10%) had mixed headaches, and 4 patients (8%) suffered tension headaches. Diagnosis was based on International Headache Society criteria. 52% (26 patients) were male and 48% (24 patients) were female. Mean age of onset was 7.67 years male and 7.61 years female. The mean interval between age of onset and first neurology consult was 3.27 years. 50% (25 patients) of the patients were found to have familial headaches. Conclusion: This is a study with 50 patients; migraine being the dominant headache, also occurring in very small children as small as 4 months of age.

Dancing and moving toes - a malady and a nuisance. *Faika Usman, Ismail A. Khatri, Ayesha N. Vohra, Salman Zubair, Arsalan Ahmad. Shifa College of Medicine & Shifa International Hospitals Ltd., Islamabad, and University of Oklahoma Medical Center, Oklahoma City, USA.*

Background: Involuntary movement of toes without any pain in the legs is a nuisance for patients, affecting certain activities of daily living. Painless leg with moving toes is a variant of painful legs with moving toes (PLMT), an interesting and rather uncommon movement disorder consisting of continuous or semi-continuous, involuntary,

unilateral or bilateral, writhing movement of toes in the affected extremity. Frequently this is misdiagnosed as dystonia or Parkinson disease. We have this phenomenon captured on video recorded serially before and after therapy. Case histories: (1) A 52-year-old man with a 10-year history of involuntary movements the right 4th toe with progressive worsening, particularly bothersome in summer and in anxiety, causing discomfort while prostrating during prayers. A video of abnormal movements will be shown. Extensive diagnostic work up was non-revealing. (2) A 70-year-old man presented with involuntary movements of the right foot affecting his activity of playing golf. With extreme concentration, he could stop his moving toes intentionally. A more dramatic and robust show of moving and dancing toes is seen in his video. His diagnostic work up was non-revealing except for mild axonal polyneuropathy. Both patients responded extremely well to clonazepam. The second patient could not tolerate the side effects of clonazepam and required gabapentin. Conclusion: Painless legs moving toe syndrome is a unique movement disorder that should be identified by neurologists and differentiated from Parkinson disease and various dystonias as it is responsive to a very different set of therapeutic strategies.

Neurological involvement in Dengue viral infection carries poor outcome. *Mohammad Wasay, Roomasa Channa, Maliha Jumani, Afia Zafar, Aga Khan University, Karachi.*

Background: The literature related to neurological symptoms and neuroimaging features of Dengue viral infection is limited. Overall reported mortality is 3-5%. Prognostic value of neurological involvement is not known. Objective: To analyze neurological findings and its prognostic value in a cohort of patients infected with Dengue virus. Methods: We retrospectively reviewed 137 cases of confirmed Dengue viral infection. The diagnosis of Dengue was confirmed by serology. Eleven patients (9%) developed neurological manifestations. We reviewed clinical and neuroimaging features of these patients. Results: Eleven patients were included in study. Four patients were men. The age range was 3-41 years. The average duration of illness was 9.4 days (range 2 to 27 days). All patients presented with a viral syndrome which included fever and vomiting. 54% of the patients had hemorrhagic manifestations which included petechial rash (36.4%), epistaxis (18%), oral bleed (18%), hematamesis (9%) and melena (9%). Common neurological manifestations were seizures 36%, vertigo 45%, drowsiness 45%, neck rigidity 18%, decerebration 18%, confusion 18% and agitation 18%. Less common signs noted on neurological examination were hemiplegia, paresis and up-rolling of eyeballs, each seen in 18% of patients. At discharge, the functional status of seven patients improved, two (20%) patients died, one left against medical advice and was lost to follow-up, and one patient was discharged in vegetative state (10%). Six out of the eleven patients in our study had brain CT or MRI done. The results showed normal findings in four patients. One patient had generalized cerebral edema with effacement of cortical sulci and abnormal meningeal enhancement consistent with meningitis, and the other patient had sub acute subdural hematoma with generalized brain edema. Conclusion: Neurological involvement in Dengue viral infection is not common. Intracranial hemorrhage is uncommon as compared to systemic hemorrhage. Mortality is high among patients with CNS involvement.

Dengue-related encephalitis. *S.R.Siddiqui, G. Hameed, F. Ali, K.Siddiqui. Liaquat National Hospital, Karachi*

Background: Dengue virus is now the most common cause of arboviral disease worldwide. In the past few years the incidence of dengue hemorrhagic fever has increased so rapidly and alarmingly in Pakistan especially southern urban areas that it has become a major public health problem. Thousands of cases are identified and number of deaths reported despite the fact that majority of population still lack the diagnostic facility, so it is definitely under recognized. Recent epidemic of dengue fever in Karachi has increased complications related to this virus. Imaging features of dengue-related encephalitis have been previously reported. We report a case of dengue-related encephalitis with imaging features similar to herpes simplex encephalitis. Case report: A 52-year-old female presented with eight days of high-grade fever, nausea, and vomiting, and was admitted with disorientation and rapidly worsening drowsiness over the preceding twenty four hours. She was intubated and ventilated due to drop in her GCS. Her initial labs showed thrombocytopenia. CT brain was normal. First CSF study was normal, but her second CSF sample showed white cell count of 40, with differential count of 60% lymphocytes, 40% polymorphs, raised protein of 180 mg, with normal CSF/serum glucose ratio. HSV PCR in CSF was negative. IgM antibody for Dengue was discovered to be positive. MRI brain showed hyperintensities in bilateral parahippocampal regions on T2WI & FLAIR sequences. She expired on 11th day of admission secondary to disseminated intravascular coagulation and ventilator associated pneumonia. Conclusion: In dengue-related encephalitis neuroimaging can range from normal to selective parahippocampal hypernitensities, with major differential being herpes simplex encephalitis which was excluded in our case.

Limitation on the clinical utility of the dorsal ulnar cutaneous nerve. *Bano Malik Shah, Hazim Brohi, Mustafa Khan, Bhojo Khealani. Aga Khan University, Karachi.*

Background: Electrophysiologic assessment of the dorsal ulnar cutaneous nerve (DUCN) is commonly used in localizing the level of ulnar neuropathy. Its presence indicates that the lesion affecting the ulnar nerve is distal to the elbow. However, it may be asymmetric or absent even in normal individuals, thus cautioning its value of localization in ulnar neuropathy. Objective: To look for the frequency of asymmetry or absence of DUCN in normal subjects. Methods: We evaluated the sensory nerve action potential (SNAP) of DUCN in both hands of 51 normal volunteers. All the subjects were screened out for any underlying problem by history and neurological examination. Subjects having abnormal results underwent ulnar motor studies along with inching across elbow in order to rule out local pathology and sural-radial ratio to rule out subclinical acute axonal neuropathy. Recording was done by placing recording electrode in the dorsal web space between the 4th and 5th digit of hands while stimulating 8 cm proximally just below the ulnar styloid process with the hand in prone position at 32-34 Celsius. Results: Age of subjects ranged from 20-36 years. Mean conduction velocity was 41.6 msec, the mean latency was 1.96 msec and the mean amplitude was 26.29 mV. Approximately 8 % (n=4) normal subjects showed abnormal findings, with no response in at least one side or a significant asymmetry between the right and left side of DUCN. In each of these 4 cases sural-radial ratio and ulnar motor nerve studies with ulnar inching across the elbow were found to be normal. Conclusion: The DUCN SNAP is technically easy to obtain; however, it may be asymmetric or absent in normal subjects. Thus its absence should be evaluated cautiously in patients with ulnar neuropathy.

