



# ABSTRACTS

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PESHAWAR, PAKISTAN

**Stroke: Past, Present and Future.** Ashfaq Shoaib, University of Alberta, Canada

Worldwide stroke is the second leading cause of death. More importantly, it is the leading cause of chronic disability and with the expected increase in the elderly segment of the population, it is anticipated that incidence will continue to rise over the next 50 years. Fortunately, over the last several decades, the risk factors for stroke have been better identified and treatment of conditions, such as hypertension and hyperlipidemia, has resulted in a significant lowering of the incidence of stroke. Also, patients at high risk, especially those presenting with transient ischemic attacks, atrial fibrillation and cardioembolic stroke or those with critical stenosis of the neck vessels, can be identified and in such individuals the benefits of early treatment are tremendous. Finally, in recent years the use of thrombolytic agents have allowed for treatment of patients coming in acutely with a stroke and showing very encouraging results. Currently, most comprehensive stroke programs have available to them an excellent public awareness campaign, comprehensive stroke prevention clinics and emergency services that rapidly identify and treat those unfortunate patients who come in with an acute stroke. In large centres such as ours where more than 2,000 patients may be seen acutely, such programs allow for up to 20% of patients presenting to emergency to be treated with thrombolytic therapy. There are several exciting areas on the horizons as treatment for such patients that not only can be implemented in expensive tertiary care centres in the West but allow for their successful use in a wide variety of countries where cost may impede implementation of high tech equipment or the availability of highly trained personnel. My presentation would initially focus on the classic methods at our disposal including the use of stroke units and the treatment of acute stroke. I will also focus on rapid identification and management of patients with transient ischemic attacks. My second focus will be on telemedicine, where we have achieved a great deal of success in managing patients at centres where currently stroke specialty is not available. My final segment would be devoted to newer therapies emerging on the horizon, which are currently in phase IIb/III trials. Some of these can potentially be applicable to multiple hospitals across Pakistan and have the potential of significantly improving patient care in this very disabling disease.

#### **Thrombolytic Therapy For Acute Stroke In Pakistan.**

Hazim Barohi, Mohammad Wasay, Safia Awan, Abdul Malik, Nadir A Syed. Aga Khan University Hospital, Karachi.

Background: The use of thrombolytic treatment with tPa is

increasing worldwide. There are no published reports of tPa use for acute stroke from Pakistan. Objective: To identify clinical characteristics and outcome of patients treated with tPa in Pakistan and compare this data to available regional and international data. Methods: The charts of all patients treated with tPa for acute stroke at two centers in Pakistan (Aga Khan University, Karachi and Liaquat National hospital, Karachi) were retrospectively reviewed. Results: 21 patients were included in study (81% male). Age range was 27-77 years (Mean 62 years). 57% patients were known hypertensive, 42% Diabetic and 19% were Dyslipidemic. Mean time interval between stroke onset and arrival to emergency room was 49 minutes (range 15-110 minutes). All patients were brought by family members in private transport. Mean time interval between arrival and CT scan was 44 minutes (range---). CT scan was reported normal or unremarkable in 13(62%) patients; old lacunar infarct in one patient and basal ganglia hyperdensity in one patient. Six CT scans reported to have acute abnormalities including; hyperdense MCA; one patient, effacement of sulci; one patient, basal ganglia or external capsular hypodensity; 3 patients, loss of gray- white differentiation; one patients. All of these six scans were initially interpreted as normal. All patients received 0.9 mg/ kg tPa as per standard protocol. Mean time interval between stroke onset and start of tPa infusion was 169 minutes (range 95-200). Three patients (14%) developed fatal hemorrhage and two (10%) developed non fatal hemorrhage. Four patients (19%) died. Cause of death was intracranial hemorrhage; three patients and cardiac arrhythmia and complete heart block; one patient. Of those three patients developing fatal hemorrhage, one reported to have loss of gray- white differentiation on CT scan. All four patients who died, received tPa within 170 minutes. Of those developing non fatal hemorrhage, one CT scan was normal. Mean length of hospital stay was 9 days (range 2-27 days). Conclusion: The development of hemorrhage in 24% patients and mortality of 19% is high as compared to regional and international data. Improved CT scan interpretation skills in emergency setting and strict application of CT scan criteria may reduce hemorrhagic complications and mortality.

#### **Family Physicians Awareness And Approach About**

**Stroke In Pakistan.** Adnan Yousuf , Mohammad Wasay, Iqbal azam, Bhojo Khealani, Abdul Malik, Anwar Haq. Department of Neurology and Community Health Sciences, Aga Khan University, Karachi, Department of Neurology, Liaquat National Hospital, Karachi, Department of Neurology, Peshawar medical college, Peshawar.

Background: Stroke is the leading cause of morbidity and

mortality in Pakistan. Most patients with stroke are seen by family physicians prior to stroke or after the stroke. Family physicians could play pivotal role in stroke prevention and early management of stroke. Objective: To evaluate whether Family physician's approach for stroke prevention and management is in accordance with established international guidelines. Methods: A cross sectional survey of randomly selected family physicians in Pakistan was conducted. Results: A total of 588 family physicians (about 1% of all family physicians in Pakistan) from all four provinces participated in study. 517 (88%) physicians were aware of five major risk factors for stroke. 93% physicians check blood pressures of adult patients regularly. 63% physicians use a cutoff of 140/90 to start anti hypertensive therapy (AHT), 19% start Anti hypertensive therapy at 150/90, 11% at 160/90 and 6% at 170/90. 90% physicians reported asking for cigarette smoking or tobacco use but only 64% ask their patients regularly to quit smoking. 75% physicians do not routinely check Cholesterol levels of their patients. 54% physicians will start lipid lowering medications at total cholesterol level more than 160 mg/ dL, 25% will start at level above 200mg/dL and 21% will start at level above 240 mg/dL. Only 46% physicians were able to correctly report five most common symptoms of acute stroke. 36% treat patients with stroke by themselves and 64% like to refer these patients to a specialist or hospital. 57% physicians use intravenous or sublingual blood pressure lowering medications in patients with acute stroke with blood pressure more than 160/100 mmHg. More than 80% physicians use Beta blockers, ACE inhibitors or Angiotensin receptor blockers (alone or in combination) for hypertension in patients with stroke. 6 % use diuretics and 9% use calcium channel blockers for secondary prevention of stroke. 95% physicians start anti platelet for stroke prevention. 70% use aspirin as first line treatment while 28% use Clopidogril as first line anti platelet therapy. 70% physicians continue antiplatelet therapy for long time, 22% will stop after one year and 8% will stop after 2 years if there is no recurrence of stroke. Only 14% physicians refer stroke patients for physiotherapy or rehabilitation. 44% physicians attended a lecture or seminar and 43% read an article related to stroke during last one year. The sources of continuing medical education for physicians are medical journals; 49%, representative from pharmaceutical industry; 15%, seminar or conference; 11%, newspaper; 10% and discussion with colleagues; 8%. 98(16%) physicians graduated within last five years. Conclusion: Family physicians knowledge about stroke risk factors is adequate but recognition of stroke symptoms and proper referral to hospital or specialist and physiotherapy is suboptimal. The management of acute stroke and treatment for secondary prevention of stroke is not in accordance with established guidelines. Continuing

medical education related to stroke including effective propagation of stroke prevention and management guidelines is required.

### **Carotid Artery Stenting In High Risk Patients - Results Of 1st Ten Patients At Shifa International Hospital, Islamabad.**

Faika Usman, Ismail A. Khatri, Syed Mumtaz A. Shah, Atif Rana, Arsalan Ahmad, Shifa International Hospitals Ltd., Islamabad.

Background: Carotid artery stenting (CAS) is emerging as a procedure that will likely replace carotid endarterectomy in future. Currently it is mostly performed in patients who have high surgical risk. Many centers in Pakistan have started this procedure. We present data on our 1st ten patients who underwent carotid artery stenting at Shifa International Hospital, Islamabad. Methods: We have a carotid intervention team, comprised of a vascular neurologist, interventional cardiologist and interventional radiologist who evaluate all potential CAS patients. Based on high risk criteria/patient choice, patients are recruited for CAS. Carotid artery stenting with embolic protection device is performed with standard procedure. Patients are monitored for at least 48 hours in intensive setting. Results: A total of ten carotid artery procedures were done between August 2006 and December 2007. Eight patients were males and two were females with a mean age of 70.3 years. Seven carotid arteries were symptomatic and three asymptomatic with complete occlusion of symptomatic side in one patient. High risk criteria for CAS were present in all patients including complete occlusion of contralateral side (one patient); age greater than 70 years (6 patients); severe coronary artery disease (7 patients); previous contralateral endarterectomy (one patient). The stenosis on carotid Duplex imaging ranged between 60-95%. Embolic protection device was used in seven patients (70%). Four patients developed transient hypotension within 12 hours of procedure including one with intra procedure hypotension who also required vasopressors. One patient had intra procedure TIA. One patient died three days after stenting due to a cardiac event. None of the patients developed neurological deterioration, acute renal failure, hematomas/pseudoaneurysm formation or hemorrhagic complications. One-year follow up is available on one patient with patent stent and no further neurological event. Conclusion: Our preliminary experience of carotid artery stenting in high surgical risk patients is compatible with currently acceptable results in this group of patients.

### **Mucor Mycosis, Cavernous Sinus Thrombosis And ICA Occlusion: An Infrequent And Fatal Triad.**

Mubashira Hashmi, Feroza Saleem, Naveeduddin Ahmed, Farrukh S.

Khan, Liaquat Ali, Department of Neurology, Liaquat National Hospital, Karachi

**Background:** Rhinocerebral mucormycosis (RCM) is an acute fulminant form of invasive fungal sinusitis occurring principally in individuals who are immunologically or metabolically compromised. Occlusion of internal carotid artery and ischemic stroke secondary to cavernous sinus thrombosis is rarely reported. **Case:** A 60-year-old male, alcoholic, known diabetic presented in our ER with headache and fever for 10 days and left sided weakness for 3 days. His past history was significant for recurrent right ear discharge. On examination, he was febrile and drowsy, had partial ptosis of right eye with right lateral and bilateral upward gaze restriction, blurred margins of right temporal disc, decreased sensation and weakness of left face, arm and leg. MRI brain performed few days prior to current hospital admission, showed multiple sinusitis with normal brain parenchyma and vasculature. He was started on intravenous metronidazole, ceftriaxone and Vancomycin with presumed diagnosis of right internal carotid occlusion secondary to septic thrombosis of bilateral cavernous sinuses. Repeat neuroimaging confirmed clinical diagnosis revealing persistent sinusitis, involvement of right cavernous sinus, intraluminal thrombus in right internal carotid artery, an acute right MCA territory infarct with complete occlusion of right internal carotid artery on MRA. He showed some initial response, however continued to have fever spikes. An ENT consult was taken, ethmoidal and sphenoidal sinuses were drained and tissue was sent for cultures and histopathology. In the mean time he was started on Amphotericin B, which was later on continued as the tissue cultures were consistent with fungal infection, due to mucor mycosis. However he couldn't bear the fatal fungal trauma and died 1 and half months after the initial symptoms. **Conclusion:** The diagnosis of rhinocerebral mucormycosis should be considered in the clinical setting of necrotic sinusitis and acute neurologic deficit in diabetic patients. Early diagnosis and rapid institution of surgical debridement and antifungal therapy is the rule of thumb in treating this deadly disorder.

