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ABSTRACTS

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Dementia registry at Shifa International Hospital – An introduction to the concept and effort. *Ismail A. Khatri, Arsalan Ahmad, Maimoona Siddiqui, Nadia Mehboob, Sasha Kamal. Shifa International Hospital, Islamabad.*

Background: Epidemiological and clinical data about neurological illnesses, in particular dementia in the Pakistani population is almost non-existent. In order to improve the present situation and also to stimulate further development of the neurological sciences, there needs to be a focus on academic and research activities including epidemiological studies, databases and registries. Objective: To collect epidemiological and clinical data in the form of a registry from all patients with dementia seen at the tertiary care neurology clinic at Shifa International Hospital, and organize a database that can help both clinicians, and researchers. Methods: The registry data collection form has been approved by the ethics review committee of Shifa International Hospital. Patients with the diagnosis of dementia will be identified from clinic visits. Consent for enrolment will be obtained from the patient/family. Clinical, radiological, laboratory and epidemiological data will be collected from the medical records of patients. Mini Mental State Examination (MMSE), Neuropsychiatric Inventory (NPI), and Beck Depression Inventory (BDI) will be used as tools to assess the severity and pattern of dementing illness. Additional neuropsychological testing will be done as indicated. Results: Enrolment in the registry has started in March 2010. We will present the initial data of enrolled patients in the meeting. Conclusion: There is an urgent need to establish databases and registries in the neurology centers across the country. We are presenting the format and initial results of our own first experience in this regard.

Dural Sinus Thrombosis – Local experience at Shifa International Hospital, Islamabad. *Maimoona Siddiqui, Ismail Khatri, Nadia Mehboob. Shifa International Hospital, Islamabad.*

Background: Dural sinus thrombosis (DST) is not an uncommon disorder. A high index of suspicion is needed to reach the diagnosis. A variety of etiologies of DST have been reported. Dural sinus thrombosis carries significant morbidity and mortality. Objective: To determine presentation, causes and outcome of dural sinus thrombosis (DST) in Shifa International Hospital (SIH), Islamabad. Methods: An observational chart review was conducted on patients admitted between June 2009 and December 2009 to SIH with the diagnosis of DST. A standard structured questionnaire was completed for every patient. Results: A total of 14 patients were seen, majority were females (64.3%). Mean age was 36.5 ± 19.9 (range 8 months to 75 years). Most common presenting complaints were headache (50%), unilateral weakness (42.9%) and seizures (35.7%). Protein S deficiency was seen in 6 patients (42.9%), homocysteine was elevated in 4 patients (28.6%), and protein C and antithrombin ??? deficiency was seen in 1 patient each (7.1%). Anemia and increased white cell count was seen in 8 patients each (57.1%). Magnetic resonance venogram was done in 10 patients (71.4%). Most common site of thrombosis was superior sagittal sinus (64.2%), followed by transverse (57.1%), and sigmoid sinus (42.8%). On admission 6 patients had modified Rankin scale (mRS) score of 1; whereas 3 patients had mRS score of 0 on discharge, and 6 had mRS score of 1 on discharge. No patient died, whereas 5 patients were discharged with mRS of 4 or 5. No recurrence of symptoms had been reported in immediate follow-up of 10 patients, 4 were lost to follow-up. Conclusions: DST is more common in women. Protein S deficiency was the commonest cause in our patients. Anemia and increased white cell count was frequently seen.

Pattern of neurological disorders in out-patient neurology clinic in a tertiary care private hospital of Pakistan. *Ismail A. Khatri, Arsalan Ahmad, Ali Hassan, Ayesha N. Vohra, Nauman S. Siddiqui. Shifa International Hospital, Islamabad and King Fahad Hospital, Saudi Arabia.*

Background: There is very limited epidemiological data on spectrum and pattern of neurological disorders in Pakistan. A report on the neurological diseases in Karachi found comparable rates with western countries and Japan. Objective: The objectives were to find pattern of neurological disorders seen in our out-patient clinic; to assess feasibility of utilizing current charts in establishing the neurological diagnosis and using it for ICD-9 coding. Methodology: Retrospective chart review of all new patients in year 2006 was done. The initial and final diagnoses were coded according to ICD-9-CM. All data was analyzed using SPSS program version 10.0. Results: A total of 2904 charts were analyzed. 1548 (53%) were males. Mean age was 42 (± 19.9) years, with 13% patients under 18 years of age. Primary diagnosis was made in 95% on first visit, of whom diagnosis was changed in 7.5% on follow-up. Change in diagnosis was based on clinical pattern in 1.4%, diagnostic evaluation in 4.7%, and treatment failure in 0.3%, and for unidentifiable reasons in 1.1%. 44% patients did not follow-up. Specific diagnosis according to ICD codes was made in small numbers, a large number of patients had to be categorized under broad diagnostic categories. ICD codes could not be given to 14% of initial diagnosis. Common diagnoses included headache and related disorders in 493 (17%), epilepsy in 290 (10%), spinal pain (back and neck) and radiculopathies in 360 (12.4%), stroke in 261 (9%), Parkinson's disease and related

disorders in 89 (3.1%), carpal tunnel syndrome in 63 (2.2%), dementia in 48 (1.7%), Bell's palsy in 59 (2%), multiple sclerosis in 20 (0.7%), NPH in 19 (0.7%), muscular dystrophies in 20 (0.7%), MND in 14 (0.5%), dystonias in 16 (0.6%). 94% diagnoses were made on clinical grounds alone, 5.8% on clinical ground + diagnostic evaluation, 0.2% on diagnostic evaluation alone. 0.9% patients were admitted from the clinic, and 14.8% were referred to other specialties. Largest referral was made to neurosurgery and rehabilitation services including 3.8% to neurosurgery, 3.4% to physiotherapy, 0.2% to occupational therapy, 0.9 % to speech therapy. Conclusions: The out-patient neurological spectrum of disease in our clinic was similar to prior published data. A large number of diagnoses were made on clinical grounds. Specific diagnoses that match ICD coding were not made in most cases. Only a small number of diagnoses were changed. A large number did not follow. Very few admissions were made, and referrals were mostly made to related specialties.