Protein S deficiency and cerebral venous thrombosis: A case report. *Zeb un Nissa, Ejaz A Khan, Arsalan Ahmad. Shifa International Hospital, Islamabad.*

Background: Cerebral venous thrombosis (CVT) is an uncommon condition with a variety of causes. Of the inherited causes the most common are factor V Leiden and G20210A mutation in prothrombin gene. Rare causes include deficiency of Antithrombin ôôô, protein C or protein S, and activated protein C resistance. Identifying these factors has important prognostic and therapeutic implications. We report a case of cerebral venous thrombosis. Case Report: A 14-year-old boy, with steroid-induced cushingoid features and 10 days of fever, presented to the Emergency Room with altered mental status, aphasia, right hemiparesis and right-sided focal seizures. On neurological examination he was unconscious, only localizing pain with his left hand, with marked weakness of the right arm and leg. MRI and MRV brain revealed high signal intensity in the left fronto-temporo-parietal region and thrombosis of superior sagittal, straight, left transverse and sigmoid sinuses. Workup showed deficiency of protein S. He was treated with enoxaparin 1mg/kg IV Q12 hourly. He had remarkable neurological recovery and follow-up CT scan head after one week showed no cerebral infarct in the left hemisphere. He was discharged home on warfarin and advised to keep the INR between 2.0 and 3.0. Conclusion: The annual incidence of venous thrombosis increases from 1 per 100,000 during childhood to 1 per 100 in old age. There are many inherited and acquired causes. CVT is a leading cause of mortality and morbidity. Anticoagulation is recommended for different time periods depending on the type of thrombotic event and the cause. In patients with cerebral venous thrombosis due to an inherited thrombophilia, life long anti-coagulation is recommended.

EEG findings in post stroke seizures: an observational study. *U.Yaqub, M. Siddiqui, A. Bano, A. Malik, F.S. Khan, K. Siddiqui. Liaquat National Hospital, Karachi.*

.

Background: Stroke is an important cause of epilepsy especially in the elderly. We conducted an observational study in a tertiary referral center to describe different EEG findings in patients who developed seizures after stroke. Materials and methods: We reviewed all EEGs that were performed for evaluation of seizures after stroke from January to December 2006. We retrospectively recorded demographic data, side of stroke, type of seizures and EEG findings. All this information was entered on a specially designed proforma. Results: A total of 41 patients with post stroke seizures had EEG done at our laboratory. Of these patients, 51.2% (n=21) were males (mean age 60.7; range 22- 84 years) and 48.8% (n=20) were females (mean age 63; range 3-90 years). The commonest seizure semiology was generalized seizure in 56.1% (n=23), focal seizure in 36.6% (n=15) and focal with secondary generalization in 7.3% (n=3) patients. 51.2% (n=21) patients had right hemispheric involvement, 26.8% (n=11) had left hemispheric involvement and in 22% (n=9) the side of stroke was not identified. The commonest EEG finding was generalized slow waves seen in 39.0% (n=16) patients. Other abnormalities found were focal slowing in 19.5% (n=8), focal sharp and slow waves in 9.8% (n=4), focal spikes & slow waves in 4.9% (n=2), and focal sharp waves in 4.9% (n=2) of the patients. Focal spike and waves in 2.4%

(n=1) and PLEDS were seen in 2.4% (n=1) patients. 17.1%(n=7) patients had normal EEG. Conclusion: Post-stroke seizures are common, particularly in the elderly. Generalized seizures and generalized slowing on EEG were the commonest findings in our patients who developed seizures after stroke. The commonest epileptiform discharges were focal sharp and slow waves seen in 9.8% of patients with post stroke seizures.

Effective duration of botox injection in blephrospasm. *Hazim Brohi, Qurban Ali, Rehmat Karim, Mustafa Khan, Bhojo Khealani. Aga Khan University, Karachi.*

Background: Blephrospasm is a facial dystonia characterized by excessive involuntary closure of eyelids. The mainstay of treatment is botox injection. Repeated injections are required as the effect of the drug lasts for a short duration. Patients may show response for variable duration, which influences further treatment. Different studies have shown different responses ranging from a couple of weeks to six months. Purpose: To study the effective duration of botox injection in patients suffering with blephrospasm. Methods: We analyzed charts of patients referred to our lab for botox injection. The elementary data such as no. of injections, no. of units injected, and difference between the times of injections were collected from charts. The duration and the response to therapy were determined by interviewing patients on the phone. The response of patients was scored according to the dystonia movement scale. In order to validate the result of our study patients having at least 2 injections were included. Results: Records of 31 patients suffering from blephrospasm who received injection botox from year 2000 to 2006 were reviewed. Only 14 patients could be traced on the phone. Seven patients had received two injections. The average units of botox give to these patients were 45. Response to botox injection was good as noted by the change in the dystonia movement scale. Pre-injection score was 3 in three cases, 4 in another 3 cases. And 2 in one case. This changed to post-injection scores of 1 in 5 patients, 2 in one patient, and 3 in one patient. The duration of response was variable, ranging from 5 days to 7 months. Median duration of response of botox injection was 3 months. Conclusion: Botox injection is an effective therapy for blephrospasm. The response to the injection in our set of patients is almost similar to that of international data.

Body position in sleep affects diagnosis of obstructive sleep apnea syndrome. *Rana Babur, Mustafa Khan, Shahid Ali, Rehmat Karim, Ahmed Mairaj Syed, Hazim Brohi, Bhojo Khealani. Aga Khan University, Karachi.*

Background: Excessive day time sleepiness is an important symptom of several chronic sleep disorders including obstructive sleep apnea syndrome and narcolepsy. Excessive daytime sleepiness can be evaluated with subjective and objective measures. Objective: To determine the association between body position and obstructive events during sleep as determined by polysomnography (PSG) in adults with obstructive sleep apnea syndrome. Methods: This is a retrospective review of 95 patients who were referred to our lab and diagnosed positive for OSA during 2006. All patients had polysomnography and scoring was done on standard Rechtschaffen and Kales criteria. Detailed history and clinical examination was performed by a neurologist. Hypnograms were reviewed for all sleep parameters and data was analyzed on SPSS version 14. Results: A total of 95 patients were enrolled in this study (75 male, 20 female). Minimum age was 24 years and maximum age was 81 years, with a mean age of 53 years. BMI was between 52 - 91 Kg. 11 of 95 (12%) patients had an AHI of 5-10/ hour and 84 of 85 (88%) had AHI > 11 (range 11 - 58/hour). Snoring was reported in 88 (92%) patients and EDS in 61 (64%). 20 of 95 (21%) patients had 5-10 AHI and 75 of 95 (79%) had > 11 AHI in supine position whereas on lateral position 52% patients had an AHI of 5-10/hr and remaining 48% showed an AHI between 11-21/hr. Conclusion: Body position during sleep has a profound effect on the frequency and severity of breathing abnormalities in OSA patients. More than 30% patients' OSA resolves with lateral body position. There is an increase in the AHI with increased time spent in supine position with obstructive sleep apnea. Inadequate time spent in that position may lead to an underestimation of the severity of obstructive sleep apnea.

