

---

**ABSTRACTS**  
18<sup>TH</sup> ANNUAL MEETING  
PAKISTAN SOCIETY FOR NEUROLOGY  
APRIL 2-3, 2011  
ISLAMABAD, PAKISTAN

**Cheiralgia paresthetica - A case report.** Erum Saeed, Asiya Bano, Muhammad Wasim, Sadaf Taj, Naveed Uddin Ahmed. Clinical Neurophysiology Services, Department of Neurology, Liaquat National Hospital and Institute of Post graduate Medical studies and Health Science, Karachi.

Cheiralgia paresthetica is an entrapment neuropathy of the superficial radial sensory branch of the radial nerve in the distal forearm. The symptoms include numbness, tingling, burning or pain. The area typically affected is the back or side of the hand at the base of the thumb, near the anatomical snuff box, but may extend up to back of the thumb, index, middle and ring fingers and across the back of the hand. There is no motor weakness. Tight fitting bands, hand cuffs, watch straps or bracelets may result in compression. We describe the case report of a 32 years old male who was tied up with ropes by dacoits when they attempted burglary in his house. He reported to our neurophysiology lab 1 week later with numbness, tingling of right dorsum of thumb and index fingers and dorsum of right hand since 4-5 days. He did not report any weakness of the hand and there were no symptoms on the left side. Nerve conduction studies: Motor nerve conduction studies revealed bilaterally normal radial, median and ulnar latencies, CMAP amplitudes, conduction velocities and F-wave latencies. Sensory nerve conduction studies revealed bilateral normal median and ulnar peak latencies, SNAP amplitudes and conduction velocities. Left radial sensory nerve showed normal peak latency, SNAP amplitude and conduction velocity while right radial sensory nerve showed prolongation of peak latency with low SNAP amplitude and slow conduction velocity. EMG of right abductor pollicis longus, extensor indicis proprius, abductor pollicis brevis and first dorsal interosseous muscles was normal. Entrapment of the superficial sensory branch of the radial nerve in the forearm is a rare entity. It is important to recognize this entity so that the modality of treatment appropriate to the underlying pathophysiology of the injury can be instituted. Also, early recognition of the syndrome reduces the necessity for surgery.

**Can We Give Thrombolytic Therapy In Acute Thrombotic Stroke In Our Setup?** (Time to replace stroke with Brain Attack). Ahsan Numan, Muhammad Abubakar. Department of Neurology, Services Institute of Medical Sciences & Services Hospital, Lahore.

Intravenous recombinant tissue plasminogen activator (rtPA) is dynamic modality for acute thrombotic stroke.

The biggest hurdle for administering intravenous rtPA is time - the narrow window of opportunity is within 3 hours after stroke. Presentation >3 hours after symptom onset continues to be a primary cause of exclusion from thrombolytic therapy and will be a problem in areas new to this therapy. There are multiple factors responsible for this delay. Here we are only concerned with the pre-hospital delay that is defined as the time from symptom onset until the earliest documented time in the Emergency Department (ED). This prospective study was conducted on 100 patients in Department of Neurology, SIMS & SHL. The time of presentation is divided into 4 segments - within 6 hours of stroke onset, within 6-12 hours of stroke onset, within 12-24 hours of stroke onset and more than 24 hours of stroke onset with diagnosis of cerebral infarction. There were 58 males and 42 females with age range of 27 to 83 years and average was 56 years. Right sided weakness was seen in 61 and left sided in 39. Only 7 patients presented within 6 hours, 19 within 6-12 hours, 47 within 12-24 hours and 27 more than 24 hours. A very little percentage of patients with cerebral infarction landed in ED within 6 hours of stroke onset. Because early presentation is a prerequisite for thrombolysis for acute ischemic stroke we recommend to start educational programs that increase public awareness of the need to seek medical help promptly after stroke and word stroke should be replaced with brain attack and measures to improve the traffic sense should also be undertaken.