Focal polyspikes in adolescents with Idiopathic Generalized Epilepsy. *Zeeshan Ahmed, Aneela Akhter, Mazhar Mobin, Abdul Malik, Farrukh S.Khan, Khurram A.Siddiqui. Liaquat National Hospital and Neuro Clinic & Falij Care, Karachi and King Fahd Medical City, Saudi Arabia.*

Background: Polyspike discharges have been reported in patients with myoclonic epilepsies, specially juvenile myoclonic epilepsy (JME). We wanted to look at frequency of focal polyspike discharges in adolescents with Idiopathic Generalized Epilepsy (IGE). Methods: We looked at digital EEG data done over a period of three months from October-December 2007. We identified all adolescent patients who presented to us with a generalized seizure, diagnosed IGE, and had polyspike discharges, in addition to generalized spike and wave discharges. We looked at their demographics, reason for EEG referral, confirmation of presence of generalized epileptiform discharges and frequency and site of focal and generalized polyspikes discharges. Result: We found 12 adolescent patients diagnosed with IGE as per, above criteria and had polyspike discharges. We found 9 males and 3 females. Mean age 14.5 years (SD+2.7). We confirmed the presence of generalized spike and wave discharge in various parts of recording, and reason for referral was a generalized seizure. We found 75 %(n=9) had focal polyspikes and 25 %(n=3) had generalized polyspikes seen, in addition to generalized spike and wave discharge. Most frequent site's for focal polyspikes were left fronto-temporal and right centro-parietal. Conclusion: We conclude that in our adolescent patients focal polyspikes were seen in 75% of patients. This confirms the possibility of higher frequency of JME in patients with IGE, in this age. Focal polyspikes usually represents the semiologic evidence of asymmetric and focal myoclonic jerks that has been reported frequently in patients with JME.

Knowledge, Attitude and Practice of general physician in treatment of headaches, in Karachi. *Hazim Brohi, Ajeet Kumar, Muhammad Ishaq, Syed Sanower Ali, Jibran Sualeh Mohammad. Jinnah Medical College, Karachi.*

Introduction: Headache disorders are ranked amongst the ten most disabling conditions in the world by World Health Organization (WHO). Primary care physicians are the first handler of the patient . About 70% of the patient with migraine consult doctors at least once and two-third of these have made 5 or more visits to physicians. Approximately 72% visits of headaches related to migraines are made to family physicians .Unfortunately studies have shown that less than 30% are satisfied with the care of family physicians .But when these patients were referred to the specialist there was an improvement in the satisfaction scale along with significant decrease in frequency, duration and severity of attacks. The unawareness of family physician about the subject costs patients a big deal of economic burden both in form of loosing working days and in purchasing medications. We conducted a pilot study in low to low medium economical area of Karachi (North Nazimabad) to see what the attitudes are and knowledge of family physicians regarding headaches. Methods: A Cross-Sectional survey was carried out on local general practitioners, in June'09 in a sub area of Karachi (North Nazimabad).one hundred Pre-designed and pre-tested questionnaire was distributed randomly to the GPs in the selected area for the survey. Result: 75 family physicians participated in the study. Demographic data showed 51 males (68%) and 24 females (32%). 94% doctors had been practicing for more than 5 years. 82% believed hypertension could cause headaches while 85% believed refractory was an major contributing cause. Imaging studies were necessary according to 45% of participants. In spite of 84% claim of doctor of being aware of existence of diagnostic criteria, 70% claimed that they knew the criteria (36% for TTH and 37% for migraine). None showed fulfillment of the criteria when asked in details. 50% considered nausea to be mandatory 25% considered vomiting and 54 % considered photophobia and 38% phonophobia while duration was significant by 40% of doctors. When coming to drug of choice for acute 24% opted for panadol, 17% for mefenemic acid (ponston) and 13% for diclofenic injection and 6% for pentazocin injection. Approximately 50% believed that there was no prophylactic treatment for headache. 59% of doctors believed headache patient do not require referral to a neurologist or a headache

specialist. Conclusion: The disability caused by headache is often not recognized by the family physicians but the brunt is substantial to the sufferers. Education of both public and of health professionals is the key to improve the health status of patients and lower the economic burden caused by it.

Intracerebral Bleed: Compliance and Outcome in Hypertensive Patients. *Eman Tariq, Mazhar Badshah, Mohammad Tariq, Mohammad Irshad, Sohail Rao. Pakistan Institute of Medical Sciences, Islamabad.*

Background: In Pakistan intracerebral bleed is a frequent event in Hypertensive patients who are not compliant to medications. This study determines the frequency of Intracerebral Bleed in hypertensive patients not compliant to medications. Methods: 103 patients with Cerebrovascular Accident admitted in the Neurology Department of PIMS from 1st January 2010 till 15th March 2010 were selected. They were diagnosed on the basis of CT scan done within 24 hours of admission. History regarding hypertension and compliance was taken from the patient or relatives as appropriate. Data was entered on a Performa and analyzed on SPSS 11.5. Results: Out of the 103 patients, 57(55.33%) were hypertensive and 48(46.6%) were not hypertensive. Out of the 57 hypertensive patients, 21(40.38%) were having Intracerebral Bleed, 28(49.12%) had infarcts, 4(7.01%) patients had Sub-Arrachnoid Hemorrhage and 3(6.26%) patients had normal CT Scans. Of the 21 hypertensive patients with Intracerebral Bleed, 19 patients (90.47%) were not compliant to medications. Out of the 19 non compliant hypertensive patients with Intra cerebral bleed 17(89.47%) patients expired and 4(21.05%) patients were discharged in stable condition. Conclusion: Patients who are non-compliant to anti hypertensives have a high risk of having Intracerebral bleed as compared to compliant hypertensives. Non compliant hypertensives with Intracerebral Bleed have a high Mortality Rate as well. Poverty and illiteracy remain the leading causes of Non compliance in Pakistan.