Frequency of photosensitive responses in a cohort of adult epileptic patients. *M. Mobin, A. Saeed, M. Hashmi, A. Bano, A. Malik, F.S. Khan, K. Siddiqui. Liaquat National Hospital, Karachi*

Background: Photosensitive epilepsy is less frequent in adult population. There are few studies looking at this form of epilepsy in population described. We wanted to know any causal relationship between photic driving and photoconvulsive response and to detect frequency of these responses on intermittent photic stimulation in adult patients with different forms of epilepsy. Methods: We retrospectively collected data from January 2003-December 2006, of all patients referred to EEG department, aged 15 and above. We then separated those EEGs that had 'any response' to photic stimulation. Normal and abnormal responses were noted. Normal responses included photic driving response, visual evoked response and photomyoclonic response. Abnormal responses

included photoconvulsive response. We also looked at reason for EEG referral and underlying epilepsy syndrome. Results: There were 5950 EEGs performed over these four years, in patients aged 15 and above. We noted 1.2 % (n=73) patients had 'any response' to photic stimulation. Of these, 67.1% (n=49) patients had normal response and 32.8% (n=24) had abnormal response. Photic driving was the only normal response found in 100% (n=49) patients. All patients who had photoconvulsive response, none of them had normal response. Of these 58.3 % (n=14) had Primary Generalized Epilepsy, 4.1%(n=1) had Secondary Generalized Epilepsy, and 37.5 % (n=9) had partial epilepsy. Reason for EEG referral in this cohort was generalised tonic-clonic seizure in 43.8 % (n=32), myoclonic seizure in 6.8% (n=5), absence seizure in 5.5% (n=4) and unidentified seizure in 43.8% (n=32) of patients. Conclusion: We found that there is no relationship between photic driving response to photoconvulsive response in adult epileptic patients. About 0.8% of patients had photic driving response and 0.4% had photoconvulsive response to intermittent photic stimulation. Frequency of photoconvulsive response was higher in patients with Primary Generalized Epilepsy followed by partial epilepsy. We conclude that frequency of photosensitivity is less in our adult population.

HIV leukoencephalopathy as a cause of quadriparesis. *E. Sultana, M. Hashmi, S.A.Siddiqui, M. Siddiqui, F.S. Khan, K. Siddiqui, N. Ahmed. Liaquat National Hospital, Karachi.*

Background: The primary cause of HIVLE (HIV Leukoencephalopathy) is infection of the CNS caused by HIV. In its severe form it presents with progressive cognitive and motor difficulties, patients may develop an akinetic mute or vegetative state and may also have paraparesis, myoclonus and incontinence. Case report: We report a case of a 28-year-old man, who was an alcohol addict and had multiple heterosexual and homosexual contacts; he presented with two months history of fever and progressive lower and upper limb weakness starting with numbness in feet and hands. Sphincters were not involved initially but late in course he developed urinary incontinence. He was impotent for the last two years. On examination he was awake with apathetic look, MMSE of 22. Tone was increased in all four limbs with 0/5 power in lower limbs and 3/5 in upper limbs, reflexes were +3 with positive babiniski bilaterally, no sensory level found and rectal tone was normal. Primitive reflexes were present, eye movements were normal with preserved pupillary reflex. His MRI dorsal and cervical spine was absolutely normal, CSF studies showed mild pleocytosis and negative for HSV PCR and VDRL. Blood tests were positive for HIV-1 and negative for VDRL, CMV and toxoplasma IgG titer. He underwent MR imaging of brain, which revealed hyperintense signal in bilateral fronto-parietal regions with subcortical white matter involvement on T2 weighted images. After all lab results he was started on HAART. Conclusion: We report this case as quadriparesis is a rare presentation of HIV related leukoencephalopathy.

Role of levetiracetam in cessation of refractory status epilepticus in a patient with Lafora disease. *M. Hashmi, F. Saleem, S. Mustafa, M. Sheerani, K.Siddiqui. Aga Khan University Hospital and Liaquat National Hospital, Karachi.*

Background: Lafora disease is an autosomal recessive progressive myoclonic epilepsy (PME) of teenagers, characterized by progressive mental decline and intractable seizures. Lafora bodies, the PAS-positive polyglucosans, are the pathognomic features of the disease, demonstrable on biopsy. Treating Lafora disease remains a great therapeutic challenge. Though levetiracetam has shown efficacy in other epilepsy syndromes, its use in status epilepticus secondary to Lafora disease is not well established. Case report: We report a 16-year-old male, who presented to us with progressive cognitive decline, ataxia and myoclonic, generalized tonic clonic and atypical absence seizures. His seizure frequency increased with passage of time, also had frequent hospitalization due to status epilepticus, despite treatment with maximum doses of valproate, clonazepam, lamotrigine and topiramate. His axillary skin biopsy confirmed suspicion of Lafora disease. On this presentation, he was admitted with multiple refractory seizures and was started on infusions of midazolam and propofol. Every time we tried to wean him off from these infusions, he developed clinical seizure activity again. On day 12, he was given a trial of rapidly escalating doses of levetiracetam, to which he responded dramatically. We were able to wean him off intravenous infusions on 1500 mg of levetiracetam and render him seizure-free within forty-eight hours. Conclusion: We report this case to show efficacy of levetiracetam in the treatment of refractory status epilepticus, with freedom in rapid increments in dose, as an adjunct therapy in resistant cases of Lafora disease. Although report of a single case does not prove efficacy beyond doubt but it can be helpful in rescuing patients with intractable seizures, especially in rare epilepsy syndromes where randomized trials are not feasible.

Frequency of patterns of modified hypsarrhythmia in a tertiary care hospital. *Mairaj Hussain, Hazim Brohi, Mustafa Khan, Mughis Sheerani. Aga Khan University, Karachi.*

Background: Classical hypsarrhythmia consists of high voltage disorganized background activity with non constant fleeting, multi-focal as well as generalized epileptiform discharges. Its presence helps the clinicians recognize a specific syndrome. However at times it may present differently. These are called modified hypsarrhythmia. These patterns include (I) high voltage generalized, asynchronous, slow wave; (II) unilateral or asymmetric hypsarrhythmia pattern; (III) discontinuous pattern similar to the suppression-burst pattern; and (IV) hypsarrhythmia with increased inter-hemispheric synchrony. These patterns have clinical significance not only in diagnosis but also in prognosis, thus their identification has clinical significance. However these may be missed due to unawareness about them. Purpose: To identify the frequency of different pattern of modified hypsarrhythmia. Methods: We retrospectively reviewed all EEGs of patient diagnosed or referred for evaluation of hypsarrhythmia or modified hypsarrhythmia during last 2 years. All EEGs were reviewed by two neurophysiologists independently for conformity of conclusions. Different patterns were identified and classified on the basis of literature review. Results were analyzed on SPSS version 13 for calculations of frequencies and cross tabulation. Results: A total 54 EEGs were reviewed. All patients were between 3 months to 2.2 years of age having infantile spasms. Out of 54 patients 21 (39%) were male and 33 (61%) were female. 21/54 (40%) EEGs were identified to have modified hypsarrhythmia. 7/21(33%) EEGs were of type I, 8/21 (38%) EEGs were of type II, 3 (14%) were of type III and 3 (14%) were of type IV. Conclusion: Modified hypsarrhythmia is fairly common. Among different variants Type I and II are more common. High clinical suspicion is the likely key to identifying these atypical presentations.