**Awake encephalopathy with psychosis – Could it be anti NMDA receptor encephalitis?** Abeera Khan, Ismail A. Khatri, Maimoona Siddiqui, Arsalan Ahmad. Division of Neurology, Shifa International Hospital, Islamabad.

**Background:** Anti N-methyl-D-aspartate (NMDA) receptor encephalitis is newly recognized encephalitis associated with anti-NMDAR antibodies. It is a distinct disorder characterized by 5 stages; the prodromal phase, psychotic, unresponsive, hyperkinetic, and gradual recovery phase. We report the case of a young woman who presented with awake encephalopathy and psychotic symptoms, and was treated with IVIG. Due to inability to get anti-NMDAR antibodies tested, we could not confirm immunological diagnosis. **Case Report:** A 22 year old previously healthy young woman, university student presented with headache for 7 days, one episode of seizure 3 days prior to presentation, followed by irritable behavior and confused irrelevant talk. She had one episode of urinary incontinence two

hours after arrival in ER. She had a history of sore throat 10 days ago which was treated with oral antibiotics. On examination, she was confused, disoriented in time and place, and was talking irrelevant. Her rest of the neurological examination was non-focal, there were no signs of meningeal irritation. She was initially suspected to have viral encephalitis and was treated on those lines. MRI brain and MRV were unremarkable. Spinal tap showed 20 white cells (90% lymphocytes), with normal protein and glucose. EEG showed moderately diffuse encephalopathy. On day 3 of admission, she developed fever with involuntary movements of all limbs, spitting and mumbling. She would intermittently scream and shout. She developed acyclovir induced acute renal failure that resolved after discontinuing acyclovir. A repeat spinal tap revealed increase in cell count to 100 with 85 % lymphocytes. Anti-tuberculous therapy was started, but her condition deteriorated and had decrease in responsiveness. At this time, she developed left lung collapse and was electively intubated. She was on ventilatory support for 7 days with spontaneous eye opening. Her clinical condition suggested possibility of anti-NMDAR encephalitis, therefore, she was started on IVIG and a CT scan of abdomen and pelvis was obtained that was unremarkable. She showed gradual recovery and was discharged on day 27 of admission. On follow-up clinic visit, she was awake, alert, interactive but confused. Overall cognitive responses had improved; however, she has developed hyper-religiosity. Conclusion: The hallmark of this patient's presentation was encephalopathy without loss of consciousness and psychotic behavior. In young women with acute alert encephalopathy and psychotic behavior, anti-NMDAR encephalitis should be considered. The antibody testing should be made available in Pakistan.

**Spectrum of neuromuscular disorders and importance of neurophysiologic testing.** Naveed ul Asar, Tipu Sultan, Zia ur rahman.

Objectives: 1) To correlate the clinical diagnosis of neuromuscular disorders with biochemistry and neurophysiologic testing. 2) To find the percentage of patients suffering from neuromuscular disorders in order of frequency. Study type: observational cohort. Place and duration: department of neurology the children's hospital lahore, from september 1st 2009 to december 31st 2010. Subject and methods: children between the ages of 6 months to 18 years (no= 289) who presented with signs and symptoms of lower motor neuron disease were selected among the 27965 patients who visited the neurology levels and

emg & ncs were obtained. Results: the clinical diagnosis of 289 children were reviewed and compared with the results of muscle enzyme levels and emg and ncs findings. Conclusion: early neurophysiologic evaluation helps in the better management of neuromuscular disorder. It should be performed as an extension of clinical examination. General practitioners should be sensitized about the usefulness of this modality. Establishment of neuromuscular clinic is the need of the hour for early diagnosis, management plan and genetic counseling.

**'Spectrum of Involuntary Movements in a Tertiary Care Hospital'.** Kh. Ahmad Furqan Waheed. Department of Neurology, King Edward Medical University/Mayo hospital, Lahore.