Acute Hemorrhagic Leukoencephalitis in a patient with Systemic Lupus Erythematosus – A Case Report. *Abdul Salam, Ismail A. Khatri, Arsalan Ahmad, Aftab A. Awan, Syed N. Mahmud. Shifa International Hospital, Islamabad.*

Background: Acute hemorrhagic leukoencephalitis (AHLE), also known as Hurst's Disease, is a rare, acute, rapidly progressive and usually fatal disorder characterized by perivenular demyelination and diffuse hemorrhagic necrosis of the central nervous system. We report the case of acute hemorrhagic leukoencephalitis in a patient with systemic lupus erythematosus (SLE). Case Report: A 29 years old woman, known case of systemic lupus erythematosus, lupus nephritis with advanced renal failure, psychosis and hypertension presented to our emergency room with 1 day history of agitation and restlessness and 14 hours history of progressive left sided body weakness, initially involving left arm, followed by left leg. There was no associated facial weakness, difficulty in swallowing or speech. Her initial examination showed GCS of 15/15, left arm monoplegia (0/5) with mild left lower extremity weakness (4-/5). She had normal reflexes and down going plantars at that time. Her CT brain (to be shown) showed confluent hypodense areas in right fronto-parietal subcortical region extending into the periventricular white matter. In next 24 hours, she developed generalized tonic clonic seizures and her GCS dropped to 5/15. Next day her MRI brain was done that showed periventricular and subcortical white matter hyperintense areas in both cerebral hemispheres with hemorrhagic areas in subcortical region and mass effect (to be shown). She was treated with high dose methylprednisolone 1gm IV daily for 5 days with simultaneous plasma exchange 250 ml/kg spread over 6 sessions. She continued to deteriorate rapidly and did not respond to treatment. She died on 14th day of presentation. Conclusion: Acute hemorrhagic leukoencephalitis (AHLE) is a hyperacute form of acute disseminated encephalomyelitis (ADEM) which is rare, acute, rapidly progressive and usually fatal disorder as in our case.

The role of parents along with speech therapist in the progress of speech and communication development of Autistic child. *Afshan Rahat. Aga Khan University, Karachi.*

This study was designed to investigate the role of parents in the progress of speech and communication development of autistic child. Parental involvement with qualified speech therapist is essential proper coordination of therapist and parents is also required. When parents follow therapy techniques regularly in daily living home environment, the possibility of speech development increases very much. The awareness about special children should increase in parents, because early identification and early intervention thereafter proper consultation with neurologist is very important with proper medication control hyperactivity and impulsiveness of autistic child. The main objective of the study to find out the role of the parents along with speech therapist in the speech and communication development of autistic child. As the sample of the study 30 parents of autistic child were interviews those who were already taking speech therapy from along duration, to compare the difference of the speech progress of those children's whose parents were strictly follow therapy techniques at home, as well as

the speech progress of those children whose parents who had not followed the therapy techniques at home. A questionnaire was developed in two sections. First section consists of information about autistic child and there parents, in second section contains the information about the nature of parents involvement at home. Then the data was collected and the results were indicated by percentage method. during the study it was found that those parents follow therapy techniques at home, regularly consult with neurologist and give proper Childs medication their speech and communication developed and improve much more faster. Moreover it has also been observed that in the development of speech of autistic child to be educated of their parents is not necessary but their concerned and positive attitudes towards the child is very much important and necessary. At the end of the study it was recommended that therapist should encourage and make it compulsory to the parents to work with there autistic child at home also. It is also recommended that parents training and counseling program should also be organized, in order to provide proper guideline and information for effective parenting of their autistic child.

First Seizure: What and how neuroimaging and EEG contributes in evaluation? *Mubashira Hashmi, Javeria Rauf, Mughis Sheerani, Fahad Saleem, Mustafa Khan, Bhojo Khealni. Aga Khan University, Karachi.*

Background: Seizure is a common medical problem and an extremely distressing event which raises urgent health and life style issues. There is no standardized algorithm for evaluation of adult patients with a first seizure. Several western studies have commented on the role of Neuroimaging (NI) and EEG in evaluation of first seizure. There is lack of local literature that has looked at the role of above mentioned investigations in the evaluation of first seizure. As infections are common in this region, the causes of first provoked seizure may be different from western world. Objective: The aim of the study is to determine the frequency of abnormal NI & EEG findings after first seizure in Pakistani adults. Methods: This is an ongoing study. A retrospective review of charts of all patients (above the age of 14 yrs) who presented with first seizure in emergency department during last 5 years is being undertaken. Patients who had a diagnosis of epilepsy, those with non- epileptic events, and those who had neither Neuroimaging nor EEG were excluded from the study. Information regarding demographics, seizure semiology, EEG and Neuroimaging data was entered on a predesigned proforma. Results: We reviewed 570 charts. Out of this, 96 charts fulfilled inclusion criteria. The mean age of subjects was 46 years (range 14- 86 years). Males were the dominant sex 54% (n: 52). Provoked seizures (seizures occurring in close temporal association to acute insult) constituted 37% (n: 36) of the first seizure presentation, the rest were unprovoked. EEG was done in 77% (n: 74) of patients with first seizure, out of which almost half 55 % (n: 53) had abnormal EEG. Generalized slowing was the most common EEG abnormality 84 % (n: 38). On the other hand, 92 % (n: 89) had imaging at presentation, again almost half 58 % (n: 56) were found to be abnormal. Acute or chronic infarction was the most common 35% (n: 34) imaging abnormality observed. Conclusion: Although unprovoked seizures constituted the leading seizures type at presentation. At least half of the patients presenting with first seizure had abnormal MRI findings which may predict their chances of having recurrent seizures. EEG in contrast revealed non-specific findings like generalized slowing in majority of patients which may represent a post-ictal state.

Role of external factors on the outpatient rehabilitation in a public sector hospital in Pakistan. *Najma Adam, Mughis Sheerani, Hassan Zeb, Arshad Iqbal, Rabeea Farhan, Sarwat Malik. Dow University of Health Sciences and Aga Khan University, Karachi.*