Moyamoya disease: a cause of stroke in the young. *E. Sultana, A. Mannan, S. Zaidi, M. Sheerani, K. Siddiqui, F.S. Khan, S. Mustafa. Liaquat National Hospital, Karachi.*

Background: Moyamoya disease has been described on every continent and in all ethnic groups, but remains rare outside Japan and other countries of Far East. Several differences between moyamoya disease in different ethnic groups are notable. We observed higher incidence of intracranial hemorrhage in adults. Methods: We report a case series of young patients with moyamoya disease. Results: Four were of more than 18 years of age and one was 11 years old. Four patients presented with seizures and focal weakness and only one with hemiparesis. Two patients, one 19 years old and other 11 years old, presented with seizures and hemiparesis and were found to have cortical infarcts; cerebral angiography confirmed the diagnosis, both of them underwent revascularization surgery with a remarkable recovery and no events afterwards. Of the other two patients, one male 40 years old presented with right hemiparesis and aphasia had left cortical bleed with bilateral carotid artery stenosis; one female with history of mitral valve replacement, on warfarin admitted with loss of consciousness and seizures had cortical bleed and later on digital subtraction angiography revealed the characteristic findings; both patients were managed conservatively because surgical revascularization is not recommended for adult moyamoya-related intracranial hemorrhage. One woman 18 years old presented with seizures and hemiparesis found to have ischemic infarcts with bilateral ICA occlusion; she did not undergo surgical revascularization because of financial issues. Conclusion: Moyamoya disease is not very uncommon in our part of world and seizures are a frequent presentation of this disease.

Frequency of nonconvulsive status epilepticus in patients with impaired level of consciousness. *N. Jamil, M. Siddiqui, A. Bano, A. Malik, F.S. Khan, K. Siddiqui. Liaquat National Hospital, Karachi.*

Background: Nonconvulsive status epilepticus (NCSE) is an under reported, treatable cause of coma and has a variety of clinical and EEG presentations. EEG is the most effective and sensitive tool to detect NCSE in patients with impaired level of consciousness. Objective: To determine the frequency of NCSE among inpatients with impaired consciousness. Methods: We retrospectively reviewed all EEG reports in patients with impaired level of consciousness over four years from January 2002-December 2006. Impaired level of consciousness was sub divided into unconscious and semiconscious patients. All EEGs showing continuous epileptiform discharges were included. Findings of all these EEGs were divided into five groups - generalized spike and wave, generalized sharp and wave, focal spike and wave, focal sharp and wave and periodic lateralized epileptiform discharges. Results: There were 785 EEGs recorded in patients with impaired level of consciousness. Of these, 56% (n=440) patients were semiconscious and 44% (n=345) were unconscious. 1.5% (n=12) patients were identified with NCSE on EEG, of which 66.6% (n=8) were unconscious and 33.4% (n=4) were semiconscious. The commonest EEG findings in our patients with NCSE was continuous focal spike and wave seen in 4 (33%), continuous generalized spike and wave in 3 (25%), continuous generalized sharp and wave 3 (25%), continuous focal sharp and wave 1 (8.3) and periodic lateralized epileptiform discharges PLEDS in 1 (8.3%). Conclusion: NCSE is an important and treatable entity that can be easily recognized by doing an EEG. There should be a high index of suspicion of NCSE in intensive care and high dependency care settings and emergent EEGs should be performed where available.

Neuromyelitis-optica and pulmonary tuberculosis an uncommon association. *S.A. Siddiqi, M. Hashmi,K.Siddiqui. Liaquat National Hospital, Karachi.*

Background: Pulmonary tuberculosis has been endemic in the region of South Asia, especially in Pakistan for long. It is interesting to know that pulmonary tuberculosis has not been frequently encountered or described with Neuromyelitis Optica (NMO) in our region. A few reports of NMO in association with pulmonary tuberculosis have been published indicating a temporal relationship between the two diseases. Case report: We describe a forty six years old male who presented with left sided gradual visual loss followed by right hemiparesis. He had lost his right eye vision two months back, had gradual weight loss and cough and was on antituberculous treatment for smear positive pulmonary tuberculosis for one week. He was treated for pulmonary tuberculosis two years ago as well. Neurologic examination was significant for right optic atrophy, left papillitis & relative afferent pupillary defect, right hemiparesis, and absent proprioception on right side with contralateral pinprick sensation loss. MRI cervical spine and brain with Gadolinium showed a hyperintense area on T2WI from C2 through C4 with involvement of mainly posterior column with marginal enhancement along with enhancement of optic chiasma and no evidence of intracerebral lesions. The cerebrospinal fluid had raised proteins, no cells and no oligoclonal bands were detected. He responded well to antituberculous therapy and high dose steroids. He was followed two weeks after discharge with improvement in his right arm weakness and propioception. Conclusion: We, therefore, report this particular patient so as to emphasize upon the association of NMO with pulmonary tuberculosis, "an uncommon association of a common disease". This, as to our best knowledge, is being reported for the first time in Pakistan.

Neurophysiologic characteristics of different subtypes of anterior horn cell disease. *Sadaf Taj, Urooj Yaqub, Asiya Bano, Zubair Sheikh, Kamran Bukhari, Azra Zafar, Farrukh Shohab Khan, Naveed Uddin Ahmed, Feroza Saleem. Liaquat National Hospital, Karachi.*

Objective: To observe the neurophysiologic characteristics of different subtypes of anterior horn cell disease. Methods: We reviewed retrospectively the neurophysiological charts of all patients who were given the diagnosis of anterior horn cell disease in the year 2006. Results: A total of 56 patients with the diagnosis of anterior horn cell lesions were included, among which 39 were males and 17 were females. 32% patients had Amyotrophic Lateral Sclerosis, 26.8% had Spinal Muscular Atrophy, 25% had anterior horn cell diseases unclassified, 5.4% had post polio syndrome and 3.6 % had poliomyelitis. The predominant nerve conduction abnormality was decreased compound motor action potential amplitudes. First dorsal interosseus was the most common muscle showing acute changes in patients with amyotrophic lateral sclerosis. Among the patients with diagnosis of Spinal Muscular Atrophy the most frequent abnormalities were found in Biceps brachii and Abductor Pollicis Brevis. Conclusion: Our data suggest that spectrum of different anterior horn cell entities was more common in males. Males were affected in 6th decade while females were affected in 2nd-4th decade of life. Spinal Muscular Atrophy was frequently found in 1st and 2nd decade of life while Motor Neuron Disease was seen in 5th and 6th decade. The commonest presenting complaint was generalized weakness while bulbar weakness was least frequent. The commonest abnormality in motor nerve conduction was diminution in compound motor action potential amplitudes. Extensor Digitorum Communis, First dorsal interosseus and Biceps brachii were most frequently involved in Amyotrophic Lateral Sclerosis, while Biceps brachii, Deltoid and Abductor Pollicis Brevis in Spinal Muscular Atrophy. Most abnormalities were detected in lower limb muscles as compared to upper limbs in both groups.