The movement disorders are neurological conditions that affect the speed, fluency, quality and ease of movement. The main purpose of study was to assess the distribution of various 'movement disorders' with respect to three demographic factors (age, gender & type of movement disorder). The selected cases were placed in one of the following three main types of movement disorders:- a) Hyperkinetic movement disorders like Choreatic disorders, Dystonias and Tremors; b) Hypokinetic movement disorders like Parkinsonian syndromes; c) Miscellaneous group comprising of a combination of hyperkinesia and hypokinesia like Wilsonian disorder. Sixty five patients (n=65) with the clinical diagnosis of a movement disorder were included in the study. (a) In hyperkinetic movement disorder group (n=28), on the basis of age of presentation, mean age (in years) of the patients suffering from this disorder was 31. Minimum age being 10 while maximum age was 74. On the basis of gender, out of 3 cases of adult chorea, 2 (66.7%) were male & only 1 (33.33%) was female. Out of 5 cases of childhood chorea (all were diagnosed as Sydenham's chorea), 2 (40%) were male and 3 (60%) were females. Out of 6 cases of focal dystonia, 5 (83.3%) were males and only 1 (16.7%) was female. Generalized dystonia had same gender frequency i.e. out of 4 cases, 2 (50%) were reported male and 2 female. Only 2 cases (50%) of HD; one male and one in female; were seen. 2 cases (100%) of Hemiballismus were seen in female gender. (b) In hypokinetic movement disorder group (n=11), mean age (in years) of the patients suffering from this disorder was 47. Minimum age was 40 while maximum was 65. On the basis of gender, out of total 9 cases of Parkinson's disease, 6 (66.7%) cases were male while 3 (33.3%) were females. Out of 2 cases of MSA, 2 (100%) were male and no such case

was reported in female gender. (c) In miscellaneous movement disorder group (n=26), mean age (in years) of the patients suffering from this disorder was 17.69. Minimum age of the patient in this group was 11 while maximum age was 25. In 'Combined Data Analysis' all the three demographic factors (age; sex and type of movement disorder) were applied to all the three groups / types of movement disorders simultaneously. On the basis of age, mean age (in years) of the patients included in the study sample (not assigned to any specific group / type of movement disorder) comes to 28.58. Minimum calculated age of the patients in the study sample comes to 10 while maximum age stands at 74. On the basis of gender, 40 out of the total 65 cases i.e. 40/65 (61.53%) patients were male and 25 out of 65 (38.46%) cases were females. On the basis of type of movement disorder, out of a total of 65 cases, 28 cases (43.1%) showed hyperkinetic movement disorder; 11 cases (16.9%) exhibited hypokinetic movement disorder and 26 cases (40%) of Wilson disease (miscellaneous group) were picked up. On the basis of combined data analysis with respect to gender & type of disorder, 40 out of 65 males exhibited a movement disorder. Out of a total sample of 65 cases, 15 males (23%) and 13 females (20%) showed hyperkinetic movement disorder; 8 males (12.30%) and 3 female (4.61%) cases showed hypokinetic movement disorder; 17 males (26.1%) and 9 females (13.8%) were diagnosed as of Wilson disease.

**Functional Outcomes, Residual Disability and Recurrent Vascular Events in Pakistani Stroke Survivors.** Maria Khan. ICT-CRT Fellow, Aga Khan University, Karachi, Pakistan.

**Background and Purpose:** Stroke is fast emerging as a huge health burden in the developing world. A recent report by the World Bank quotes an alarmingly high percentage of non communicable diseases in Pakistan of which cardiovascular diseases including stroke top the list. Little data exists on the functional, cognitive and psychological outcomes of stroke survivors from this region. Also the rate of recurrent vascular events in this population is unknown. **Methods:** Men and women aged 18 years or older discharged from a tertiary care centre with the diagnosis of stroke were contacted via telephone within 1-12 months of their event. Patients or their caretakers were questioned regarding post stroke complications and functional, cognitive and psychological outcomes using standardized scales. Relatives of patients who had died after discharge were questioned regarding the circumstances of death using a validated verbal autopsy questionnaire. Data regard-