Objective: To study the impact of external factors on the outpatient rehabilitation in a public sector hospital in Karachi, Pakistan. Methods: A semi structured pretested questionnaire was used on 75 outpatients and their caregivers at the Institute of Physical Medicine and Rehabilitation and Civil Hospital Karachi over the period of 3 months. Results: The mean age was 22 years. Fifty one percent were below the age of 12 years. Males and females were almost equal. Thirty percent (23) were married. Forty six percent (35) had cerebral palsy. Stroke and amputees were 9.3% (7 each), respectively. Most of them 52% (39) belong to a nuclear type family structure and 48% (36) belong to extended type family structure. Twenty four percent (18) were diagnosed as recently as 2009 while majority of them, 35.4% (27), were diagnosed between years 2006-08. Both modalities of physical and occupational therapy were used in 28% (21). Sixty percent (45) continued therapy for more than 4 weeks, 13.3% (10) for 2-4 weeks, 12.0 %(9) for less than 2 weeks and 14.7% (11) had their first visit. Thirty nine percent (29) travelled less than 5 kilometres (km) to reach the hospital. Twenty seven percent (20) travelled 5-10 km and 32% (24) more than 10 km, respectively. Equal number of patient 29.3% (22) travelled by bus or took taxi/rickshaw to come to the hospital, 40.0% (30) walk/or use private transportation. Only one was transported with an ambulance. Twenty one percent (16) patients and 33% (25) of the care givers had to skip work to attend the program. Majority of the patient 54.7% (41) were accompanied by their parents. Most of the patients, 42.7% (32), were financed by parents. Twenty nine percent (22) spend less than 100 Pakistani Rupees (US$ 1), Majority 49.3% (37) spent between Pakistani rupees 100-500 (US$1-$6). Twenty percent (15) were on Zakat (religious welfare) fund and 5.3% (4) were supported by

the state. Nineteen percent (14) were referred by the general physicians and 14.7% (11) by neurologists. Twenty three percent (17) were referred by their friends. Thirty six (27) thought that treatment helped substantially and 34.7% (26) to some extent. Conclusion: Though the cost of rehabilitation was substantially low, this study highlighted challenges in the outpatient rehabilitation in Pakistan and identified several areas of need which can be improved.

Use of mitoxantrone in multiple sclerosis – An experience at Shifa International Hospital, Islamabad. *Ismail A. Khatri, Arsalan Ahmad, Maimoona Siddiqui, Nadia Mehboob, Nauman S. Siddiqui, Saleem Siddiqui, Kamran Rashid. Shifa International Hospital, Islamabad.*

Background: The use of mitoxantrone (MTX) in various types of multiple sclerosis (MS) is fast increasing. The cost of interferon therapy is one of the barriers in their use in Pakistan. Recent data has suggested useful role of MTX in relapsing remitting MS in addition to worsening and progressive MS. Objective: To describe the clinical features, indications, and outcomes in patients treated with MTX in our tertiary care private hospital. Methods and Patients: All patients with multiple sclerosis in whom MTX was used were identified through pharmacy and clinic records. Chart review was done and specific information was collected on a data collection form. IRB approved the study. Results: A total of 24 patients were given mitoxantrone between 2002 and 2010 with mean age of 39 (±11) years. There were 9 (37.5%) males and 15 females (62.5%). Mitoxantrone was used in 9 (37.5%) patients with secondary progressive MS (SPMS); 7 (29.2%) patients with relapsing remitting MS (RRMS); 2 (8.3%) with relapsing progressive MS (RPMS); 1 (4.2%) each with primary progressive MS (PPMS) and primary progressive MS with relapse; and 4 (16.7%) with variants of MS. Five (20.8%) patients had previously used interferons and discontinued for various reasons. Nineteen (79.2%) could not afford interferons. Indications for use included aggressive disease and secondary progressive MS in 13 (54.2%); patient's and physician's choice in 11 (45.8%) patients. Mean time to start mitoxantrone was 3.6 years (range 1-16) from diagnosis. 5 patients completed full course of MTX. 4 patients discontinued MTX due to worsening symptoms. 15 patients are currently at various stages of MTX therapy. Six patient were lost to follow-up. Subjective improvement was seen in 13 (56.5%) patients. Treating physician felt improvement in 16 (66.7%) patients. Improvement was noted mostly in mobility and visual functions. 9 (37.5%) patients started walking again after MTX therapy. Side effects included diarrhea (16.7%), alopecia and swelling of face (4.2%) each. None of our patients has so far developed malignancy or cardiac toxicity. Twenty (83.4%) patients were given concomitant pulse steroids either in combination with MTX or for relapses. Sixteen (66.7%) patients had relapses before mitoxantrone but only 6 (25 %) had relapses on treatment. Conclusions: In our patients treated with mitoxantrone, most had subjective or objective improvement. A substantial number regained walking ability. MTX treatment was generally well tolerated. There is need to properly identify the indications of MTX use in MS and if patients are widely treated in Pakistan due to cost, they should either be included in clinical trials or in registries for better assessment of MTX use.

Carotid Artery Stenting in High Risk Patients – Results of twenty-two patients at Shifa International Hospital, Islamabad. *Ismail A. Khatri, Nadia Mehboob, Syed Mumtaz A. Shah, Faika Usman, Arsalan Ahmad. Shifa International Hospital, Islamabad and University Hospitals Birmingham, UK.*

Background: Carotid artery stenting (CAS) is widely used as an alternative to carotid endarterectomy (CEA) in high risk patients. We presented our initial data in PSN meeting in 2008. We now present an update on our patients who underwent carotid artery stenting at Shifa International Hospital, Islamabad. Methods: Selection for CAS was based on high risk criteria/patient choice. All patients who underwent carotid artery stenting between August 2006 and March 2010 were included in this review. Data collection was done from medical records and carotid stenting registry forms. Carotid artery stenting with embolic protection device was performed with standard procedure. Patients were monitored for at least 48 hours in intensive setting. Results: A total of 22 carotid artery stentings were done. Eighteen patients were males and 4 were females with a mean age of 68.6 years. Eighteen carotid arteries were symptomatic and 4 asymptomatic with complete occlusion of symptomatic side in 2 patients. High risk criteria for CAS were present in all patients including complete occlusion of contralateral side - 5 patients; age greater than 70 years - 12 patients; severe coronary artery disease - 15 patients; previous contralateral endarterectomy - 4 patients. The stenosis on carotid Duplex imaging in treated arteries ranged between 70-95%. Embolic protection device was used in 18 patients. Seven patients developed transient hypotension within 12 hours of procedure, 2 had bradycardia. Two patients had intraprocedure TIA; stenting was aborted in one of them. Peri-procedural death occurred in 1 patient on 3rd day of CAS due to severe hypotension. One patient died 2 years after CAS due to a myocardial infarction and one patient died during cardiac surgery 3 months after CAS. None of the patients developed neurological deterioration, acute renal failure or hemorrhagic complications. One year follow up is available on 8 patients with no further neurological events.

Conclusions: Intra and post-procedure hypotension was common in high surgical risk patients undergoing CAS. Immediate post-stenting mortality was low (<5%) and attributable to cardiac causes. A large number of patients do not follow-up after stenting.