New onset seizures in the elderly: clinical, radiological and EEG characteristics. *M. Hashmi, S.A. Siddiqui, M. Sheerani, F.S. Khan, K.Siddiqui. Aga Khan University Hospital and Liaquat National Hospital, Karachi.*

Background: Epilepsy in the elderly differs from young onset epilepsy in its clinical manifestations, etiology, epileptic activity on EEG, drug pharmacokinetics and the morbidity and mortality associated with it. There are no prospective studies from our region to define clinical, radiological and EEG characteristics of this common form of epilepsy. Methods: We are doing a prospective, hospital based descriptive study, which is still currently recruiting patients. All patients (above 60 years), both inpatient and outpatient, who presented with newly diagnosed seizures were enrolled from September 2006 till date. The clinical, radiological and EEG findings were noted. Results were analyzed on SPSS version 10. Results: Seventy nine patients were enrolled. Mean age at presentation was 67.77 years (SD +/- 7.32). Most frequent seizure type was generalized, seen in 34 (43.0%) followed by partial 22 (27.8%) and combination 21 (26.6%). Only 9 (11.4%) patients presented with single seizure, rest had 2 or more seizures. Hypertension was the most frequent co-morbid in our series, in 58(73.4%) of patients. Cerebrovascular event was the most common etiology presenting as acute symptomatic epilepsy in 38 (38.0%) and remote symptomatic in 16 (20.3%). Most of the patients

responded well to single drug therapy, though 12% needed polytherapy. EEG was done in 54 (68.4%) patients. Out of these 30 (38.0%) had slowing (diffuse or focal), 11 (13.9%) had epileptiform activity, with normal EEG in 9 (11.4%). Conclusion: We found most patients presented with multiple seizures of generalized type and responded well to monotherapy. Hypertension was found in a significant percentage of patients. Single most common etiology was stroke, presenting either acute or remotely. Most of the EEGs revealed slowing. We hope that our results although representing only a subset of elderly population will be useful in management of this most frequent form of epilepsy.

How painful is EMG needle examination? *Hazim Brohi, Sumera Khan, Shahida Baig, Shahid Ali, Mustafa Khan, Bhojo Khealani. Aga Khan University, Karachi.*

Background: What is meant by pain and how it is measured remains unclear. Pain has several definitions. It is a highly individual experience and requires both sensation and a reaction to it, making it a subjective experience. Needle EMG is a painful procedure and often patients would defer this procedure due to pain. However, certain patients tolerate needle EMG very well. Based on this experience, we investigated the pain tolerance of the patients in order to help them decide about undergoing the procedure. Objective: To know the pain tolerance for needle EMG and its relation to age and gender. Methods: We randomly selected 50 patients referred to our lab during the last 2 months for any electro-diagnostic test which included needle EMG. Numerical pain scale (NRS-11) ranging from 1to 10 was used to measure the pain threshold (1- 3 being mild, 4-6 being moderate, 7-9 severe, and 10 very severe). All patients were educated about the pain scale before under going needle examination. Immediately after the needle the patients were requested to score their average pain feelings. Patients having abnormal sensory findings were excluded from this study. Results: 50 patients were included in this study, out of which 24 (48%) were male and 26 (52%) were female. Five patients were below 20 years of age, 22 between 20-40 years, 15 between 40-60 years and 8 above 60 years. Overall 22% felt mild pain, 38 felt moderate degree of pain, 24 % felt severe pain and 10% felt very severe pain. Pain tolerance for needle EMG was of moderate level in 53% of patients aged 40-60, while younger patients (aged 20-40) had an equal response of moderate and severe pain (27 %). About 18% among younger group felt very severe pain while none of the middle-aged patients felt very severe pain. Overall when referring to gender difference, male and female had almost the same response, i.e. moderate to severe with men scoring slightly higher than women (69% vs 75%). Conclusion: Needle EMG is a moderate to severe painful procedure and its tolerance is equal in both sexes.

Panayiotopouls syndrome - case reports. *Hazim Brohi, Mustafa Khan, Bilal Hameed, Fowzia Siddiqui, Bhojo Khealani. Aga Khan University, Karachi.*

Background: Correct identification of epileptic syndrome is important in order to manage properly and provide accurate prognosis. Panayiotopouls syndrome is an under diagnosed and misdiagnosed pediatric epileptic syndrome which carries excellent prognosis. We report two cases of Panayiotopouls syndrome. Case 1: A 4 years old boy was referred to our EEG lab for evaluation of an episode of unconscious. Eleven days before the EEG, while playing, he suddenly developed nausea and vomiting followed by cyanosis, deviation of eyes to left and then became unconscious. The event lasted for 4-5 minutes. His CT Brain was normal. He had a normal neurological examination. The EEG revealed multifocal and left occipital spike and wave discharges. Case 2: A 10 year old boy was referred to our EEG lab for evaluation of episodic vomiting for one week. The events consisted of eye deviation to left followed by vomiting, left arm stiffness and unconsciousness in that order. EEG showed frequent occipital spike and wave discharges. In addition bilateral independent centro-temporal spikes and single generalized spike and wave discharges were also noted. Discussion: Panayiotopouls syndrome (PS) is one of the childhood seizure susceptibility syndromes which carries excellent prognosis. The clinical hallmark of PS is autonomic ictal manifestation especially vomiting. Frequent independent occipital epileptiform discharges are the characteristic EEG findings. Some patients can also have centrotemporal epileptiform discharges. Identification of this syndrome is important since this, apparently frightening, syndrome carries excellent prognosis and may not require treatment. Those who require treatment, respond excellently to carbamazepine. PS is easy to diagnose because of characteristic clustering of clinical seizure semiology and is often supported by interictal EEG findings. Conclusion: Despite the fact that these seizures are of excellent prognosis, they are dramatic experience for patient and parent. Early diagnosis and proper education of parent may help resolve lot of social, psychological and economical issues.