**Frequency Of Dysphagia In Patients With Stroke At A Tertiary Care Hospital.** S.Noureen, S.Ali, T.Tabish, S.Azam, M.Zuberi, A.Zafar, N. Ahmed, A.Malik, S.A.Asif, F.Saleem, F.S.Khan. Liaquat National Hospital, Karachi, Pakistan

**Objective:** To find out the frequency of Dysphagia after stroke. **Materials and Method:** We retrospectively observed patients presenting with stroke at Liaquat National Hospital, Karachi from July 2007 to August 2007 age range between 42-98 years. Types of stroke were

identified by neuro-imaging (either CT scan or MRI). **Results:** Out of 63 patients 11 (18%) patients were not assessed because of their clinical status. 52 patients (82%) were included in this study. Out of 52 patients 37 patients (71.15%) had infarct while 15 patients (28.84%) had bleed. Out of 52 patients, 19 patients (36.53%) had dysphagia; among these 14 patients (26.9%) having infarct, and five patients (9.6%) having bleed. Remaining 33 patients (63.46%) out of 52 patients had safe swallow. Chances of dysphagia were increased in infarct as compared to bleed in this study. **Conclusion:** 19 stroke patients (36.53%) had dysphagia. Probabilities of dysphagia in infarct are more common as contrast to bleed. The commonest subtype of stroke associated with dysphagia is left middle cerebral artery (MCA) stroke.

**Salvage Decompressive Craniotomy In Malignant MCA Infarcts - Results Of Local Experience At Shifa International Hospital, Islamabad.** Maimoona Siddiqui, Ismail A. Khatri, Inayatullah Khan, Muhammad Nadeem, Shifa International Hospitals Ltd., Islamabad.

**Background:** Malignant infarction of the middle cerebral artery (MCA) is associated with high mortality. Several recent randomized studies have shown that decompressive surgery has decreased this mortality with good functional outcome especially in young people. We report four patients with malignant middle cerebral artery infarction in whom successful life-saving decompressive craniotomy was performed at Shifa International Hospital in Islamabad. **Methods and Subjects:** Prospective, nonrandomized case series from Oct 2007 to Jan 2008. Four adult patients with massive middle cerebral artery infarction with impending herniation or early signs of herniations underwent salvage craniotomy after informed consents from the family. Three of the four patients had craniotomy with duraplasty only, and one patient had craniectomy with removal of part of the infarcted tissue. **Results:** All four patients were males. Mean age was 55.5 years (range 39 - 62 years). All four patients had right middle cerebral artery infarctions. Hypertension was present in three patients, one was diabetic while one patient developed MCA infarct due to traumatic dissection of internal carotid artery. Right temporoparietal craniotomy with duraplasty was performed in all patients in mean time of 63.5 hours (48 - 110 hours) after onset of symptoms. Indications for surgery included worsening CT scan findings in 2 patients, development of Cushing reflex in one patient, and pupillary dilatation ipsilateral to infarct in one patient. Three (75%) patients were discharged to home in awake, alert, conversant, left hemiparetic state. One patient developed status epilepticus after surgery, and was transferred to another facility in intubated, sedated state on family's request.

Three month follow-up is available on two patients with moderate improvement in neurological status. Conclusion: Early craniotomy in malignant MCA infarcts was life saving in all of our patients. Neurosurgical intervention should be considered early in large MCA infarcts, especially in young patients.

**Seizures And Epilepsy After Ischemic Stroke.** Sadaf Chiragh, Adnan Khan. Postgraduate Medical Institute, Lady Reading Hospital Peshawar.

Objective: To evaluate the frequency of seizures and epilepsy after ischemic stroke. Material and methods: The study was conducted on 200 patients with ischemic stroke. The patients were followed up for a total period of 2 years. The study was conducted in the department of Neurology; post graduate Medical Institute, lady reading hospital, Peshawar. The main outcome measures were the occurrence of single or recurrent seizures. The rate of both early i.e within 2 weeks of ischemic insult and late seizures i.e after 2 weeks of ischemic insult was recorded. Patients who already had history of seizures, those with intra cerebral and sub-arachnoid hemorrhage were excluded from the study. Results: 6 patients had early seizures while 10 patients presented with late seizures. 2 patients had both early and late seizures. So, total of 16 patients had post stroke seizures. The rate of early post ischemic stroke epilepsy was 3% while that of late post ischemic seizures was 5% in the first 2 years after CVA. The incidence of seizures was higher in patients with cortical infarcts and elderly patients. Early seizures were mostly generalized tonic clonic seizures while late seizures were mostly partial with secondary generalization. Conclusion: Stroke patients have 8% risk of single or recurrent seizures in the first 2 years after an ischemic stroke.

**Earthquake And Seizures: Experience At A Field Hospital in Bagh, Kashmir.** Ghulam Shabbir, Abdul Malik, Hazim Brohi, Farukh Shahab, Shoukat Ali, Bhojo A Khealani. Aga Khan University Hospital and Liaquat National Hospital, Karachi.

Background: Epilepsy is a common neurologic disorder, manifested by seizures. It affects approximately 1% of world population and is probably more common in developing world. Underlying etiology may be hereditary, brain infections, brain tumors and metabolic derangements. There are some reports of earthquake being trigger for seizures. Recently Northern areas of Pakistan were struck by worst earthquake of Pakistani history. Objectives: To describe the effects of earth seizures (earthquake) on brain seizures (Epilepsy). Materials and Methods: A cross sectional survey

conducted during a one day free medical camp for patients having seizures, at PIMA Field Hospital Bagh Kashmir. All the patients were interviewed and examined by qualified neurologists. Diagnosis of seizure was made on clinical grounds. Demographic, clinical, pharmacologic and neurophysiologic data was recorded and analyzed. Data was analyzed on SPSS version 15.0. Results: Thirty two patients were assessed during the clinic. Seven (22%) were children and 25 (78%) were adults. 25 (78%) were males and 7 (22%) were female. 25 (78%) were known epileptics, 4 (12.6%) having seizures after earthquake without head trauma, 3(9.4%) having seizures after earthquake with head trauma as well as known epileptics. (Before earthquake with head trauma). Seizures were uncontrolled in 20 (62.5%) patients, even prior to earthquake, because of non-compliance to medications. Seizure control worsened in 12 (37 %) patients after the incident, despite being compliant to medications (one of these had head trauma during the earthquake). Conclusion: Our limited data suggest that earthquake worsen seizure control and it may induce new seizures even with out significant head trauma.

**Predictors For Negative Attitude Towards Subjects With Epilepsy.** Asmita Jawaid and Bhojo Khealani. Aga Khan University Hospital, Karachi.

Background: Epilepsy is a common neurologic disorder, affecting approximately 1% of general population. It manifests clinically by seizures which are quite dramatic and frightening. Its effects are myriad, including stigmatization of the disease and negative attitude in general public towards people with epilepsy. Since literacy rate is low in our country so higher proportion of population may have negative attitude towards patients with epilepsy. Objective: To assess the knowledge and attitude regarding epilepsy in population of Karachi and to determine the predictors for negative attitude towards subject with epilepsy. Methods: This is a prospective survey conducted during 2007. Five hundred, conveniently sampled, nonepileptic adults were interviewed, after obtaining an informed consent. The interviews were conducted by paramedic staff and medical students. A personable to write his name and sign was considered to be literate. Negative attitude was defined as objecting to marry, play or study with epileptic person. Data management and statistical analysis was done on SPSS software version 15. Chi square test was employed to determine effect different variables on attitude towards with patients. Results: 500 subjects were interviewed, 54% were male and 46% were female. 46% were of age between 16-25 years, 32% were between 26-35 years, 14% were between 36-45 years and 8% were above 45 years. 4% were illiterate whereas 96% were literate subjects (42% has education of matric or below and 58%

were educated above the matric). 45% were unmarried whereas 55% were married subjects. 40% belonged to low to middle class and 60% to upper class. 56% know someone having epilepsy and 55% saw someone seizing. 11% never heard about epilepsy. 73% thought it is medical problem and rest considered this to be supernatural phenomenon i.e. magic spell, demonic possession or punishment of sin. 26% of the subjects thought this is contagious disease. 35% thought this as a form of insanity. Nearly 36% of the respondents would object to their child marrying an epileptic, 26% would object allowing their kid to play or study kids having epilepsy. Over all 72% of respondents has negative attitude towards epileptics. People with lower socioeconomic status (72 vs. 49%), who know an epileptic (79 vs. 65%), who have seen person seizing (77 vs. 70%) and who have heard about epilepsy (72 vs. 69%) were more likely to have the negative attitude. ( $p < 0.05$ ). No significant effect of gender, age, marital status and educational status was noted. Conclusion: Negative attitude towards epileptics is highly prevalent in our society. Socioeconomic status and exposure to epileptics predict negative attitude.

**Behavior Problems In Children With Epilepsy: The NICH Experience.** Abdul Ghani, Fowzia Siddiqui, Atif Anjum. National Institute for Child Health, Karachi.

Background: Behavior problems are commonly reported in children with epilepsy and there are different schools of thought regarding the cause. No data is available from Pakistan. Some attribute Antiepileptic drugs (AEDs) and some consider it a co morbidity of epilepsy it self. Others consider the social stigma as a contributory factor. We reviewed the different type of behavior problems occurring in children with epilepsy to calculate the incidence of these problems in Pakistan and analyze association with AEDs. Methods: An epilepsy intake form was filled for each epileptic patient which included demographics and detailed seizure semiology, past and current medicines reasons for discontinuation and alternative therapies and investigations. Birth, developmental and scholastic history were noted. Family history and parental consanguinity was also noted. In this paper we reviewed the section of behavioral and psychiatric problems and calculated their incidence. The variables noted included 1. Withdrawn (social isolation) 2. Hyperactive. 3. Anger outbursts, aggression. 4. Depression 5. Head banging/ self mutilation. Results: 84 patients (46%) reported behavior problems. 32 had hyperactivity; 25 aggression and anger outbursts. 19 were withdrawn and socially isolated. 4 had clinical depression and 4 suffered from head banging and self mutilation. The incidence of hyperactivity was highest with children on phenobarbital alone or in combination with carbamazepine and clonazepam followed by

valproate. Isolated and withdrawn behavior was more common in patients with poor seizure control on topiramate and valproate. All patients with head banging and self mutilation were mentally retarded. Conclusion: Behavior problems are common in epileptic children as compared with normal population. Phenobarbital seems positively associated with hyper activity. Poor seizure control and polypharmacy contribute especially to social isolation and withdrawn behavior.

**Frequency And Patterns Of Focal EEG Abnormalities In Children.** Z. Ahmed, A. Akhter, A. Malik, S. Taj, A. Bano, F.S. Khan, K.A. Siddiqui. Department Of Neurology, Liaquat National Hospital, Karachi, Pakistan; Neuroscience Center, King Fahad Medical City, Riyadh, Saudi Arabia.

Background: There are varying patterns of EEG abnormalities in pediatric age group. There are few studies looking at frequency of these abnormalities, in our region. Methods: We retrospectively observed all pediatric EEG data from 2002 to 2006, from our "Pediatric EEG database" age range between 1-14 years. We recorded; reason for referral to the lab, EEG findings, if abnormal; type of abnormality, frequency and patterns of epileptiform discharges. All this information was analyzed by SPSS version 13. Result: There were 3744 EEG's carried over four and a half years, in pediatric age group. 67.5 % (n=2527) were normal and 32.5% (n=1217) were abnormal. Commonest reason for EEG referral was seizures with and without loss of consciousness, 72.5 % (n=883). Of the abnormal EEG's 78.4 % (n=954) had epileptiform discharges. 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, out of that 24.1% of our patients had focal spike and wave discharges. There is a high probability that partial epilepsy is the commonest epilepsy in this age, in our cohort. We feel that our data is different from the series reported in literature where generalized epilepsy is more common in this age group. We also speculate that our cohort has either different genetic make up or its secondary to acquired structural etiology.