Neurogenic Thoracic Outlet Syndrome (A Rare Entity). *Nazish Jamil, Naveed Uddin Ahmed. Liaquat National Hospital, Karachi.*

Neurogenic TOS is a rare entity. It results from entrapment of the brachial plexus at the thoracic outlet, most commonly from a rudimentary cervical rib to the first thoracic rib, entrapping the lower trunk of the brachial plexus. This results in a motor and sensory loss in the C8-T1 distribution. We report the case history of a 60 years old male who presented to our neurophysiology lab for evaluation of numbness in left V digit, medial border of left hand and medial forearm since 1 year. There was no history of neck pain. On examination there was mild wasting of left thenar and hypothenar muscles. Muscle power was diminished (G 4-) in the intrinsic muscles of the left and FPL. Pinprick sensation was reduced in the V digit, among medial border of left hand and medial forearm. Nerve Conduction Study revealed low CMAP amplitude of left median nerve, normal left median SNAP amplitude, decreased left ulnar SNAP amplitude, the left medial antebrachial nerve was recordable but compared with the contralateral side, it was poorly modulated. EMG revealed denervation in left APB, left FCU and left FPL, along with neurogenic motor units. The lower cervical paraspinal muscles did not reveal any denervation potentials.

Decompressive surgery in acute ischemic stroke – Aggressive approach saves life: A paradigm shift in the management. *Ismail A. Khatri, Maimoona Siddiqui, Mohammad Nadeem, Shumaila Hassan, Nauman S. Siddiqui, Ahmed Y. Javed. Shifa International Hospital, Islamabad.*

Background: Historically 80% of patients with malignant MCA strokes died due to stroke with best medical treatment. Randomized trials have demonstrated that early decompressive surgery decreases mortality, and results in better functional outcome, especially in younger patients. Similarly decompressive surgery for cerebellar infarct has shown to improve survival. Quality of life outcomes, patient and caregiver burden, ideal timings of decompressive surgery, and age limit remain to be answered. Methods: Data of patients with malignant ischemic infarction who had decompressive surgeries between January 2006 and December 2009 were retrospectively analyzed by chart review. Neurological status was assessed using Glasgow Coma Scale (GCS), and modified Rankin scale (mRS) score at admission, discharge, follow-up visits, and interview by phone. Results: A total of 24 patients had decompressive surgeries. Male to female ratio was 2.1:1. Mean age was 52.9 years (range 30-70 years). All were right handed. Ischemic infarct occurred in right MCA territory - 54.1%, left MCA territory -16.6%, and cerebellum - 29.7%. Most common presenting symptoms were deterioration of conscious level -66.8%, hemiparesis - 66.7%, headache - 37.5%. Hypertension (58.3%), diabetes mellitus (24.9%), IHD (12.5%) and smoking (8.3%) were the most common risk factors. The most common indications of surgery were deterioration of conscious level (58.3%), mass effect (70.9%) and massive brain lesion in the first scan (37.5%). Twenty nine percent patients were operated within 24 hours of onset of symptoms. Fifty percent patients remained in the ICU for 3-7 days and 25% of patients were in ICU for >10 days. Post-operative complications included aspiration pneumonia (25%) and other infections (20.8%). Hospital stay was less than 1 week in 20.8%, 2 to 3 weeks in 82.5%, and > 4 weeks in 12.5%. mRS scale at discharge was 0-2 in 4 (16.7%), 4 in 7 (29.2%), 5 in 9 (37.5%) and 3 (12.5%) patients died. mRS at discharge on 1 patient was not well documented at discharge. Follow-up was available for various duration (maximum - up to 2 years) with improvement in mRS to 0-2 in 5 (20.8%) patients, 3 in 3 (12.5%), 4 in 3 (12.5%), 5 in 5 (20.8%) patients. A total of 3 patients died after surgery. 5 patients were lost to follow-up. Conclusion: Decompressive craniectomy for malignant MCA infarction is life-saving, especially in younger patients. Additionally, long term improvement in mRS was seen in several of our surviving patients.

Survey on awareness of dementia among general population of Islamabad/Rawalpindi. *Maimoona Siddiqui, Nauman S. Siddiqui, Ismail A. Khatri, Ahmed Y. Javed, Farrukh Mateen, Mohammad Usman Khan. Shifa International Hospital, Islamabad.*

Background: Limited data on dementia incidence and prevalence from Pakistan is avialable but there is no published data on dementia awareness in general population. Objective: To assess the knowledge and awareness about clinical aspects of dementia and treatment in general population of Islamabad/Rawalpindi area. Method: Population based, convenient sampling survey was conducted via dementia knowledge questionnaire (DKQ) in Islamabad/Rawaplindi between January 2010 and March 2010 through face to face interviews and questionnaire filling. Results: A total of 1000 people participated in the survey. Six hundred (60%) were males and 361 (36.1%) were females, whereas 39 (3.9%) respondents did not mention their gender on the questionnaire. Mean age was 28.87 (± 11.8) years. Educational background related information showed that 33.9% people were uneducated and 67.2%

were educated people. 75.1% of people thought brain was the organ involved in patients with dementia. 409 (40.9%) thought dementia was a curable disease. Almost half (49%) of the respondents did not know about the types of dementia, (26.9%) think that there are three or more types and majority (46.8%) thought prevalence of dementia over 65 years of age was 20-70%. The most common etiological factor identified was old age (52%), hereditary factors (34.6%), stroke (32.8%) and alcohol use (30.3%). The most common symptom identified was memory problems (72.7%), personality changes (36.5%) and speech problems (27%). Conclusion: There is lack of knowledge about dementia in general population of Islamabad/Rawalpindi, specially the about the causes, prevalence and types of dementia. There is need for education campaigns targeted to increase public awareness of dementia.