Pediatric EEG database: a focus on abnormal EEGs. *Z. Ahmed, A. Akhter, S. Taj, A. Bano, A. Malik, F.S. Khan, K. Siddiqui. Liaquat National Hospital, Karachi*

Background: EEG has been known to be an essential tool and a surrogate marker for epilepsy. Development of EEG

database sets up a stage for recording retrospective and prospective data that can be useful in future studies. Methods: We retrospectively reviewed all pediatric EEG data from January 2002 to June 2006, age range between 1-14 years. We recorded demographic data, state of the patient at the time of EEG, reason for EEG, EEG findings, if abnormal; type of abnormality, frequency and types of epileptiform discharges. All this information was initially recorded on a proforma and later analyzed by statistical package for social sciences (SPSS) version 13. Results: There were 3744 EEGs carried over four and a half years, in pediatric age group. 67.5% (n=2527) were normal and 32.5% (n=1217) were abnormal. Most EEGs were done during awake state constituting 48.8% (n=594) followed by sedated asleep state 35.2% (n=429). Commonest reason for EEG referral was seizures with and without loss of consciousness, 72.5% (n=883). Of the abnormal EEGs 78.4% (n=954) had epileptiform discharges, rest had slow waves, beta waves, asymmetry, suppression of activity and absence of sleep spindles. Epileptiform discharges that were recorded showed that 24.1% (n=230) had focal spike and slow waves discharge, 19.3% (n=185) had focal sharp and slow wave discharge, 19.2% (n=184) had focal spikes, 8.8% (n=84) had focal sharp waves and rest had generalized epileptiform discharges. Conclusion: We conclude that 71.4% of patients had focal epileptiform discharges signifying that possibly partial epilepsy is the commonest epilepsy in this age group. We can now build up a prospective EEG database that can help us and other centers to further classify underlying epilepsy syndromes that can be treated with appropriate anitepileptic drugs and improve quality and quantity of life in epilepsy patients.

Comparison of CMAP of peroneal nerve from EDB and TA muscles in relation to postures adopted during Mulsim prayer - a multi-centre study. *Asiya Bano, Mairaj Hussian, Mustafa Khan, Nadir Ali Syed, Farrukh Shohab, Erum Saeed, Rizwana Qureshi, Nazish Jamil, Mohammad Waseem, Abdul Malik, Rahim Jan. Aga Khan University Hospital and Liaquat National Hospital, Karachi.*

Background: The lesions of the common peroneal nerve occur more frequently than lesions of other nerves in the leg secondary to leg postures. It was observed during routine NCS that patients having low CMAP amplitude from EDB while having normal CMAP amplitude from TA were often regular prayer offering people. On the basis of this observation, we conducted a study at two centers. Objective: To look for the frequency of false positive peroneal neuropathy in normal subjects as a result of damage to EDB muscle secondary to peculiar posture adopted during prayers in Muslim population. Methods: This is a prospective multi center study. 60 Muslim subjects were selected randomly between the ages of 25 - 60 years. Subjects were divided in two groups that is (group - 1) 40 subjects (20 from each sex) who offer complete prayers 5 times a day regularly for last 5 -10 years and (group - 2) 20 subjects (10 from each sex) who either rarely or don't offer prayer were selected from the hospital employees of these two centers. All these subjects were screened out prior to the NCS for any other concomitant medical condition affecting the peroneal nerve CMAP. Conventional techniques of NCS of bilateral peroneal motor nerves from EDB and TA muscles, bilateral posterior tibial nerve as well as bilateral sural and superficial peroneal sensory nerves were applied to record data. Muscle mass of EDB muscle was measured with a measuring tape around foot. Data was analyzed on SPSS version 14. Results: A total of 60 subjects were enrolled in this study. 30 were male 30 female. 40 (67%) (20 of each gender) subjects offer prayer regularly 5 times a day for last 5-10 years and 20 (33%) (10 of each gender) rarely or don't offer prayers. 30 out of 40 subjects (group - 1) have a sitting posture on left leg, 2 have right leg while 8 have a sitting posture of crossed legs. All 60 subjects showed normal and symmetric motor NCS of bilateral posterior tibial and peroneal (from TA muscle) nerves as well as bilateral superficial and sural sensory nerves. Comparison of CMAP amplitudes of peroneal motor nerve recorded from EDB muscle in group 1 showed 30 % low CMAP in 14/40 (35%) subjects while 50% in 24/40 (60%) subjects whereas no axonal loss was noted in 2 / 40 (5%) subjects. 5 - 10 % muscle mass difference in EDB was also noted in these subjects. Group 2 also showed 10 % low CMAP amplitudes in 1 / 20 (5%) subject. Conclusion: The reduced CMAP amplitude of peroneal motor nerve recorded from EDB muscles should be interpreted cautiously as it may be posture related and may not truly reflect peroneal neuropathy.

Proximal median neuropathy - An uncommon cause of upper extremity pain. *Urooj Yaqub, Naveed Uddin Ahmed, Farrukh S. Khan, Asiya Bano, Clinical Neurophysiology Services, Department of Neurolgy, Liaquat National Hospital, Karachi.*

Background: Proximal median neuropathy is distinctly uncommon compared at the carpal tunnel. Differentiating between median neuropathy at the wrist and more proximal entrapments can be difficult on clinical grounds, especially in mild cases. Electrophysiology plays a key role in localizing the lesion in these cases. Objective: To assess the frequency of proximal median neuropathy. Methods: 60 consecutive patients presenting to the Neurophysiology laboratory at Liaquat National Hospital for evaluation of upper extremity pain and numbness were studied prospectively. Patients with clinical / electrophysiologic

evidence of polyneuropathy were excluded from the study. NCS / EMG was performed according to standard protocol. Results: 48 patients were female and 12 were male. Mean age was 42 years. The various symptoms included hand pain, numbness, tingling, neck pain and pain around elbow. 2 patients had electrophysiological evidence of polyneuropathy and were excluded from the study. Of the remaining 58 patients, only 3 had proximal median neuropathy. In the 3 patients with proximal median neuropathy, NCS revealed low median CMAP and SNAP amplitudes in 2 patients, with prolonged distal latency and slow conduction velocity. NCS was borderline normal in the third patient. EMG revealed denervation potentials and neuropathic units in FCR, FPL and APB in all 3 patients. Pronator teres showed spontaneous activity in only one patient. This localized the lesion to proximal to branch to pronator teres in one patient and distal to branch to pronator teres in 2 patients (pronator teres syndrome). Conclusion: Proximal median neuropathy is quite rare. A meticulous NCS/EMG usually helps in localizing the lesion and can guide the physician/ surgeon in planning the treatment.

Rhombencephalitis probably caused by Listeria Monocytogenes. *E.Sultana, F.S. Khan, K.Siddiqui. Liaquat National Hospital, Karachi.*

Background: Rhombencephalitis is a potentially fatal inflammatory process involving the brainstem and cerebellum in which bacteria and viruses are the most common offending agents. We describe the clinical course and MR imaging appearance of rhombencephalitis possibly caused by listeria monocytogenes. Case report: A 21 years old woman, unmarried with previous history of pschychiatric illness admitted with few weeks history of fever, two weeks history of diarrhea and four days history of progressive drowsiness. She was initially treated for enteric fever but did not respond well and was being worked up for pyrexia of unknown origin. On examination she was drowsy but easily arousable, she had restricted vertical gaze with down beating nystagmus and absent gag reflex. Motor system was significant for mild left arm weakness and severe lower limb weakness bilaterally, her MRI brain was done which showed hyperintense signal in bilateral hypothalamus and lower medulla with involvement of cervicomedullary junction. CSF studies showed raised protein with mild pleocytosis, her HSV PCR turned out to be negative, blood cultures were also negative. Diagnosis of brain stem encephalitis probably secondary to Listeria was made and she was started on ampicillin and gentamicin. She made a remarkable recovery on treatment, her eye signs improved and was able to walk with some assistance after two weeks. She completed the course of these antibiotics for 21 days. We report imaging and clinical features of rhombencephalitis probably due to Listeria monocytogenes.