**Effect of Hyperventilation on Electroencephalographic Activity.** Azra Zafar, Farrukh Shohab Khan, Musarrat Shaheen. Liaquat National Hospital, Karachi.

Objective: To observe the effect of voluntary

hyperventilation on electroencephalographic activity during routine EEG recording. Design: Observational study. Place and Duration of the Study: Clinical Neurophysiology Services, Department of Neurology, Liaquat National Hospital, Karachi from May 2007 to September 2007. Subjects and Methods: This is a descriptive study. Data of 326 patients was collected prospectively and analyzed by SPSS version 10.0. At least 3 minutes voluntary hyperventilation was performed by the subjects. All those patients who were able to perform voluntary hyperventilation adequately were included in the study. Results: In the 326 recordings 78.8% were normal and 21.2% were abnormal. 8.6% partial onset seizure while 8.3% subjects generalized seizure was identified. Physiological slowing was found in 31 records. Out of 55 epileptics, three had discharges only during HV and nine had increase in epileptiform discharges. Conclusion: HV has significant effect on rhythmical brain activity during EEG recording. (p value: 0.001). It is a useful activation method utilized to increase the yield of EEG. Key words: Electroencephalographic activity, Hyperventilation, epilepsy.

**Prognostic Significance Of Response To Initial Conventional Antiepileptic Drugs In Childhood Epilepsy.** Muhammad Akbar Malik, The Children's Hospital, Lahore.

Background: It is appropriate to accept imperfect seizure control where the risks of the therapy outweigh the benefit as perceived by the patients. Study Design: Prospective clinical observational. Place: The Epilepsy Centre of the Children's Hospital Lahore. Period: From 1st July 2005 to 31st December 2007 (30 months). Objectives: To investigate the response to initial conventional AED and subsequent remission of seizures in newly diagnosed idiopathic and cryptogenic epilepsy. Methods: The 652 epileptic children and adolescents were diagnosed, treated and followed 3monthly, from July 2005 to December 2007 at a single center. Outcomes were classified as type of epilepsy, initial response at 03 months as reduction 75% in seizure severity and frequency and seizure freedom for at least the last year at terminal remission of 2years. Results: Hospital based cohort of 577, 73% idiopathic and 27% cryptogenic epileptic children constituted the study population. At the last follow up visit 65% [53% among initial responders to first conventional antiepileptic drug (AED), 4% among initial responder to an alternate conventional AED and 8% among those being treated with 2 AEDs, among newly diagnosed epileptic patients were in remission for >1year. A higher proportion of cryptogenic patients (61%) had intractable epilepsy as compared to idiopathic patients (26%). Conclusion: Our study suggested that the risk of developing intractable childhood epilepsy may, to some

extent, be predicted at the time of initial diagnosis or shortly thereafter.

**Surgery for Epilepsy.** M Arif Malik, Rawalpindi Medical College, Rawalpindi.

Surgery for epilepsy is advocated in medically intractable seizure. This surgery has promising results with acceptable rate of complications. We are presenting a prototype case of temporal lobe with documented Mesial temporal sclerosis. This patient underwent partial temporal lobectomy with amagdallospectomy in March 2007. She has excellent quality of life postoperatively and is seizures free since then. Criteria for selection of patient and details of surgical procedure will be presented.

**Seizure Types Encountered In The NICH Epilepsy Clinic.** Fowzia Siddiqui, Atif Anjum, Abdul Ghani. National Institute for Child Health, Karachi.

Background: According to a study in JPMA, 1-2% of the population of Pakistan suffers from epilepsy of which more than 60% are children. However no study has been done to see what types of seizures prevail in Pakistani children. We reviewed the type of seizures occurring in the epilepsy clinic at the National Institute of Child Health. (NICH). Method: An epilepsy intake form was filled for each epileptic patient which included demographics and detailed seizure semiology, past and current medicines reasons for discontinuation and alternative therapies and investigations. Birth, developmental and scholastic history were noted. Family history and parental consanguinity was also noted. In addition behavioral and psychiatric problems were included. In this paper we reviewed the different types of seizures that occurred in these children giving us an idea of the prevalence of various seizure types in our region. Results: 419 patients registered in the clinic, in 2007 in 32 OPD days. 214 had some kind of paroxysmal event, of which 183 had epilepsy. Age range: 3months to 16 years. Mean age was 6.5 years. Of these 63 had partial onset seizures and 105 had generalized onset. Of the generalized onset seizures 7 had atonic seizures, 7 were myoclonic, 4 absences with classic 3 Hz spike wave discharges. Lennox Gastaut Syndrome and hysarrythmia on EEG 12 patients. Three children presented with clinical status epilepticus. Conclusion: 34.4% of children had partial onset seizures and 57.3% had generalized seizures. However 11.4 % had catastrophic epilepsies like Lennox gastaut syndrome (6.5%) or progressive myoclonic, and astatic epilepsies. This number is much higher than internationally reported epidemiologic studies, which goes along with the higher incidence of birth asphyxia and peri-natal infections. Other pediatric centers need to be recruited to get a better country wide population sample.

### **Clinical Spectrum Of Pseudoseizures At A Tertiary Care Hospital: A Video EEG Based Study.**

Nadeem A. Memon, Bhojo A. Khealani, mughis, Mustafa K, Fazal K, Raheem J, Shahid A, Nadir A. syed. The Aga Khan University Hospital, Karachi.

Background: Non-epileptic seizures of psychogenic origin (pseudo-seizures) are episodes of altered behavior consisting of motor activity, altered sensation and changes in conscious level in varying combinations. Clinical characteristics of pseudo-seizure may be cultural based. There is no data on clinical characteristics of pseudo-seizures. Objective: To describe the clinical characteristics of pseudo-seizures in a tertiary care hospital in Karachi, Pakistan. Materials and methods: This is a descriptive study. Patients with pseudo-seizures were identified from departmental Video EEG monitoring register, over a period of three years (2004-2006). Their neurophysiologic data was recorded and analyzed. SPSS version 15.0 was used for analysis. The data is presented in mean  $\pm$  sd, median and percentage, as appropriate. Results: A total of 132 patients underwent video EEG during the period and 51 (38%) had pseudo-seizures. Their mean age was  $26.7 \pm 15.3$  years. Thirty two (63%) were female and 19 (37%) were male. Twelve (23.5%) patients were known epileptics. Median recording time was 24 (range; 0.33-55) hours and median number of events was 3 (range; 1-14). Limb movements were most common manifestation (67%) followed by muteness with no response to verbal commands (49%), behavioral symptoms (35.5%), ocular findings i.e. eye blinking and closure (25.5%), depressed conscious level (13.7%), headache (10%) and GI symptoms (10%). Six (11.8%) patients experienced epileptic seizures, in addition to pseudo-seizures.

### **Use Of Antiepileptic Drugs By Physicians Prior To Epilepsy Clinic Visit.**

Fowzia Siddiqui, Atif Anjum, Abdul Ghani. National Institute for Child Health, Karachi.

Background: Epilepsy is a common chronic neurological disorder affecting 1-2% of the general population, and more common in childhood. Only 20-30% seek medical advice. Specialized epilepsy centers in Pakistan are in the evolutionary phases and very few. We felt the need to see how many children presenting to the National Institute of Child Health Epilepsy Clinic, were treated with medication and if so what were the commonly used agents. The purpose of this is to assess the current trend monotherapy vs. polypharmacy, or no therapy; and also need for further education both in the public and medical sector. Methods: An epilepsy intake form was filled for each epileptic patient which included demographics and detailed seizure semiology, past and current medicines reasons for discontinuation and alternative therapies and investigations. Birth, developmental and scholastic history

were noted. Family history and parental consanguinity was also noted. In this paper we reviewed how many children were on medications, and if so on which medications, monotherapy vs. polytherapy. Results: Out of 183 children with epilepsy 80 were on no medications at the time of presentation. 39 on monotherapy, 64 on polytherapy. 15 patients on more than two drugs had daily seizures refractory to medications. Commonly used drugs were Phenobarbital (64, 19 mono), followed by valproate (58, 11 mono) carbamazepine (30, 10 mono), clonazepam (29, 2 mono). Other drugs used included topiramate (9), AZM (8) LTG (8), PHT (6), gabapentin and oxcarbazepine and clobazam one each in combination. Conclusion: 43.7% of children with epilepsy presented on no medications majority due to high cost. The most commonly used AED in children is Phenobarbital, followed by valproate. Only valproate, Phenobarbital and carbamazepine were used in monotherapy. Commonest combination included valproate and clonazepam, Phenobarbital and valproate or carbamazepine. Monotherapy needs to be emphasized to ensure compliance and reduce cost. International guidelines should be followed when initiating AEDs and dose needs to be maximized prior to starting new medication. Public awareness about epilepsy is greatly needed.

### **Headache: A Neurology OPD Experience.**

Dr. Fazal Chaudry, Dr. Nadir Zafar Khan, Dr. Ahmad Ali. Shiekh Zayed Hospital, Lahore.

Aims: To study the headache presentation in the neurology outpatient setting in Sheikh Zayed Hospital, Lahore, Pakistan; in terms of patient demographics, headache characteristics, treatment sought and disability incurred due to the headache. Methods: Data collection on headaches using interviewer aided questionnaire to assess all neurology clinic attendees with presenting complaint of headache. Assessment of disability due to headaches was done using the migraine disability assessment score (MIDAS) questionnaire. Results: Patients with presenting complaint headache accounted for 41 out of the 249 (16.5%) of patients attending the neurology clinic over a 4 week period. The prevalence of the headache presentation was greater in female patients (26 out of the 139 female clinic attendees; 18.7%) compared to the male patients (26 out of the 139 female clinic attendees; 18.7%) compared to the male patients (15 out of the 110 male clinic attendees; 13.6%). Headache was found to be a complaint predominantly of the young, with the highest prevalence in the 21-30 year age group (13 patient, 31.7% of cases). Objectively assessed disability caused by headache was high, with 10 cases (41.7%) falling into the maximum disability group, grade IV on assessment by the MIDAS questionnaire. Subjectively assessed suffering was even higher, with 20



patients (54.1% of those who completed the questionnaire) self allocating an average headache pain score of the maximum value, X. 27, 65.9% of cases had sought medical help before for headaches and 31, 75.65% of cases had received prior treatment for their headaches. 26 (63.4%) of patients also experienced other symptoms with their headaches, including, visual symptoms, nausea, vomiting, dizziness, motor and sensory symptoms. Headache was a very frequent problem for 25 patients (61.0%) in whom headaches occurred daily. Conclusion: Headache is a common problem in the neurology outpatient clinic population causing significant distress and disability, especially in the younger patients who are at the most productive phase of their lives in terms of education and employment. It is therefore important to provide the best available treatment and support for patients with headaches in order to minimize to impact of headache disorders.

**How common are periodic limb movements of sleep in obstructive sleep apnea?** Fazal karim, Mustafa Khan, Rana Babur, Bhojo Khealani. Aga Khan University Hospital, Karachi.