Perception about stroke among patients and families with neurological diseases in Karachi. *S.Siddiqui, A.Malik, M.Hashmi, K.Mehmood, H.Mahmud, F.S.Khan, S.Ali, M.Wasay, K.Sher. Sir Syed Medical College, Neuro Clinic & Falij Centre, Jinnah Postgraduate & Medical Centre and Aga Khan University, Karachi.*

Background and Purpose: To study the extent of awareness about the causal factors for stroke and the existing myths and misunderstandings about stroke, its treatment and risk factors. Methods: Standard questionnaire was prepared by Practicing Neurologists and they were filled by patients and their family members present in the waiting areas of the neurology department Clinics of 2 academic hospitals, 2 community hospitals and 3 private neurology clinics. Medical and neurology residents collected this information. The data collected was analyzed on SPSS version 15. Findings: 720 Respondents were enrolled; data was analyzed on 700 respondents. Males were 48.9%, 84% were Urbanites, mean age was 31.7 and 82.2% had at least high school level education. 57% feel that stroke occurs at any age and 37% feel it occurs in old age. 81% feel it affects both genders and 52% feel it is a rare condition. Only 6% know that there no symptoms when you develop HTN. 46% either don't know or think that smoking does not cause strokes. 83% believe that stress can occasionally or always cause a stroke. 42% don't know or think that eating habits don't have anything to do with strokes. 57% believe stroke occurs due to exposure to cold, always or occasionally and applying pigeons blood improves disability from stroke is believed to be true by 43%. Up to 70% were aware of the usual symptoms of stroke and 73% know that stroke is preventable. Conclusion: It is encouraging to know that most people do know that stroke is preventable but it is very disconcerting to find that most people believe that you will feel it when your blood pressure rises and myths like applying pigeons blood is a legitimate treatment of stroke.

The Clinical Spectrum of Post Stroke Seizures. *Shaista A. Siddiqi, Mubashira Hashmi, Farrukh S. Khan, Khurram A. Siddiqui. Sir Syed Medical College, Aga Khan University and Neuro Clinic & Falij Centre, Karachi and King Fahd Medical City, Saudi Arabia.*

Objectives: To study the characteristics of post-stroke seizures and to compare these characteristics of early vs. late post-stroke seizures. Methods: This descriptive case study was conducted at Department of Neurology, Liaquat National Hospital, Karachi between March to September 2007. We included all adult patients, both male and female, over 25 years of age with the diagnosis of post-stroke seizures. Informed consent was obtained. Detailed history and clinical examination was done on every patient. Radiological findings regarding type and location of stroke were collected. Information gathered was entered in a pre-formed proforma. Results: Out of 50 patients, there were 28 (56%) males and 22 (44%) females with the mean age of 56.86 ± 15.26 years. Thirty-one (62 %) patients had a significant history of hypertension. Early seizures i.e. within two weeks were seen in 29(58%) patients. Generalized seizures were seen more frequently i.e. in 37(74%) patients. Thirty-one (62%) subjects experienced more than 2 seizures. A large percentage of patients, 40 (80%) had an ischemic stroke on CT scan or MRI brain. Of ischemic strokes, 36 (72%) had an arterial infarct; venous infarcts were found in only 3 (6%) of the subjects. Intracerebral hematoma was seen in 10(20%) of subjects. Comparison between early and late onset seizures revealed significant association between ischemic heart disease (IHD) and late onset seizures (p-value, 0.04). Majority patients with late onset seizures had history of old cerebrovascular accident, hypertension and hypercholesterolemia, though p-value could not be obtained because of the small number of subjects in the respective groups. Conclusion: Post-stroke seizures were found to be more frequent in males, in patients with history of hypertension, and with cortical ischemic strokes. Early seizures, multiple episodes and generalized seizure type were found to be more common. Venous infarcts were chiefly associated with seizures at presentation. Positive history of old stroke, ischemic heart disease, hypertension and hypercholesterolemia showed a strong relationship with the occurrence of late onset seizures.

Determination of best electrode placement for the recording of Phrenic nerve compound muscle action potentials (CMAP). *Nasir Khan, Mustafa Khan, Mubashira Hashmi, Soniya Riaz, Bhojo Khealani. Aga Khan University, Karachi.*

Background: Phrenic nerve dysfunction is seen in various

neuromuscular disorders and traumatic injuries. Phrenic nerve stimulation is subject to technical difficulties due to co-stimulation of Brachial Plexus (BP) and poorly modulated reproducible CMAP (compound muscle action potential) amplitudes. Several electrode positions are in use to record the phrenic nerve CMAP amplitudes. It has been noted that CMAP amplitude varies with different electrodes positions. Objective: The aim of the study was to determine best electrode placement for recording of phrenic nerve compound muscle action potential (CMAP). Methods: Ten healthy males of age 18 years and above, with a normal neurological examination were prospectively enrolled. Phrenic nerve was stimulated at the posterior border of SCM muscle and reference and active electrodes placed accordingly: Technique 1: G1 (recording) 5 cm superior to the tip of the xiphoid process (XP), and G2 (reference) 16 cm along the costal margin from G1. Technique 2: Active surface recording electrode (G1) over xiphoid process and reference electrode (G2) over the 8th intercostal space at the costochondral junction. Technique 3: G1 at the eighth intercostals space reference along the anterior axillary line, and G2 3-5 cm medially and inferior to G1. The nerve conduction studies were done according to standard protocol of neurophysiology lab. Any CMAP amplitude associated with clinical twitch of the arm (co-stimulation of Brachial Plexus) was rejected. Results: Mean age of subjects was 27 years. Mean CMAP amplitude with Technique 1 was 710 μV± SD0170μV (500μV-1000μV) on right side and 730 μV±SD200μV (400μV-1000μV) on left side. With technique two mean amplitude was 550 μV± SD150μV (400μV-800μV) on right and 550μV±SD160μV (range 300μV-900μV) on left side. The amplitude with technique 3 was 840 μV±SD270μV (500μV-1300μV) on right side and 940 μV±SD240μV (500μV-1400μV) on left side. Mean latency of right phrenic nerve was 5.76msec, 5.79msec and 6.28msec with technique 1,2 and 3 respectively. The Mean latency of left phrenic nerve was 5.56msec, 5.58msec and 5.82msec with technique 1,2 and 3 respectively. Conclusion: Techniques 1 and 3 are better than technique 2 to record CMAP amplitudes of phrenic nerves.