Role of diffusion-weighted imaging in detecting diffuse axonal injury secondary to traumatic brain injury. *S.A. Siddiqi, G. Hameed, K. Siddiqui. Liaquat National Hospital, Karachi.*

Background: Diffuse axonal injury (DAI) and cortical contusions constitute the vast majority of primary intra-axial lesions in traumatic brain injuries and are associated with significant morbidity. Conventional T2-weighted MR imaging is more sensitive than CT scan for detecting DAI, though both techniques underestimate the extent of damage. DAI causes decreased ADC with high signals on diffusion weighted imaging (DWI) as seen in acute infarct, however in DAI they persist for longer duration as compared to acute stroke. Also, gradient echo images are a useful tool to see petechial hemorrhages associated with DAI. Case report: We report a case of a young male, victim of a car accident, brought to ER in an unconscious state, only localizing to pain and producing incomprehensive sounds with multiple lacerated wounds on face and upper torso. Initial CT scan brain was normal. He remained so for a week with no signs of improvement. A repeat CT scan revealed normal brain parenchyma again. On Day 11 he remained drowsy neither following commands nor verbalizing, although localizing well with upper limbs, had a positive palmo-mental reflex, was hyperreflexic and rigid all over with bilateral extensor plantar response. MRI brain revealed abnormal signals in the right parietal region and in the splenium of corpus callosum extending into the right parasagittal area, hyperintense on DWI with decreased signal on corresponding ADC mapping, favoring radiological diagnosis of diffuse axonal injury. Conclusion: We report this case to highlight the importance of DWI in traumatic brain injury in detecting DAI.

Critical Illness polyneuropathy and myopathy: Experience at a tertiary care center. *Ghulam Shabbir, Ali Mehmood Raufi, Mustafa Khan, Nawal Salahuddin, Saad Shafqat. Aga Khan University, Karachi.*

Background: Polyneuropathy and myopathy are frequently encountered in the setting of critical illness. Up to 50% of intensive care unit (ICU) patients show electrophysiological features of either or both conditions, especially in the presence of sepsis and multi-organ failure, as well as with administration of steroids and/or neuromuscular blocking drugs. Pathophysiology remains unresolved. These conditions interfere with functional recovery and delay weaning from mechanical ventilation, contributing to excess morbidity and cost of care. Objective: The purpose of this study was to define the clinical spectrum of critical illness polyneuropathy (CIP) and myopathy (CIM) in a developing country setting. Methods: Hospital records

spanning the period 2000 through 2005 were searched with ICD-9 codes to identify patients with CIP and CIM, singly or in combination. Information on clinical parameters, comorbidities, and electrophysiology (nerve conduction and electromyography) studies was abstracted. Functional improvement was judged by (i) increment of at least 1 grade on the Medical Research Council Scale of motor strength; and (ii) reappearance of deep-tendon reflexes. Data were analyzed on SPSS version 13.0. Result: As a collective diagnosis, CIP or CIM was established in 47 patients. Of these, 24 (51%) were males and 49% females; mean age was 54 ; mean length of stay 34 (range 8-100). Electrophysiological studies revealed CIP in 31 patients (66%), CIM in 12 (26%) and a mixed picture in 4 (8%). Major co-morbid conditions included sepsis (39%) and diabetes mellitus (17%), with an additional 28% having both and 17% having neither. Major reasons for admission to the ICU were infection, trauma, surgery etc. Neuromuscular blocking drugs were administered to 14 (30%) and steroids to 10(21%) patients; an additional 11 (23%) patients received both agents while 12 (26%) patients received neither. In-hospital mortality was 51%. At discharge and post-discharge follow-up, motor improvement was seen in 11 (23%) while 12 (26%) remained neurologically unchanged. Conclusion: CIP and CIM are frequent identifiable complications of critical illness in our setting. These observations underscore the need for prospective studies to delineate risk factors and outcome predictors, in the hopes of developing more effective management guidelines to improve neurological sequelae in critically ill patients.

Diagnostic value of sleep-deprived EEG over routine EEG in Juvenile Myoclonic Epilepsy (JME) and Temporal Lobe Epilepsy (TLE). *Mustafa Khan, Asmita Jawaid, Hazim Brohi, Saad Shafqat. Aga Khan University, Karachi.*

Background: EEG is the most useful tool for the diagnosis of seizures. Routine EEG has a diagnostic sensitivity of 50 %. Sleep deprivation is the most common and effective stimulation method used to increase the yield of seizure diagnosis. Juvenile Myoclonic Epilepsy (JME) and temporal lobe epilepsy (TLE) are fairly dependent on the sleep-wake cycle and sleep deprivation (SD) is one of the most important precipitant factors. Routine EEG may contribute to diagnostic delay. Objective: The purpose of the study was to investigate whether sleep-deprived EEG has a higher diagnostic yield than routine EEG. Methods: Consecutive patients aged 10 years or over who were referred to our lab over the last 5 years with clinical suspicion of JME or TLE and who underwent sleep-deprived EEG after an initially normal routine EEG, were included in this study. Normal night sleep was avoided for at least 12 - 14 hrs before EEG recordings. All EEGs were digitally performed according to AEEGTS guidelines (minimum 120 minutes) and interpreted by a clinical neurophysiologist. Results: A total of 302 patients were enrolled in this study during the last five years. 104 were male 198 were female. 94 patients (31%) were with question of JME (26 male, 68 Female) and 208 patients (69%) were referred to rule out TLE (78 male and 130 female). Minimum age was 10 years and maximum age was 46 years. 175 patients (58%) out of 302 were normal on routine EEG and 127 (42%) were abnormal. Out of 175 normal EEG 152(87%) were found abnormal on SDE where as rest of 23 (13%) were still normal. Among these 152 SDE 55 (36%) patients were diagnosed as JME and 97 (64%) as TLE. In 35 patients various types of normal variants were also noted in addition to the abnormalities. Conclusion: Sleep-deprived EEG is a significant and powerful tool with a sensitivity approaching 87%. Based on this enhanced sensitivity, patients suspected of JME or TLE should undergo sleep-deprived EEG as the routine initial test to minimize the delay in diagnosis.