Background: Periodic limb movements of sleep (PLMS) are found in 80% of restless legs syndrome, a common sleep disorder. Recently, it is observed that these movements are common in patients with obstructive sleep apnea (OSA), another common sleep disorder. Objective: Our Objective was to determine frequency of PLMS in OSA patients and to assess whether there is any correlation with OSA severity. Methods: This is a retrospective review of polysomnographic data, gathered at a university teaching hospital, over a period of 5 years (2003-2007). Polysomnographies conducted during the period were reviewed and patients with OSA identified. Limb movements of all these were analyzed and [patients who met American Academy of Sleep Medicine (AASM) criteria for PLMS were included in this study. Statistical analysis performed on SPSS version 15.0. Descriptive data is presented in mean  $\pm$  sd, median and percentages, as appropriate. Indices are reported per hour. Student's t test was employed to assess correlation between OSA and PLMS. Results: Over the period 554 PSGs were performed 415 (75%) has OSA. 49/415 (12%) had PLMS. 75.5% were men and 24.5% were women. Their mean age was  $56.8 \pm 12.56$  years. All patients had these movements during NREM sleep and only 10% had these movements during REM sleep. 33% had history of leg twitching, 73.5% had history of excessive daytime sleepiness, 75.5% had history of breath pauses during sleep and 92% had history of snoring. Of the snorers 92% had loud snoring. Mean periodic limb movement index (PLMI) was  $17.26 \pm 14.9$ , mean arousal index was  $27.8 \pm 16.99$  and mean apnea hypopnea index (AHI) was  $32.63 \pm 19.6$ .

Their mean Epworth sleepiness score (ESS) was  $11.5 \pm 6.12$ . Median total recording time was 6.5 hours and median sleep time was 4.16 hours. Stage I accounted for  $29.9 \pm 14.76\%$ , stage 53.86  $\pm 10.79\%$ , stage III/IV  $7.91 \pm 9.3\%$  and REM sleep  $6.96 \pm 8.1\%$  of total sleep time. Mean PLMI in patients with mild OSA was  $10.1 \pm 3.55$  as compared to  $19.33 \pm 16.28$  in patients with moderate to severe OSA ( $p=0.002$ ). Conclusion: PLMS are not uncommon in obstructive sleep apnea syndrome (OSAS) and these correlate with OSA severity.

**Lumbar puncture: Beliefs and Practice.** Mubashira Hashmi, Mughis Sheerani, Shahid Mustafa, Farrukh S. Khan, Shaista Siddiqi. Department of Neurology, Liaquat National Hospital, Karachi and Department of Neurology, Aga Khan University Hospital, Karachi

Background: Lumbar puncture (LP) has long been known as a key investigation. Some experts have expressed concern that not enough lumbar punctures are being performed, due to fear about the perceived dangers of lumbar puncture and lack of knowledge among the health professionals about its various indications besides meningitis. We carried out a survey to identify the knowledge and practice of the lumbar puncture among those who are most commonly involved with the procedure. Methods: A questionnaire based survey was conducted among the residents and consultants of medicine and neurology in four tertiary care hospitals of Karachi. A result of 185 questionnaires is being presented, analyzed on SPSS 15. The survey is ongoing and is still recruiting responses. Results: A greater proportion of the participants, 144 (78%) believe that LP is indicated in the triad of headache, fever and altered sensorium. Other indications noted were suspected demyelinating lesion in 136 (73%); acute new-onset severe headache in 102 (55%); dementia in 93 (51%); and new-onset epilepsy in 88 (47%). The frequently recognized contraindication was bleeding disorders in 135 (73%) followed by papilloedema in 128 (69%) and local infection in 117 (62%) participants. Only 89 (48%) believe that it is contraindicated in focal neurological deficits; and 46 (25%) in headache. In the opinion of 112 (60%) participants, bed rest decreases the incidence of post-LP-headache (PLPHA), which however has no proven benefit as reported in the randomized trials. Regarding treatment of PLPHA, majority considered only analgesics and hydration (78% and 67% respectively) as the effective therapeutic measures. Most commonly encountered reason for refusal of consent for the procedure was fear of impending paralysis, as mentioned in 124 (67%) of questionnaires. Conclusion: This survey has revealed better knowledge about indications and contraindication of LP among internists and neurologists. Bed rest is still considered as the routine practice to reduce PLPHA. Also

better awareness is needed regarding the treatment options for PLPHA.

### **Neurological manifestations in patients with Falciparum malaria; Frequency and prognostic value.**

Mohammad Wasay, Asif Taqi, Huma Aziz, Iqbal Azam. Aga Khan University Hospital, Karachi.

Background: Neurological manifestations of malaria have been well known but prognostic value of these have not been well studied in previous studies. Objective: To evaluate the prognostic significance of neurological manifestations in Falciparum Malaria. Methods: We did a retrospective data analysis of 454 adult patients with Falciparum Malaria and identified cases with neurological involvement, sepsis and renal failure. Results: 17.5% patients with Falciparum Malaria have neurological manifestations. Common neurological manifestations included altered mental status (100%), headache(20%) and seizure(5.7%). We divided these patients in three groups; cerebral malaria (2.6 %), neurological manifestations with sepsis/ renal failure (3%), neurological manifestations without sepsis/ renal failure (11.9%). Mortality was 33%, 36% and 4% respectively among these groups. Patients without neurological manifestations (82.5%) were divided into two groups. Mortality in patients without neurological manifestations, sepsis or renal failure (80 %) was 1% while it was 16% in patients with sepsis or renal failure without any neurological involvement (2.5%). Conclusion: Neurological manifestations are common in patients with Falciparum Malaria but only a small number of patients fulfill criteria for cerebral malaria. Sepsis and renal failure are strongest predictors of poor outcome if present with neurological manifestations.

### **Principal Causes Of Coma In A Tertiary Care Hospital Of Peshawar.**

Hamzullah Khan, Dr Muhammad Ishaq Khattak, Muhammad Zarif. Department of Medicine, Khyber Medical College/ Khyber Teaching Hospital, Peshawar.

Objectives: To determine the principal causes of coma in a tertiary care hospital of Peshawar. Material and Methods: This descriptive observational study was conducted in department of medicine, Khyber teaching hospital Peshawar, from July 2006 to August 2007. Relevant information's were recorded on a questionnaire prepared in accordance with the objectives of the study. Results: A total of 124 patients with coma, 96(77.41%) males and 28(22.58%) females were included in the study. The age range of patients was from 12 years to 72 year with mean age of 50.5 years. The distribution of principal causes of coma was: cerebrovascular accident (CVA) 61.29%, epilepsy 10.48%, cerebral hematoma 8.8%, trauma head 5.64%, subarchnoide heamorrhage (SAH) 3.22%, hepatic

coma due to hepatic failure 3.41%, central nervous system infections 3.41%, metabolic acidosis, drug abuse each (1.61%) and cerebral malaria, hypoglycemia and uremia each(0.8%). Risk factors of stroke recorded were hypertension 55.26%, diabetes 18.42%, ischemic heart disease 14.47%, smoking 6.57%, hyperlipidemia 3.9% and Atrial fibrillation 1.31%. Scoring patients on Glasgow coma scale, 70.96% scored 1-3, 21.77% scored 4-5, and 7.25% scored 6-8. Conclusion: In our setup CVA is the most common cause of coma followed by epilepsy, cerebral hematoma, trauma, SAH. Other minor causes recorded were metabolic acidosis, drug abuse, central nervous system infections, cerebral malaria, hypoglycemia and uremia. Key word: coma, principal causes, Glasgow coma score, Peshawar.

### **Tumefactive Demyelinating lesions: A Challenge for Neurologists and Neuroradiologists.**

Liaquat Ali, Feroza Saleem, A. Asif, Junaid Ashraf, Farrukh S. Khan, Mubashira Hashmi. Department of Neurology and Neurosurgery, Liaquat National Hospital, Karachi.

Background: Tumefactive demyelinating lesions, mostly misdiagnosed as gliomas and other CNS neoplasms, represent an intermediate lesion between those typically seen with multiple sclerosis and acute disseminated encephalomyelitis. They are usually solitary lesions in middle aged females. We present a case of biopsy proven tumefactive demyelinating lesion in an 11-year- old girl, with multiple lesions on MRI brain. Case: An eleven-year-old female, right-handed, mentally slow (low I.Q), presented in outpatient clinic with complaints of gradual onset of right sided weakness and slurring of speech for two-days, followed by left leg weakness for 1-day. Rest of history including past and family history was unremarkable. On exam she was awake, alert, following commands with severely dysarthric speech, right hemiparesis and left lower limb monoparesis. Hematological workup did not reveal any abnormality. On MRI brain, there were multiple cortical space occupying lesion without any mass effect or vasogenic edema, after contrast administration lesions demonstrated open ring of enhancement, all features characteristic of tumefactive demyelinating lesions. Histopathology confirmed diagnosis of tumefactive demyelinating lesion. She was started on pulse steroids, followed by a taper off course over 2 weeks. She showed marked recovery with only mild deficit and no new symptoms have been reported till now, i.e almost 3 months after initial symptoms. Conclusion: An atypical variant of demyelinating disorders, tumefactive demyelinating lesions are very rarely reported. Recognition of the disorder including its typical radiological characteristics is necessary; to avoid unwarranted investigations and strain to the patients and their families in case of a misdiagnosis of a neoplastic lesion.

### **Pattern Of Neurological Manifestations In Patients**

**Of Megaloblastic Anemia.** Husnain Hashim, Suhail Rao, Muhammad Tariq. Department of Neurology, Pakistan Institute of Medical Sciences, Islamabad.

Introduction: Megaloblastic anemia is very common in patients coming to medical department, Pakistan Institute of Medical Sciences. It is seen in patients of all age groups and in both sexes. Vitamin B 12 and Folic Acid deficiencies are very much common in our social setup. In this study, we have tried to find out the neurological manifestation and its association with B12 and folic acid deficiency. Objective: To analyze the pattern of neurological clinical presentation of megaloblastic anemia in different age group and its relationship with B12 and folic acid deficiency. Material and methods: This study was conducted in Medical and allied Department, Pakistan Institute of Medical Sciences. The patients, who were diagnosed as Megaloblastic Anemia on the bases of bone marrow, were enrolled in this study. All the patients were examined completely including general and systemic examination and their finding were confirmed by senior consultants B 12 and Folic Acid levels were done in all patients. Results: Total 50 patients were included in this study. Out of these 26 (52%) were male and 24(48%) were female. Vitamin B 12 deficiency was observed in 26 patients, folic acid in 12 patients and both B12 and folic acid deficiency was observed in 12 patients. Most common presentation in patients of B12 deficiency was sensory loss, autonomic instability and gait disturbances in addition to classical symptoms of anemia where as patients with folic acid deficiency presented without neuropsychiatric symptoms. Conclusion: It was concluded that CNS manifestations were more prevalent in in patients with B12 deficiency where as folic acid deficiency were mostly associated with classical symptoms of anemia.

### **Benign Intracranial Hypertension: Experience with Lumboperitoneal Shunt.**

Mumtaz Ali and Muhammad Pervez Khan. Department of Neurosurgery, PostGraduate Medical Institute, Lady Reading Hospital, Peshawar.