Incidence of Fluency Problems in an OPD of a Tertiary Care Hospital of Karachi. *Shazia Noureen, Tahmeena T. Latifi, Sumera Azam, Naveed ud din Ahmed. Liaquat National Hospital, Karachi.*

Introduction: Speech-language pathology serves patients with communication and swallowing difficulty. Communication includes speech, language and non verbal communication. Speech is an oral motor act for the production of speech sound. Any interruption in the flow of speech is known as stuttering, a type of fluency disorder. Patients with stuttering disorder also have with associated motor behaviors (like eye blinking, feet tapping, exaggerated movements of the head, shoulders, and arms). There are 4 phases and 3 types of stuttering-neurogenic, psychogenic and behavioral. Objectives: To explore which type of speech disorder is highest among all speech disorders. To identify gender base ratio of highest speech disorder. To figure out the age group of highest speech disorder. Material and Method: The sample was retrospectively collected from speech and language pathology services of Neurology department at Liaquat National Hospital during the period of four years (Jan 2006 to Dec 2009) between the age ranges of 0 to 80 years. Patients were screened out through detailed case history, interview, observation and informal assessment tools. Severities of stuttering were calculated through dysfluency index. Criteria for diagnosing stuttering were obtained through literature review of Adams and Curlee. Results: A total of 1170 patients visited out patient department of speech language pathology during the span of 4 years. Out of 1170 patients 795 (68%) were male and 375 (32%) were female. Among 521 patients with speech disorder, 220 (42%) patients had fluency disorder, 150(29%) had articulation disorder and 150 (29%) had voice disorder. In 220 patients with fluency disorder, 176 (80%) were male and 44 (20%) were female. The male female ratios were found 4:1. The most common age group that contacts us for stuttering was 6-10 years. Conclusion: The data reflects that patients with fluency disorder contact more than any speech disorder for formal evaluation. Ratio of stuttering is highest among male as compared to females that is 4:1. The most common age group that contacts us for stuttering was 6-10 years.

Myotonic dystrophy - A rare cause of myopathy. *Sadaf Taj, Naveed Uddin Ahmed. Liaquat National Hospital, Karachi.*

Objective: To review the cases of myotonic dystrophy presenting to neurophysiology laboratory of Liaquat National Hospital. Background: Myotonic dystrophy is an inherited disorder of the muscles and other body systems. It is the most common form of muscular dystrophy that begins in adulthood. This disorder is characterized by progressive muscle wasting and weakness, particularly in the lower legs, hands, neck, and face. People with myotonic dystrophy often have prolonged muscle tensing (myotonia) and are not able to relax certain muscles after use. Its prevalence estimated at between 3 and 5 per 100,000 populations and an incidence of 13 per 100,000 live births. Material and Methods: This is a retrospective review of 15 cases that presented to our neurophysiology laboratory over a period of 7 years. Nerve conduction and EMG was performed according to standard protocol. Results: Seven patients were females and 8 were males. Age ranged from 13-44 years, mean age being 20 years. The major presenting features were weakness and walking difficulty. Inability to relax muscles

of the hands was a prominent feature in 12 out of 15 patients. Clinical exam revealed bifacial weakness in 8 patients, neck flexor weakness in 6 patients, ptosis in 7 patients, temporal wasting in 5 patients, frontal baldness in 2 patients and wasting and weakness of hands in 7 patients. In 6 patients there was evidence of foot dorsiflexion weakness. In 8 patients grip myotonia could be elicited. Routine nerve conduction studies were normal in all patients. EMG finding revealed myopathic potentials in 13 out of 15 patients. Myotonic discharges were elicited in all patients. Conclusion: Myotonic dystrophy is a rare disorder. When the clinical features are suggestive of this disorder, a nerve conduction study and electromyography can help clinch the diagnosis.

Hereditary Sensory Motor and Autonomic Neuropathy - A Case Series. *Muhammad Wasim, Asiya Bano, Naveed Uddin Ahmed. Liaquat National Hospital, Karachi.*

We describe the case history of 2 siblings with non-healing ulcers over the extremities. Case1: A 14 years old boy, second of 6 siblings born of a consanguineous marriage presented with non-healing ulcers over the heels that developed gradually and intermittently since 5 years of age. These were painless. Hands were affected with a latency of 1-2 years. On examination, mental status and cranial nerves were normal. Motor examination revealed normal power, DTRs was gradually diminished and plantars were flexor. There was loss of all sensory modalities. Romberg's sign was positive. He had Charcot's ankles. There was a muscle deep ulcer on both heels of right big toe and left middle toe were amputated as were distal phalanges of left index and ring fingers. NCS/EMG revealed a diffuse large fiber pure sensory neuropathy with concomitant involvement of small fibers. Sural nerve biopsy revealed widespread fibrosis but electron microscopy could not be done. Thus he was diagnosed as a case of hereditary sensory neuropathy. Case2: A 12 years old girl, a sibling of the above patient presented with ulceration of toes that were slow to heal. Her symptoms started when she was 5 years of age. Theses ulcers were painless. She had no involvement of her hands. On examination, mental status and cranial nerves were normal. Motor examination revealed normal power, there was a wide spread loss f DTRs and plantars were flexor. There was a loss of all sensory modalities. Romberg's sign was positive. She had Charcot's ankles. There was an ulcer on the plantar aspect of left foot which was exuding a purulent discharge. NCS/EMG revealed a diffuse sensory neuropathy with involvement of sural fibers as well. A small nerve biopsy was refused by the parents. Thus on the basis of history, exam and NCS/EMG she was diagnosed as a case of hereditary sensory neuropathy.

Incidence of Aphasias in an OPD of a Tertiary Care Hospital of Karachi. *Sumera Azam, Tahmeena T. Latifi , Shazia Noureen. Liaquat National Hospital, Karachi.*

Introduction: Stroke is an accident and emergency in which a person can do everything in one moment and can't do anything in just after few moments. After stroke the ability to walk, talk, read, write, eat and even swallow is lost. The innate ability to communicate is nowhere to be found and the person can't communicate verbally (and sometimes) and nonverbally. This sudden lost of acquired language after stroke is known as aphasia. There are three main types of aphasia: Expressive aphasia, Receptive aphasia and Global aphasia. Along with aphasia other neurogenic communication disorder includes Dysarthria and Apraxia. Objectives: To determine incidence of neurogenic communication disorder after CVA. To locate which neurogenic communication disorder is highest after CVA. To reveal the most occurring type of aphasia after stroke. Material and Method: The four years data was collected retrospectively for this research from speech language pathology services at neurology department of Liaquat National Hospital. Patients who were visited as an out patient enrolled in this research. A set of batteries of formal and informal assessment tools were applied to collect the data. Result: Total 1170 patients were evaluated in an out patient department of speech and language pathology services from Jan 2006 to Dec 2009. Out of 1170 278 (24%) patients were suffering from any sort of neurogenic communication disorder. Out of 278 patients 89 (32%) have dysarthria, 83 have global aphasia (30%), 62 have expressive aphasia (22%), 41 have receptive aphasia (15%), while only 3 have apraxia (1%). Conclusion: 24% patients in OPD is encounter with some sort of neurogenic communication disorder after stroke. The study concludes that dysarthria is the most occurring neurogenic communication disorder after stroke. Global aphasia is highest among all type of aphasias visited in OPD.