Sporadic hemiplegic migraine: A challenging diagnosis. *A. Zafar, S. Mustafa, K. Aelia. Liaquat National Hospital, Karachi.*

Background: Migraine is a common, chronic, incapacitating neurovascular disorder characterized by attacks of severe headache, autonomic nervous system dysfunction and in some patients, an aura involving neurological symptoms. Migraine affects about 12% of population in western countries. Familial hemiplegic migraine (FHM) is the only variety of migraine characterized by its autosomal dominant pattern of inheritance and transient hemiparesis followed by migraine headache. Some sporadic cases of hemiplegic migraine (SHM) with cerebellar signs have also been reported. SHM has clinical symptoms identical to FHM and different from migraine with aura. Case report: We describe a case of 20 years old right handed male, who presented with two days history of left sided weakness followed by severe unilateral headache, vomiting and altered level of consciousness. Weakness was preceded by numbness of left half of body and blurring of vision. Patient had several similar episodes in last 08 years. He was being treated as a case of epilepsy and was on valproic acid. On examination he had left hemiplegia. Routine blood tests, MRI brain and CSF examination were normal. EEG showed severe right hemispheric dysfunction. A diagnosis of hemiplegic migraine was made and he was treated with intravenous Verapamil followed by oral Verapamil. His symptoms completely recovered and he

had no further episodes over a one year follow up period. Conclusion: SHM is a relatively rare disorder, which should be considered in patients with episodes of reversible neurological deficits with headache. A therapeutic trial of Verapamil should be given.

A hospital based study on stratification of risk factors of stroke in Peshawar. *Hamzullah Khan, Akber Khan Afridi, Saadia Ashraf. Khyber Teaching Hospital, Peshawar.*

Objective: To determine the risk factors of stroke in Peshawar. Design: Prospective observational study. Setting: Medical wards of Khyber teaching hospital Peshawar from January 2004 to June 2005. Methods: A questionnaire was prepared in accordance with the objectives of the study. Questionnaire contained detailed history, general physical examination, and neurological examination. Association of risk factors with stroke was studied. Results: Two hundred and eleven patients with established diagnosis of stroke were selected. Sixty-six patients (31.27%) had more than one risk factor. The age range of patients was from 27 to 91 years with mean age of 59 years. Out of 211 patients 126 (59.71%) were males and 85 (40.28%) females. Risk factors distribution was hypertension (55.45%); diabetes (32.70%); hyperlipidemia (19.43%); smoking (10.90%); ischemic heart disease (9.00%); atrial fibrillation (3.31%); and history of oral contraceptive use (0.94%). Conclusion: Hypertension, diabetes, hyperlipidemia and smoking are major modifiable risk factors of stroke, which require proper management and counseling of patients.

Stroke registry database: experience from a tertiary care hospital. *M. Siddiqui, H. Brohi, K. Siddiqui, F.S. Khan. Liaquat National Hospital, Karachi.*

Background: Stroke is the second leading cause of death and the first leading cause of disability in the developing countries and it is going to become the leading cause of death by the end of 2020. Reliable statistics related to the prevalence, incidence and mortality of hypertension and stroke is not available from Asia. Developing a stroke registry can help us identify and record information of all aspects of stroke. Methods: We created an electronic stroke registry database and this study is one aspect of this registry. This is a prospective observational study, conducted between March 2004 to April 2006. All patients admitted in the neurology ward with clinical features of stroke were enrolled. A standard questionnaire was completed for every patient by interviewing the patient (if possible) or accompanying relative, after taking verbal consent. Data were analyzed using SPSS version 10. Results: A total of 356 patients were enrolled. Out of these 215 (60.4%) were male and 141 (39.6%) were female. Mean age of males was 58.3 ± 13.03 years and of females was 60.6±12.44 years. Hypertension was present in 282 (79.2%) patients, 143 (40.2%) were diabetic, 98 (27.5%) had ischemic heart disease and 104 (29.2%) were smokers. 280 (78.7%) patients had ischemic stroke while 76 (21.3%) had intracerebral hemorrhage. Out of ischemic stroke, 40 (11.2%) had LVD, 35 (9.8%) had cardiac emboli, 130 (36.5%) had SVD, 50 (14%) had undetermined and 25 (7%) had other types of stroke according to TOAST classification. 13 (5.4%) had significant extra cranial atherosclerotic disease and 42 (25.3%) had complete occlusion of intracranial vessels. Conclusion: Hypertension, diabetes mellitus and dyslipedemia were the most important modifiable risk factors in our cohort and these need to be managed more rigorously for primary and secondary prevention of stroke. We feel with the development of stroke registry we can look at different aspects of stroke in part of our population although population-based studies are needed to estimate the prevalence and incidence of stroke in this region so that resources could be appropriately utilized.

Utility of dynamic MRA neck in detecting vertebral artery dissection. *M. Siddiqui, M. Salman, G. Hameed, K. Siddiqui. Liaquat National Hospital, Karachi.*

Background: Vertebral artery dissection (VAD) once thought to be a rare diagnosis is now increasingly being recognized with the more frequent use of MRI. It accounts for 4% of cases of ischemic stroke in patients younger than 45 years and 14% of cases of lower brainstem infarction. Case report: We report a case of fifty eight year old gentleman who presented with sudden onset of vertigo and headache, while doing maintenance work in his car that involved keeping his neck in a laterally flexed position for at least half an hour. These symptoms lasted for 1-2 min and subsided spontaneously. On the day of admission he again developed vertigo associated with vomiting and generalized headache. On examination he was conscious, well oriented in time, place and person. There was nystagmus on horizontal gaze. Motor examination was normal however he tends to fall on right side when asked to walk. MRI of brain showed acute ischemic infarction in posterior inferior part of right cerebellum with non visualization of right vertebral artery on MRA. Dynamic MRA of neck (Axial T1WI with Gadolinium, Axial T2WI, T1-FASAT) demonstrated loss of signal void representing dissecting intramural hematoma. He was anti-coagulated. As his symptoms resolved completely, he was discharged home. Conclusion: In the right clinical scenario, dynamic MRA of neck is a useful noninvasive, cheaper modality for detecting dissection of vertebral artery that can identify underlying mechanism of stroke syndrome.

Unexplained episodic vomiting - the answer may be in the brain. *Ismail A. Khatri, Umar S. Chaudhry, Abdul Majeed Khatri, Zahid F. Cheema. Shifa College of Medicine & Shifa International Hospitals Ltd., Islamabad, and University of Oklahoma, Oklahoma City, USA.*

Background: Unexplained episodic vomiting may confuse physicians. Seizures are seldom considered to be the culprit, unless there is associated altered consciousness. Vomiting as an isolated presentation of seizures is well-established. The term abdominal epilepsy came into vogue in the 1950s and is also termed ictus emeticus. In this presentation, we report three interesting cases that remained undiagnosed for a while before seeing neurologists and once treated as partial seizures had significant improvement in unexplained vomiting. A literature review of this interesting phenomenon is intended. Case reports: (1) A 12-year-old boy who had frequent episodes complaining 'I feel sick, I am sick'. During some of these spells he appeared pale and gagging, as if he was about to vomit. (2) An 18-year-old man with a history of seizures from childhood with recent development of vomiting after eating which was unprovoked and not associated with altered consciousness. (3) A 50-year-old woman who reported unprovoked episodes of vomiting followed by loss of consciousness. All three patients were extensively worked up for gastrointestinal cause of vomiting without any yield. Once neurologists were involved in the care, all three were found to have abnormal EEGs and responded dramatically to antiepileptic medications. Conclusion: Unexplained vomiting both in children and adults with negative gastrointestinal work up should raise the suspicion of ictus emeticus (abdominal epilepsy). All patients with unexplained vomiting with or without loss of consciousness should get appropriate neurological work up including EEG and should receive a trial of antiepileptic medications.