Benign Intracranial Hypertension also known as the Idiopathic Intracranial Hypertension is a neurological condition characterized by persistently elevated intracranial pressure in the absence of space occupying lesions or infections. The basic pathological nature of the disease is poorly understood. The common belief is that due to some unknown cause the blood brain barrier is affected leading to excessive interstitial fluid flow and increase in the intra parenchymal pressure. This phenomenon is attempted to be compensated for by an increased absorption of the fluid into the ventricles and increased venous efflux. The clinical signs and symptoms

are those of increased intracranial pressure. The common ones include headache, tennitis, nausea, diplopia, visual field defects, pappiloedema and increased cerebrospinal fluid pressure. The original criteria for IIH were described by a Neurosurgeon, Walter Dandy in 1037 and were modified by Smith in 1985 to become the "modified Dandy criteria. Modified Dandy criteria: Signs & symptoms of increased ICP, CSF pressure >25 cmH2O2, normal CSF composition, normal to small ventricles on imaging with no intracranial mass. Investigations include brains imaging, perimetry, CSF analysis and CSF pressure measurements. Treatment modalities include pharmacotherapy, serial CSF tapping and Lumboperitoneal shunts. We have, in the last 3 years, treated 10 patients with lumboperitoneal shunts who were resistant to other modalities of management. The results and other relevant points will be discussed in the conference in details.

### **Microvascular Decompression for Idiopathic Trigeminal Neuralgia: Operative Findings and Complications.**

Muhammad Pervez Khan and Mumtaz Ali, Department of Neurosurgery, Lady Reading Hospital, Peshawar.

Introduction: Trigeminal Neuralgia is one of the most distressing and tormenting craniofacial pain syndromes. The idiopathic or primary type is characterized by its classical pattern. The pain is paroxysmal, lancinating in the distribution of one or more branches of the trigeminal nerve. The disease is caused in almost all cases by a neurovascular conflict resulting in the compression of the fifth cranial nerve. Microvascular decompression is the treatment of choice for almost all cases of idiopathic trigeminal neuralgia. OBJECTIVES: To analyze the operative findings of microvascular decompression for Idiopathic Trigeminal Neuralgia and to evaluate the theory of neurovascular conflict. Also, to assess the perioperative complications of microvascular decompression. Patients And Methods: Study Design: Retrospective descriptive case series study. Sample Size: Eighty six cases of idiopathic trigeminal neuralgia undergoing Microvascular decompression. Settings: Department of Neurosurgery, PGMI, Govt. Lady Reading Hospital, Peshawar. Duration: July, 2003 to November, 2007. Results: will be presented in detail in the conference. Key words: idiopathic trigeminal neuralgia, neurovascular conflict, Microvascular decompression.

### **Identification Of Speech-Language Problems In Normal School-going Children Of Class I.**

T.Tabish, S.Azam, S.Noureen, S.Ali, M.Zuberi, A.Zafar, A.Malik, F.S.Khan. Liaquat National Hospital, Karachi, Pakistan.

**Objectives:** To find out how common speech-language problems in normal school going children of our community. To find out which speech-language problem is the most common in children of our community.

**Introduction:** Speech-language pathology is relatively new and uncultivated field here in Pakistan. Due to this reason, speech and language problems are the most neglected and misunderstood problems in our society. Many children who are enrolled in normal schools are encounter with these problems which is neither understood by teachers and parents nor evaluated by speech-language therapist. This study was designed to find out these problems among normal (who's speech-language problems are not secondary to any disabilities) school going children up to class I.

**Material and Methods:** We prospectively observed all Class I normal children of five schools in eight visits from January 2007 to December 2007 in different vicinities of Karachi, age range between 5-8 years. Children were screened out in this study through informal assessment tools.

**Results:** Total of 328 children were screened during the span of 12 months. Out of these 179 (54.57%) were male and 149 (45.42%) were female. Overall the speech-language problems were identified in 40 (11.76%) children, in which 26 (65%) were male and 14 (35%) were female. Out of 40 children, 39 (98%) had speech problems and 1 (2%) child had language problem. Out of 39 participants, nine (23%) had voice problem, 14 (35.89%) had articulation disorder, and 16 (41%) had fluency problem.

**Conclusion:** We conclude that rate of fluency disorder (stuttering/stammering) is the highest among all the speech-language problems. This data prove that 11.76% of normal (who's speech-language problems are not secondary to any disabilities) children population have some sort of speech-language problems.

#### **Clinical And Investigational Variables For Early Diagnosis Of Tuberculous Meningitis In Children.**

Tipu Sultan, Muhammad Akbar Malik, Malik Muhammad Nazir Khan, Tahir Masood Ahmed. Department of Pediatric Neurology, Children's Hospital and Institute for Child Health, Lahore.

**Objective:** Clinical and investigational variables indicators of early diagnosis suffering from tuberculous meningitis in children. **Design:** Case control prospective study. **Place & duration of study:** Department of Neurology Children's Hospital, Lahore from March 1, 2005 to August 30, 2005. **Subjects & Methods:** Clinical data of 100 patients being treated as TBM (group A) admitted in the Neurology department, and another 100 patients with diagnosis of meningitis, encephalitis or cerebral malaria (group B) were evaluated. History, clinical examination and relevant investigations were evaluated and Kenneth Jones criteria were applied to both groups. All children were followed

and their outcome was also studied. **Results:** Data of 100 patients with TBM and controls was analyzed. Among group A children 26% were less than 2 years of age. Male to female ratio was 1.2:1. Duration of symptoms was more than 1 month in 73 children. 28% children had cranial nerves palsies, 33% children had hemiplegia and 38 children had GCS less than 7 at the time of presentation. Clinically 77% children were in TBM stage III and 22% were in TBM stage II and only one child was in TBM stage I. 56% children had contact to TB patient. Mantoux test was applied in 73 children and only 17 had induration of more than 10 millimeters. Radiological findings of hilar lymphadenopathy were seen in 31% children and seven children had miliary shadowing. Hydrocephalus was seen in 67 Children and 47 children develop basal meningial enhancement. 26 children had brain Tuberculoma. Above 50 ESR was seen in 43 children. Surgical intervention was carried out in 48 children and 4 children developed acute hepatitis during the 2nd week of treatment. Only 9 children lost their lives during the first admission (period varies from 10 day to 38 days) while another 7 children expired subsequently.

**Conclusion:** Tuberculous meningitis remains a serious health threat in developing countries. The variable, natural history and accompanying clinical features of TBM had significant capacity for the early diagnosis and prognosis if applied scientifically. **Key words:** Tuberculous meningitis, Tuberculoma, Meningitis, Encephalitis.

#### **Impact Of BCG Vaccination On Neuroimaging Findings And Outcome In Pediatric CNS Tuberculosis.**

Mahhamd Wasay, Saad Ajmal, Najamuddin, Iqbal Azam, yousaff Husen, Qamaruddin Nizami. Aga Khan University Hospital, Karachi.

**Background:** BCG vaccination is routinely performed in Pakisatn and other Td endemic areas.its impact on spectrum of CNS tuberculosis and outcome is not well known. **Objective:** To identify if BCG vaccination leads to altred spectrum of Neuroimaging finding and outcome in pediatric with CNS tuberculosis. **Methods:** Medical records of patirnt with confirmed CNS tuberculosis {CSF culture positive, 86(80%) and sputurm or nodal culture positive, 22(20%)} were retrospectivel=y rewiewd from 1992-2005 at Aga Khan University,Karachi.Patients were divided in two groups based on BCG vaccination. **Results:** 108patients were included in study (age 1 month -16 years).45(42%) received BCG vaccination.two groups were not different in age (P=0.52), sex (P=0.9) and presence of extracranial TB (P] 0.41). Montoux test was positive in 55% vaccinated and 28% non vaccinated patients (P=0.012). Brain CT ar MRI was done in 90 patients .on CT scan BCG vaccinated patients had more menigeal enhancement (33% versus 19%), hydrocephalus (53% versus 41%) and less tuberculoma (10% versus

17%) but these differences were statistically insignificant. Neuroimaging findings were not different in two groups except non vaccinated patients had more tuberculoma (22% versus 52%,  $P=0.04$ ). The number of anti tuberculous drugs used had duration of treatment was not different in two groups. Complete recovery was observed more frequently in vaccinated group (28% versus 15%) but this difference was not significant. 16% patients were developed hydrocephalus in vaccinated group as compared to 15% in non vaccinated group ( $P=0.368$ ) and 9% died in vaccinated groups as compared to 15% in non vaccinated group ( $P=0.394$ ). Conclusion: BCG vaccinated patients are more likely to have positive Montoux test and less likely to have Tuberculoma on Brain MRI. BCG vaccination did not affect survival on recovery in our patients.

**Successful treatment of Marburg's variant of multiple sclerosis with intravenous immunoglobulin - a case report with neuroimaging.** Javeria Ikram, Ismail A. Khatri, Syed Nayer Mahmud, Arsalan Ahmad. Shifa International Hospitals Ltd., Islamabad.

**Background:** Marburg's variant of multiple sclerosis (MS), also known as acute, fulminating MS is a rare entity and presents with large acute lesions of one or both hemispheres. This severe, sometimes monophasic form of MS can lead to advanced disability or death within a period of weeks to months. We report the case of a patient with Marburg's variant of MS who was successfully treated with intravenous immunoglobulin and returned from comatose state to independent ambulation. **Case Report:** A 33 years old man, hypertensive, who had renal transplant 7 years ago and had recently started treatment for pulmonary tuberculosis, developed new onset seizures. He initially refused neuroimaging and was treated with antiepileptic medications alone. However, few days after initial seizures, he developed recurrent seizures with left hemiparesis. Neuroimaging at that time including CT scan and MRI of brain (to be shown) showed large areas of abnormal signals involving bilateral deep paraventricular and subcortical white matter with peculiar linear enhancement. Cerebrospinal fluid studies were normal. He refused brain biopsy. While in hospital, he developed status epilepticus and was intubated; put on anesthetic doses of anticonvulsants; and started on high dose IV methylprednisolone. He was successfully extubated on day 3. The left hemiparesis resolved. A follow up MRI showed interval resolution of enhancement. Six days after completion of IV methylprednisolone he developed headache, dizziness, diplopia, sleepiness, followed by blindness and subsequently decreased level of consciousness with GCS of 6/15. Another MRI scan showed extensive progression of the demyelinating illness in the posterior regions of brain (to be shown). A repeat

spinal tap showed elevation of proteins. Patient was started on intravenous immunoglobulin and started to respond on day 3. He became fully alert on day 6 and reported return of vision. He was discharged to home in a stable condition while he was ambulatory. **Conclusion:** Intravenous immunoglobulin is probably a good treatment option for acute fulminating MS (Marburg's variant) with potential for excellent recovery and should be considered in rapidly worsening cases of acute demyelinating illness.

**Spectrum Of Neuro Degeneration In Children.** Tipu Sultan, Mahfooz ur Rehman, Malik M. Nazir Khan. Department of Pediatric Neurology, Children's Hospital and Institute for Child Health, Lahore.