Sensitivity of Berlin questionnaire as a screening tool in identifying subjects at risk of Obstructive Sleep Apnea. *Rehmat Karim, Adeel Sadozai, Mubashira Hashmi, Darshan Lal, Bhojo Khealani. Aga Khan University, Karachi.*

Background: Obstructive sleep apnea (OSA) is a common sleep disorder with serious long term complications. Polysomnography (PSG) remains gold standard diagnostic tool for OSA. However availability of PSG is limited in our country because of lack of expertise and the high cost of test. Western literature has shown that Berlin Questionnaire is very sensitive tool to identify subjects at risk of OSA. Our aim was to assess validity of Berlin Questionnaire in identifying subjects at high risk of OSA in local setting. Methods: Fifty four patients referred for PSG were included in the study. Berlin's questionnaire was run on all subjects, followed by PSG according to standard

protocol. Patients were classified into high and low risk groups on the basis of Berlin's questionnaire. OSA was defined as apnea hypopnea index (AHI) greater than 5 on PSG. Sensitivity, specificity, positive and negative predictive value were than calculated by comparing the Berlin's questionnaire results against PSG data. Results: Fifty four patients were included in the study. The mean age was 54 years (range: 23 to 79 years). There were 35 males (65%). Forty two (78%) were classified as high risk and 12 (22%) as low risk on the basis of Berlin's questionnaire. According to PSG results, out of 54 subjects 43 (83%) have OSA. Among high risk group 86% had OSA while in low risk group 58% had OSA (p- value 0.05). The sensitivity of Berlin's questionnaire was 83.72, specificity- 45.45, positive predictive value 85.71 and negative predictive value was 41.67. Conclusion: Berlin's questionnaire is a sensitive tool in identifying subjects at risk of OSA.

Analysis of sleep in people referred for PSG at a tertiary care center. *Urooba Faheem, Yahya Jan, Mubashira Hashmi, Mustafa Khan, Mughis Sheerani, Bhojo Khealani. Aga Khan University, Karachi.*

Background: Polysomnography (PSG) is a gold standard test for evaluation of sleep architecture and various sleep disorders, including OSA. There is no local data that has described sleep architecture in patients with sleep disorders. Our aim is to study sleep architecture in patients referred to our lab with suspicion of sleep disordered breathing. Methods: This is a descriptive observational study. All PSGs conducted from 2005-2010 at AKUH have been retrospectively analyzed. The detailed PSG data including demographic data, the type of study (diagnostic or split night study), and details of sleep stages, efficiency, sleep latencies, and oximetry data is collected in a predesigned proforma. OSA is defined as apnea hypopnea index (AHI) greater than 5 on PSG. Data analysis has been done on SPSS 17.0. The data collection is still in process, and presented are initial results of the study. Results: The mean age of the subjects (n: 122) is 52 years (range: 9 to 85 years). There were 89 (73%) males. In 87 (71%) patients only diagnostic study was performed, the rest of the patients 35 (29%) had split night (diagnostic and therapeutic) PSG. The mean frequency of respiratory events was 136 (range: 83 to 454) and AHI was 27/hr. OSA (AHI > 5) was found in 94 (77%) of subjects. Onset latency of Non-REM (p- value: 0.005) and REM sleep (p- value: 0.02, baseline oxygen saturation (p- value: 0.01) and lowest oxygen saturation (p- value: 0.000) were significantly impaired in patients with obstructive sleep apnea as compared to patients with non- OSA. Although arousal index was high in patients with OSA, it was not statistically significant. Sleep efficiency index and duration of different stages of sleep were equal in both groups. Conclusion: The present study revealed high frequency of OSA in our study subjects. Sleep latencies and oxygen saturation are key sleep parameters that were significantly different amongst patient with OSA as compared to non- OSA.

Post - Polio Syndrome – A poorly understood entity. *Musarrat Shaheen, Asiya Bano, Naveed Uddin Ahmed. Liaquat National Hospital, Karachi.*

Objective: To review the case of Post Polio Syndrome presenting to the neurophysiology lab of Liaquat National Hospital. Background: Approximately 25-60% of patients affected with poliomyelitis may develop additional dysfunctions. Approximately 30 years after the initial acute attack and are sent to be affected with post-poliomyelitis syndrome (PPS). This syndrome may be classified into 2 categories; primary musculoskeletal symptoms or post-polio progressive muscular atrophy. Musculoskeletal symptoms include new onset of fatigue, joints pain, decreased mobility from scoliosis or altered badly biomechanics and posture or physical decompensation following a recent weight gain or brief period of immobility. Post polio PMA refers to slow but progressive loss of strength in 50-80% of patients with PPS. This may affect not only the original muscles affected, but also previously spared muscles. Materials & Methods: This is a retrospective review of 15 cases that presented to aver neurophysiology lab over a period of 03 years. NCS & EMG was performed according to standard protocol. Results: 10 patients were male, 05 patients were female. All had history of polio in childhood, Age range 26-39 years (Mean age 32.5 years), Duration of new symptoms was 11 months. Symptoms: 96% patients with symptoms of weakness, 50% patients with fatigue, 45% patients with muscle pain, 10% patients with joints pain, 12% patients with muscle cramps, 04% patients with fasciculation, 16% patients with wasting. Signs: 16% patients with signs of wasting, 4% patients with fasciculation, 96% patients with motor, 74% patients with deep tendon reflexes. EMG/NCS Findings: Motor nerve conduction studies showed low compound motor action potentials, Sensory nerve conduction studies showed normal, Most commonly from posterior tibial nerve (80%), from peroneal nerve (68%), median nerve (24%), ulnar nerve (10%), radial nerve (6%), femoral nerve (4%). EMG revealed giant motor units (approximately 20mv) in (94%), polyphasia in (90%) and prolongation of motor units action potentials denervation (96%), fasciculation (10%), decreased motor units action potentials recr