**Objective:** To find out the spectrum of diagnosis, clinical presentation and role of neuroimaging in neurodegenerative disorders of childhood. **Design:** Descriptive study. **Place & duration of study:** Department of Neurology Children's Hospital, Lahore from June 1, 2004 to May 31, 2005. **Subjects & Methods:** A total of 1273 patients were admitted in the Neurology department in the said period. Out of them 66 children fulfilled the inclusion criteria. History, clinical examination and relevant investigations were carried out and proformas were filled. **Results:** Male to female ratio was 1.4:1. Age range was one to twelve years. Metachromatic leukodystrophy was the predominant type 14 (21%), followed by 11 cases of adrenoleukodystrophy (16%) and 8 patients with SSPE (12%). 6 children (9.8%) have Wilson Disease. Five cases (7.5%) were diagnosed as Friedrich ataxia, four cases (4%) of lipidosi, 3 case were diagnosed as Gaucher disease (4.5%), and two cases (3%) of each Alexander disease, Hellsborn disease, one case each of multiple sclerosis and ataxia telangiectasia. In six cases final diagnosis could not be made. **Conclusion:** Degenerative brain diseases are not uncommon entity in paediatric population. Commonest presentation is regression of milestones through it may be variable. Presentation is quite variable. Physicians must look into it when dealing with children having regression of milestones to diagnose them earlier. Because of limited diagnostic modalities, brain imaging has significant value. Facilities for enzyme studies should be available at tertiary care hospitals. **Key words:** Neurodegeneration, Gaucher disease, Metachromatic, Adrenoleukodystrophy, Wilson disease, Sub acute sclerosing panencephalitis.

**Does Electroencephalography Help In Early Diagnosis Of Subacute Sclerosing Panencephalitis?** Tipu Sultan, Malik Muhammad Nazir Khan. Department of Paediatric Neurosciences, Institute of Child Health and Children's Hospital, Lahore.

Objective: To find out the role of electroencephalography in the early diagnosis of subacute sclerosing panencephalitis. Design: Cross sectional observational study. Place & duration of study: Department of Neurology Children's Hospital, Lahore from April 15, 2004 to September 15, 2005. Subjects & Methods: Children between the ages of 4 to 18 years (n=29) with myoclonic jerks were admitted in Neurology department. History and clinical examination was carried out and EEG and CSF antimeasles antibodies were performed. Children may have EEG findings consistent with SSPE (EEG abnormalities having burst suppression in high amplitude slow and sharp waves recur at 3-5 second interval on slow background) or other EEG findings like myoclonic epilepsy with normal background, normal EEG etc. CSF of all children was sent for antimeasles antibodies for further confirmation which was considered diagnostic. Brain imaging was done in all children to exclude other possible diagnosis. Results: Total of 19 patients with EEG findings of subacute sclerosing panencephalitis were further confirmed with CSF anti measles antibodies. It was positive in 17 children. (P value < 0.05). While ten children had negative EEG findings and all of them had negative results for CSF antimeasles antibodies. Male to female ratio was 1.4:1 with 11 males and 6 females. Age range was six to fifteen years. Conclusion: Subacute sclerosing panencephalitis is not an uncommon entity in our population with quite variable clinical presentation and electroencephalography has significant value in early, cost effective and reliable diagnosis. Key words: Sub acute sclerosing panencephalitis, Electroencephalography Neurodegeneration, Measles.

**Ataxia-Telangiectasia.** Sabir Ali, Muhammad Tariq, Muhammad Irshad, Rao Suhail, and Mazhar Badshah. Department of Neurology, Pakistan Institute of Medical Sciences, Islamabad

Ataxia-Telangiectasia, sometimes referred to as the Louis-Bar syndrome, combines a progressive ataxia with humoral immune deficiency and telangiectasias. The onset of the disease coincides more or less with the acquisition of walking, which is awkward and unsteady with recurrent falls. CASE 1: 11 years old girl presented with history of difficulty of walking and clumsiness of hands. There is history of recurrent pneumonia. Her siblings are alive and healthy. No history of such illness is present in the family. On examination, she has Telangiectasia in both conjunctivae; pes cavus, cerebellar signs bilateral, planters are mute, and reflexes diminished. CASE 2: 21 years old girl presented with history of difficulty in walking and clumsiness of hands. Her siblings are alive and healthy. On examination, she has telangiectasias in both conjunctivae and pes cavus, wasting of calf and thigh muscles, power is 4/5 in all

limbs, planters are mute, and reflexes diminished. CASE 3: 5 years old boy presented with history of recurrent falls and hyper-activity. His siblings are alive and healthy. No history of such illness is present in the family. On examination, Telangiectasia in both conjunctivae and bilateral cerebellar signs, more on left side, are present. Conclusion: Ataxia-Telangiectasia is a rare syndrome. Our patients have presented with classical features like Telangiectasia and sign of cerebellar lesion.

**Pleomorphic Xanthoastrocytoma: An Atypical Astrocytoma.** Mubashira Hashmi, Liaquat Ali, Naveen Faridi, Junaid Ashraf, Shaista A. Siddiqi, Ahmed Asif. Departments of Neurology and Neurosurgery and Histopathology, Liaquat National Hospital, Karachi.

Background: Pleomorphic xanthoastrocytoma (PXA), a rare primary neoplasm of brain, was originally described by Kepes and colleagues in 1979. It is known for its unique radiological and histopathological characteristics. We report a case of PXA with atypical presentation. who responded well to surgical resection. Case: A thirteen-year-old boy, right handed, with no co-morbid, admitted with one year history of bilateral decreased vision with worsening of symptoms for 2 months. He had normal cognition and behavior. Family history was unremarkable for any similar neurological disorder. On examination, he was awake, alert and well co-operative. Neurological examination revealed bilateral decreased visual acuity, left homonymous hemianopsia and pale discs with bilateral papilloedema. Plain MRI brain showed a large right parieto-temporal cystic mass with gross midline shift and vasogenic edema. Post gadolinium study demonstrated an enhancing mural nodule. Partial resection of tumor was performed. Histopathology and immunohistochemistry was consistent with the diagnosis of pleomorphic xanthoastrocytoma. His field deficit improved soon after surgery. He was doing well till last follow up without any recurrence. Conclusion: A rare entity, with typical radiological and histopathological characteristics, pleomorphic xanthoastrocytoma has a favorable prognosis despite its pleomorphic appearance. Recognition by concerned specialties is necessary for early diagnosis and treatment.

**Determine the Sensitivity and Utility of Clinical Correlation of Tinel's and Phalen's Sign with Electromyography in Carpal Tunnel Syndrome (CTS).** Asiya Bano, Mazhar Mubeen, Sadaf Taj, Erum Saeed, Abdul Malik, Farrukh Shohab Khan. Liaquat National Hospital, Institute of Postgraduate Medical Studies and Health Sciences, Karachi

Background: Carpal Tunnel Syndrome (CTS) or median

neuropathy at the wrist is a medical condition in which the median nerve is compressed at the wrist leading to pain paresthesias and muscle weakness in the hand. Provocative clinical maneuver testing are Tinel's sign and Phalen's sign. Tinel's test is performed by tapping the median nerve along its course in the wrist. A positive test is found when this causes worsening of the tingling in the fingers when the nerve is tapped. Phalen's test is done by pushing the back of your hands together for one minute. This compresses the carpal tunnel and is also positive when it causes the same symptoms you have been experiencing with your carpal tunnel syndrome. Objective: To determine the sensitivity and utility of clinical correlation of Tinel's Sign and Phalen's Sign with electromyography in carpal tunnel syndrome (CTS). Methods: This is a prospective review of 100 selected patients with the mild, moderate or severe CTS. They are all referred for electrodiagnostic evaluation of possible CTS at Liaquat National Hospital and underwent nerve conduction studies and electromyography according to standard protocol. All Subjects were first clinically evaluated by a Neurologist for the Tinel's and Phalen's signs. The sensitivities of clinical maneuvers were then evaluated in relation to electrodiagnostic findings for severity of CTS. Results: Of the 100 subjects, 74 patients were female and 26 were males. Mean age was 42 years (range: 22 - 67 years). 28 patients had an electrodiagnostic finding of mild CTS that means had only sensory abnormality antidromic and orthodromic as well, 31 patients had moderate CTS findings that means abnormal sensory and motor nerve conduction studies and some high broad units in EMG whereas 41 patients had an electrodiagnosis of severe CTS that means abnormal finding of sensory, motor and also various degrees of denervation. 39 patients had unilateral CTS and 61 had bilateral CTS. 44 patients has idiopathic CTS, they were all house wives. 48 patients were computer operators. And 8 patients were labours. Of the 100 subjects with CTS. Positive predictive values for the Tinel's and Phalen's maneuvers were 25% and 40% and negative predictive values were 75% and 60%. Respectively. Conclusion: With increasing electrodiagnostic testing, the sensitivity of all clinical tests tended to improve slightly and the results of our study revealed that the Phalen's maneuver test is relatively more sensitive than Tinnel's maneuver test for diagnosis of patients with CTS.

**Recurrent Guillain Barré Syndrome in a young man - 4 episodes in 19 years with complete recovery - report of an uncommon condition.** Aayesha Qadeer, Noshina Sadaf, Ahsan Ahmad, Ismail A. Khatri. Section of Neurology, Shifa International Hospitals Ltd., Islamabad.

Background: Guillain Barré Syndrome (GBS) is an acute

monophasic demyelinating polyneuropathy, progressing over 1-4 weeks followed by recovery in most patients. About 4 to 7% of the patients relapse after asymptomatic intervals of several months to years. One to four relapses have been reported in literature. Recurrent GBS is indistinguishable clinically, electrophysiologically and morphologically from the more frequently seen non recurrent form of monophasic GBS. Case Report: We report the case of a morbidly obese 32 years old man with recurrent episodes of GBS. The patient presented with first episode of GBS in 1989. He remained ventilated for two months followed by complete recovery at that admission. Immunomodulatory therapy was not offered at that time. Second episode was in 2004 precipitated by a diarrheal illness. He had 2/5 power in all 4 limbs at the time of presentation, and electrophysiologic studies showed early demyelinating predominantly motor neuropathy. He responded to IVIG with complete resolution of symptoms. He was discharged on day 8. In 2005 he developed GBS precipitated by upper respiratory tract infection, and presented with power of 3/5 in upper limbs and 2/5 in lower limbs. He was treated again with IVIG and made full recovery and was discharged on day 6. In the year 2008, he developed GBS after a urinary tract infection. He presented with 1 day history of quadriplegia with strength of 4/5 in upper limbs and proximal lower limbs. The clinical presentation favored recurrent GBS. Neurophysiological studies showed very early features of GBS. He was treated with intravenous immunoglobulins and showed improvement. Conclusion: Our patient so far had total of 4 episodes of GBS over a course of 19 years. Likely because of his previous experiences, he presented earlier than prior episode to the hospital in every recurrence and made complete recovery. Early presentation, and early administration of IVIG decreases the length of stay and increases the chances of complete recovery. None of our patient's clinical or electrophysiological features differentiate his illness from common variety of GBS.

**Sensitivity of Brain Stem Auditory Evoked Potentials (BAEP) in patient's presenting with complaints of Hearing and Language Dysfunction** . M.Wasim, U.Yaqub, S.Taj, M.Mobin, E.Saeed, A.Bano, N.Ahmed, A.Malik, A.Zafar, F.S.Khan, F.Saleem. Liaquat National Hospital, Institute of Postgraduate Medical Studies and Health Sciences, Karachi.

Introduction: Brain Stem Auditory Evoked Potentials (BAEP) studies was first described by Jewett and Williston in 1971. Though despite of introduction of new modalities to investigate patient with neurological dysfunction, over the years BAEP are still good functional device to assess peripheral and central hearing pathways.

Objective: To determine the sensitivity of BAEP in patient presenting with complaints of hearing and language dysfunction. Method: This is a retrospective study. Data of 664 patients over the period of 5 years (2002-2006) was reviewed at our Neurophysiology Laboratory. Data was analyzed on SPSS version 10.0. Result: In our study, out of 664 patients 366(55%) were males and 298(45%) were females. Age ranged from 10 days neonate to 75 yrs of adult. 264(40%) patients had non-recordable bilateral auditory nerves, 109(16%) patients had severe bilateral peripheral and central disease. Bilateral peripheral hearing defect was seen in 177(27%) patient and unilateral peripheral defect of varying severity was seen in 31(5%) patient. The majority of the cases had no etiological factor; however there was history of birth hypoxia in 42(6.3%) patients followed by hereditary hearing defects in 30 (4.5%) patients. 79(12%) were normal cases. Conclusion: BAEP has high sensitivity to localize the hearing peripheral and central defect. It is a good screening test for the patients having language impairment and developmental delay. Key Words: Brain Stem; Hearing; Dysfunction

**Sensory Nerve Action Potential Ratios In Acute Inflammatory Demyelinating Polyneuropathy.** Mairaj Hussain, Ghulam Shabbir, Mustafa Khan, Bhojo A Khealani. Aga Khan University Hospital, Karachi.

Background: The prompt diagnosis of AIDP is needed to initiate early treatment. The relative preservation of sural sensory nerve action potential SNAP is well known in patients with AIDP. There are recent reports that sensory nerve action potentials ratios are useful in differentiating normal subjects from AIDP and axonal neuropathies. Objective: To evaluate the utility of SNAP ratios (sural+radial to median + ulnar ratio) in patients AIDP. Material/ Methods: We retrospectively reviewed neurophysiologic data of consecutive patients with AIDP, diabetic sensorimotor polyneuropathy (DPN) and normal subjects as controls. Patients with unrecordable sensory nerves and pure motor axonal neuropathy and nondiabetic patients were excluded. SPSS version 15.0 was used for analysis. One way ANOVA analysis was performed to assess difference between three groups, in terms of sensory ratios. RESULTS: 23 Patient of AIDP, 20 patients of DPN and 22 normal subjects were included. The sensory ratio was  $1.27 \pm 0.88$  in patients with AIDP,  $0.69 \pm 0.4$  in patients with DPN and  $0.94 \pm 0.66$  in normal subjects ( $p=0.008$ ). Post hoc analysis revealed a significant difference between AIDP and DPN as well as between AIDP and normal subjects. Conclusion: Sensory ratio is a useful tool to differentiate between different neuropathies like AIDP, DPN and normal subjects.

### **Frequency Of Blink Reflex Abnormality In Chronic Inflammatory Demyelinating Polyneuropathy (CIDP).**

Ahmed Meraj Syed, Ghulam Shabbir, Mustafa Khan, Bhojo A. Khealani. The Aga Khan University, Karachi.

Background: Patients with CIDP in frequently develop cranial neuropathy. The blink reflex is a polysynaptic reflex involving brain stem as the center. 5th and 7th cranial nerves constitute afferent and efferent path respectively. Frequency of subclinical involvement of cranial nerves may not be that uncommon. Objective: To evaluate the frequency of blink reflex abnormalities in patients with CIDP. Methods: This is a retrospective review of electrophysiologic data of patients with CIDP over a period of two years. The diagnosis was based on the AANEM criteria. There neurophysiologic data for blink reflex (R1/R2 ipsilateral / contralateral) latencies and facial nerves latencies were compared to the normative values of the clinical neurophysiology laboratory at our institution. Data was analyzed on SPSS version 15.0 and described in percentages. Results: A total of 23 patients identified. 16 (69%) were male and 7(31%) were females. Fourteen (61%) had abnormal blink reflex study. Most common abnormality was prolonged R1 & R2 latencies in 14 (60.8%). In addition to blink reflex abnormality, 11 had prolonged latency of direct facial CMAP. Nine patients had absolutely normal study. Conclusion: Blink reflex and direct facial motor nerve study abnormalities suggest that cranial neuropathy is common in CIDP.

**An Analysis Of Patients With Primary Headache At A Tertiary Care Hospital.** Abdul Malik, Azra Zafar, Shaukat Ali, Tahseen Haider, Farrukh Shohab Khan. Liaquat National Hospital, Karachi, Jinnah Postgraduate Medical Center, Karachi.

Background: Headache is one of the most common reasons for neurological consultation. The estimated life time prevalence of any headache approaches 90% in men and 95% in women. Headache has been classified into primary and secondary headache disorders. The four categories of primary headache include migraine, tension type headache, cluster headache and trigeminal autonomic cephalgias, and other primary headaches. As primary headache is a common health care problem and there is not enough data on types of primary headache in our population, therefore, we have designed this study with the aim to identify different types of primary headache and their characteristics. Objective: To identify different types of primary headache and to describe demographic characteristics as age and sex. Methods: This is a prospective, observational study, carried out at a tertiary care hospital over the period of 1 year. Data was analyzed by spss version 15.0. Result: Total of 1071 patients with diagnosis of primary headache was included



in the study. 720(67.2%) were female and 351(32.8%) were male. 82% were between 15 - 49 years of age group. Migraine was the commonest type of headache, seen in 744(69.5%) patients followed by tension type headache, seen in 318(29.7%). Other types of headache as cluster headache and paroxysmal hemicrania continua were very uncommon. Among patients with migraine, migraine without aura was the commonest subtype. Conclusion: Primary headaches are more frequent in females as compared to males. Migraine is the commonest type of primary headache followed by tension type headache. Further epidemiological studies are needed to identify the characteristics of headaches in our population. Key Words: Migraine, Tension Type Headache, Primary Headaches

### **A Picture Is Worth A Thousand Words: Miliary Tuberculosis of the Brain - A Case Report With Neuroimaging.**

Ayesha N. Vohra, Ismail A. Khatri, Aamer N. Ahmad, Mahmud Shah, Atif Rana. Shifa International Hospitals Ltd., Islamabad.

Background: Miliary tuberculosis is a severe form of Mycobacterium tuberculosis (TB) infection in which the host immunological response is insufficient and disseminated disease occurs which accounts for 3-7% of all reported cases of tuberculosis. Tuberculosis involves CNS in the form of tuberculous meningitis and tuberculomas. Pulmonary miliary tuberculosis with intracranial tuberculomas is rarely encountered even in endemic areas. We report a case of CNS tuberculosis with tuberculomas appearing as miliary tuberculosis. Case Report: A 59-years old man presented with episodic loss of consciousness. He had fever associated with nausea and vomiting for 2 months. The day prior to presentation, he had an episode of vomiting followed by unconsciousness for an hour. Earlier in the course of disease he had 3 episodes of loss of consciousness with spontaneous recovery for which no medical attention was sought. He also had several episodes of vomiting and involuntary jerky movements of the body. His past history was significant for diabetes mellitus, miliary pulmonary tuberculosis and was taking antituberculosis therapy with poor compliance. His examination revealed a GCS of 6/15, quadriparesis with brisk reflexes and up going plantars. Signs of meningeal irritation were equivocal. Rest of the systemic examination was unremarkable except for mild basal crepitations bilaterally in the lungs. His magnetic resonance imaging (to be shown) showed countless, small (<2 mm), widespread, enhancing lesions, appearing like miliary lesions seen in pulmonary tuberculosis. His chest X-ray also showed evidence of miliary TB (to be shown). He was treated for CNS tuberculosis with epilepsy. Conclusion: Miliary tubercles are not limited to lungs, and can be seen with CNS tuberculosis.

### **Early Denervation In Patients With Axonal Variant Of GBS.** Shahid Ali Khan, Ghulam Shabbir, Mustafa Khan, Bhojo A Khealani. Aga Khan University Hospital, Karachi.

Background: GBS is an important cause of acute neuropathy. It is well reported that recovery of axonal GBS is bimodal i.e. rapid recovery like the demyelinating variant and slow recovery. Denervating potentials on needle EMG are hallmark of axonal damage. However, this is time dependant phenomenon. The regeneration of axon depends upon length of axon to be regenerated. Shorter distance will require shorter time similarly denervation also appear early in this situation. Objective: To determine early denervation in axonal GBS. Material/ Methods: We retrospectively reviewed the clinical and neuphysiological data of GBS patients over a period of three years. GBS patients were classified according to established neurophysiologic criteria. Results: Forty two patients were included, 25 were males and 17 females. Thirteen (30%) had axonal GBS and 10 of these underwent Electrodiagnostic study (NCS/EMG) within 14 days and 3 after 14 days. 3/10 (33%) of patients in whom EMG was done early had denervation while all three in the study was conducted after 14 days had denervation. Conclusion: Denervation can be seen early in axonal GBS. Further large studies are required to establish whether this finding has relation to good outcome in axonal variant of GBS.

### **Knowledge, Attitude And Perceptions About Tetanus And Rabies; A Population Based Survey From Karachi, Pakistan.** Abdul Malik, Mohammad Wasay, Adnan Yousuf, Rajesh Chawla, Haroon Daniel, M Rafay, Iqbal Azam. Liaquat National Hospital and Aga Khan University, Karachi.

Background: Tetanus and rabies are associated with substantial mortality in Pakistan. Both diseases are vaccine preventable and both vaccines and post exposure prophylaxis is available in Pakistan. The level of public awareness about the preventable and treatable aspect of these diseases and public perceptions and attitudes toward vaccination and post exposure prophylaxis are important factors in planning for intervention. Objective: To evaluate public knowledge regarding predisposing factors, fatality and prevention of tetanus and Rabies and attitudes toward vaccination and post exposure prophylaxis for these diseases. Methods: Population based survey of adult subjects in all 18 towns of Karachi by Cluster random sampling. Results: 1201 people participated in study (65% males). Age range was 18-86 years (Mean 32 years). 75% respondents were educated 10th grade or higher. 18 % respondents had read about Tetanus and 39% about rabies during last one year. 46% reported an injury or wound in last one year. Only 35% of these received a Tetanus injection. 90% people were

aware that tetanus germs are found in dust or rusty iron and minor injury or wound can cause tetanus. 85% people did not know that tetanus could be a fatal disease. 76% respondents did not know that tetanus could affect and kill newborns. 59% did not know that tetanus injections during pregnancy could prevent tetanus in newborn. After knowing fatality and preventability of tetanus 87% were willing to take tetanus vaccine. 77% were willing to pay money to get the vaccine. 20% reported dog bite to themselves or one of their family members during last one year. None of them developed Rabies. 11% of those getting dog bites received some kind of vaccine or post exposure prophylaxis. Only 45% knew that dog bite could cause rabies. 55% did not know that Rabies is a fatal illness. 40% people will go to district or city hospital in case of a dog bite. After knowing fatality and preventability of Rabies 85% were willing to take rabies vaccine or post exposure prophylaxis. 79% were willing to pay money to get the vaccine or post exposure prophylaxis. Conclusion: Minor injuries and dog bites are common in Karachi. Only a small proportion of these patients received post exposure vaccine or post exposure immunoglobulin. Majority of people did not know that both diseases could be fatal. More than 85% people were willing to take the vaccine or post exposure prophylaxis.

**Miller Fisher Syndrome Or Bickerstaff Encephalitis - Case Of A Young Girl Who Returned From Her Deathbed To Go To School.** Noshina Sadaf, Ismail A. Khatri. Section of Neurology, Shifa International Hospitals Ltd., Islamabad.

Background: Miller Fisher syndrome and Bickerstaff encephalitis are immune mediated neurological disorder with several overlaps. Recent literature has linked both of these to a common autoantibody Anti-GQ1b IgG. We report the case of a young girl who presented with an overlap syndrome, developed locked-in syndrome, and then returned to near normal status. Due to inability to get anti GQ1b IgG antibodies tested, we could not confirm immunological diagnosis. Case Report: We report the case of a 9 year old girl, student of class III, who presented with 5 day history of diarrhea and vomiting, 2 day history of excess salivation, and 1 day history of inability to walk, altered mentation, swallowing and breathing difficulty. Her initial examination showed that she was febrile, confused, had left facial weakness, her oral cavity was full of secretions, and had hypotonic quadriparesis, and absent reflexes. She had a respiratory arrest in emergency room and was resuscitated in 15 minutes. A CT scan of head was normal, an initial spinal tap was normal. She was started on broad spectrum antibiotics and antivirals. She made an initial recovery, however, in an attempt to get MRI, she coded and became comatose with GCS of 3. She lost all brainstem reflexes except slight preservation of doll's eye movements. An

EEG showed moderately severe encephalopathy. She was given empiric intravenous immunoglobulin considering this as a variant of Guillain-Barré syndrome (GBS). A follow-up spinal tap on day 6 showed slight increase in proteins. She developed early signs of neurological recovery with eye blink on day 9 and subsequently evolved into locked-in state on day 15. She remained in locked-in-state for next several days and finally made gradual recovery. She was discharged to home on day 86 of admission and returned to school on day 150. Conclusion: Miller Fisher syndrome and Bickerstaff encephalitis are uncommon immune mediated neurological illnesses with limited literature. Our patient is unusual in the sense that she went into coma with GCS of 3/15, then developed locked-in-state and finally made a recovery to the point that she is currently going to school, wearing ankle-foot-orthosis in one leg, and performing well in her studies.

**Intra-Arterial Thrombolysis With Reteplase In Acute Stroke In A Pakistani Center - Report Of A Near Complete Recovery In A Densely Hemiplegic Man.**

Afifa Kulsoom, Ismail A. Khatri, Atif Rana, Shifa International Hospitals Ltd., Islamabad.

Background: Early presentation plays a key role in advanced management of acute ischemic stroke. Intravenous alteplase (rtPA), the only approved medication for the treatment of acute ischemic stroke is not routinely available in Pakistan. Intra-arterial thrombolysis is an alternative. We report a case of a young man who was treated with intra-arterial reteplase and made a remarkable neurological recovery. Case Report: A 43 year old man, smoker, with no other significant co-morbid conditions, developed sudden left hemiplegia and decreased alertness one hour prior to presentation. On arrival to emergency room he was lethargic, had right gaze preference, complete left hemineglect, mild dysarthria, only minimal extension response in left arm and flexion withdrawal in left leg. His NIHSS score at that time was 17. A CT scan of head without contrast showed no evidence of hemorrhage (to be shown). An immediate cerebral angiogram was performed which showed occlusion at the bifurcation of intracranial right internal carotid artery (ICA). Thrombolysis was done initially with 1 unit, and subsequently with 0.5 unit increments of reteplase. Selective angiography was done 5 to 10 minutes after administration of every dose of reteplase. Gradual recanalization of right anterior cerebral artery (ACA), and several branches of right middle cerebral artery (MCA) was seen (to be shown). Patient made gradual neurological recovery. His NIHSS score was 11 at 24 hours, 7 at 48 hours, and 2 at 3 months follow-up. An MRI scan of brain obtained on 2nd day showed a small infarct in right basal ganglia and right mid parietal region (to be shown). Conclusion: Near complete neurological

recovery is possible with intra-arterial thrombolysis in acute ischemic stroke enabling patient to have a normal life again. We believe this is the first report of such case of IA thrombolysis with reteplase in Pakistan.

**Cerebrovascular Accident: Risk Factors And Prognosis - A Hospital Based Study).** Hamzullah Khan, Muhammad Zarif. Khyber Medical College, Peshawar.

Objective: To determine the risk factors and prognosis of stroke in a tertiary care hospital of Peshawar. Design: Descriptive observational study. Place of Duration: Medical department, Khyber teaching hospital Peshawar from June 2005 to august 2006. Material and methods: A questionnaire was prepared in accordance with the objectives of the study. Questionnaire contained detailed history, General physical examination, and neurological examination. Prognosis of the disease was studied with the help of Glasgow coma scale (severity of unconsciousness) scoring system. Results: One hundred and eighty-three patients with established diagnosis of stroke were selected. Forty-seven (25.68%) had more than one risk factors. The age range of the patients was from 31-92 years with mean age of 57 years. Out of total 111960.65%) were males and 72(39.34%) were females. The distribution of risk factors was: hypertension 95(51.91%), diabetes 56(30.60%), hyperlipidemia 21(11.47%), smoking 23(12.56%), ischemic heart diseases 21(11.47%), atrial fibrillation 5(2.73%), obesity 5(2.73%), physical inactivity 2(1.09%), history of heparin or warfarine 2(1.09%) and history of oral contraceptives 1(0.54%). The prognosis of the disease based on Glasgow coma scale scoring system (severity of unconsciousness) was studied only in 122(66.66%) patients. Out of 122 patients 42.62% had score more than ten, 35.24% scored between 6-10 and 22.13% had score less than five. Conclusion: Hypertension, diabetes, hyperlipidemia and smoking are major modifiable risk factors of stroke in our patients. Of total patients in whom GCS scoring war recorded, 42% had unsatisfactory Glasgow coma scale score, which indicates poor prognosis. Keywords: stroke, risk factors, loss of consciousness of stroke, Peshawar.

**Comparison Of Thalamic Haemorrhage With Basal Ganglia Haemorrhage: Clinical Profile And Predictors Of In-Hospital Mortality.** Husnain Hashim, Rao Suhail, Muhammad Tariq. Department of Neurology. Pakistan Institute of Medical Sciences, Islamabad.

Introduction: Most studies of primary intracerebral hemorrhages are focused on the global assessment of patients with hemorrhagic stroke independent of the different topography of lesions . It has recently been shown that the clinical spectrum, prognosis and early

mortality of patients with primary intracerebral haemorrhage are reasonably dependent on the site of bleeding. Thalamic haemorrhages and basal ganglia-internal capsule haemorrhages are a group of supratentorial cerebral haemorrhages of subcortical topography, with clinical characteristics that are clearly different from those of the remaining cases of lobar or brainstem haemorrhages. Objective: To describe the etiological, clinical and prognostic characteristics of patients with thalamic haemorrhage as compared with that of patients with internal capsule-basal ganglia haemorrhage and to identify predictors of in-hospital mortality in patients with thalamic haemorrhage. Material and methods: This is a retrospective observational study that was conducted in the department of Neurology, PIMS. Data was collected from hospital statistical department. Patients were classified as having thalamic bleeding or basal ganglia hemorrhage on the bases of imaging studies. Results: Final results of the study will be available after the completion of analysis. Conclusion: Final conclusion of this study will be available after completion of results.

**Chronic Progressive External Ophthalmoplegia - A Rare But Interesting Neurological Entity.** Zeb un Nissa, Afshan Ali, Muhammad Tariq. Department of Neurology, Pakistan Institute of Medical Sciences, Islamabad

Background: Chronic progressive external ophthalmoplegia (CPEO) combined with ptosis is a common manifestation of mitochondrial disease. Mitochondrial disorders are unlike the nuclear genetic mutations in that they present in complex overlapping relationships. We report a case of progressive external ophthalmoplegia with sensorineural deafness and myopathy. Case Report: A 38 years old male, laborer by profession with 12 years history of progressive drooping of eyelids, and inability to move eyes was admitted with complains of difficulty lifting heavy objects above shoulders for 3 months. He also had history of decreased hearing for 3 years, and intermittent headaches. His examination revealed bilateral external ophthalmoplegia and ptosis, left optic atrophy and wasting of facial and proximal limbs muscles. His strength was 4/5 in proximal limbs and 5/5 distally. Deep tendon reflexes and sensory examination was normal. Plantars were flexors. His diagnostic evaluation showed raised serum lactate levels, audiometry showed sensorineural deafness. Muscle biopsy was performed (results to be shown). Conclusion: Our patient has some of the clinical features of Kearns-Sayre syndrome, which is a rare form of chronic external ophthalmoplegia related to mitochondrial dysfunction. Muscle biopsy is a useful tool in the diagnosis of CPEO in absence of genetic studies.

### **Radial Nerve Repetitive Stimulation In Myasthenia**

**Gravis.** Erum Saeed, Azra Zafar, Asiya Bano, Musarat Shaheen, Farrukh S. Khan, Syed Ahmed Asif. Liaquat National Hospital, Institute Of Postgraduate Medical Studies And Health Sciences, Karachi.

**Background:** The technique of repeated supramaximal stimulation of a nerve while recording M waves from muscle innervated by the nerve. Activation procedures performed prior to the test should be specified. The technique is commonly used to assess the integrity of neuromuscular transmission. **Objective:** To assess the utility of radial nerve repetitive stimulation in Myasthenia Gravis patients. **Methods:** 15 consecutive patients presenting to the Clinical Neurophysiology Services at Liaquat National Hospital with clinical suspicion of Myasthenia Gravis were studied prospectively. All patients underwent NCS repetitive nerve stimulation and EMG according to standard protocol, additionally radial nerve stimulation recording from Extensor Indicis Propius (EIP) was done as well. This is an on going study. **Results:** A total of 15 patients were identified, 08 patients were male and 07 were female. Mean age was 48 years (range: 20 - 60 years). Of the 15 subjects 06 (40%) had abnormal decrement response. It revealed an abnormal decrement found at 20% in radial nerve, 13% in ulnar nerve, 33% in facial & accessory nerves. **Conclusion:** Radial nerve repetitive stimulation is one of reliable technique used in evaluation of patients with Myasthenia Gravis. Further more it is more sensitive than ulnar repetitive nerve stimulation, which is one of routinely studies nerve during the nerve conduction studies.

### **The Clinical Spectrum Of Post-Stroke Seizures.**

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**Introduction:** Stroke and epilepsy are the two most prevalent neurological disorders. Stroke is the second leading cause of death and is a well recognized cause of symptomatic epilepsy in adults. The incidence of seizures after stroke has been reported in a varying range from 2 % to 67 %. Few regional studies have dealt with this entity 7, 9; however, no local work has been done to evaluate the characteristics of post stroke seizures and its effect on the morbidity and mortality of the patients. **Methods:** We conducted a cross-sectional, hospital-based, observational study on all adult patients (above 14 years) admitted with the diagnosis of post-stroke seizures from March 2007 to date and is still recruiting patients. Data of fifty patients is presented. **Results:** There were 28 (56%) males and 22 (44%) females with the mean age of  $56.86 \pm 15.26$  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 seen 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 neuroimaging. Of ischemic strokes, 36 (72%) had an arterial infarct; venous infarct was 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 stroke, hypertension and dyslipidemia. **Conclusion:** Post-stroke seizures are more common in males, in patients with history of hypertension, and with cortical ischemic strokes. Onset within two weeks, multiple episodes and generalized type were frequently encountered seizure characteristics. Positive history of old stroke, IHD, hypertension and dyslipidemia showed a strong relationship with the occurrence of late onset seizures. Venous infarcts were chiefly associated with seizures at presentation.