ing their risk factors and stroke subtype was collected from the medical records once telephonic interview was done. **Results:** A total of 466 stroke patients were identified from the hospital medical records. Of these 309 patients could be contacted and gave consent for the interview. The mean age of these patients was 61 years and 62% were males. 79% of the contacted patients had ischemic strokes and the rest were intracranial hemorrhages. 38 patients (12.3%) had died after discharge, mostly from recurrent vascular events (79%). Pain was the commonest complication seen post stroke reported by 41% of the patients. 56 % had good functional outcome defined as mRS of 2 or less. 50% had Barthel Index score above 90. Severe dementia was found in 13%. Hypertension was the commonest risk factor present in 93% of the interviewed patients. **Conclusion:** Mortality rates following strokes are fairly high in this part of the world. Most patients die of either recurrent vascular events or of post stroke complications. The functional and psychological outcomes are also poor and more than half of the patients do not return to normal life after a CVA. Measures need to be taken to prevent complications leading to high morbidity and mortality and to improve outcomes in these patients.

**Transcranial Doppler(TCD) techniques and normative data for Pakistani population: A Review study.** Mustafa Khan, Nasir Khan, Muhammad Adeel, Tahira Beenish, Soniya Riaz, Darshan Lal, Bhojo Khelani, Ayesha Kamal. Clinical Neurophysiology; Department of Medicine, The Aga Khan University, Karachi, Pakistan.

**Objective:** To collect the normative data for local population for Transcranial Doppler technique and to describe the normal flow velocities of major arteries at the base of the brain for Pakistani population; A hospital based review study. **Background:** Transcranial Doppler (TCD) is a noninvasive ultrasonic technique that measures local blood flow velocity and direction in the proximal portions of large intracranial arteries and show even very small flow volumes (1 x 1 mm). Low frequency (2-2.5 MHz) and very focused transducers are used in transcranial color Doppler. It requires the use of some acoustic windows like some thin portions of the skull bone or some natural skull foramina. TCD is operator dependent and requires training and experience to perform and interpret results. TCD is performed by technologists, sonographers, and physicians and is interpreted by neurologists and other specialists. **Material and methods:** The temporal, the orbital and the sub occipital are the main acoustic windows

acoustic windows used for transcranial color Doppler studies. Equipment used was DWL – EZ – DOP 202. We use phased-array transducers (2MHz & 4MHz). We select 25 normal subjects of different age groups (18 – 60 years), Mean age was 35 years. All subjects were gone through preliminary medical evaluation for fitness for job at the Aga Khan university Hospital, Karachi. All subjects were screened for HTN, IHD or any other history for stroke etc. Patients were in supine position during testing. Temporal, ophthalmic and sub-occipital windows were used. Data collected for MCA, ACA, ICA, Ophthalmic, Vertebral and Basilar arteries for its peak systolic velocities, mean velocities, PI, and depths. Results: Normative value At AKU:

Segment	Mean Velocity	Peak. Systolic Velocity	End Diastolic Velocity	PI	Depth
MCA	45 - 68	60 - 107	31 - 56	0.69 - 1.11	33 - 60
ACA	28 - 65	60 - 101	25 - 52	0.81 - 1.93	63 - 80
ICA	30 - 60	57 - 75	28 - 51	0.60 - 1.20	62 - 75
Vertebral	29 - 57	38 - 70	25 - 45	0.63 - 1.22	50 - 65
Basilar	26 - 68	43 - 70	24 - 54	0.59 - 1.32	70 - 95
OA	16 - 30	57 - 90	15 - 25	1.28 - 3.12	41 - 55

Conclusion: The normative data for Pakistani population is very much comparable with the international normative data. In general, TCD is most useful when the clinical question pertains to certain segments of large intracranial vessels. However, in some settings, TCD can detect indirect effects such as abnormal waveform characteristics suggestive of proximal hemodynamic or distal obstructive lesions. It is portable, non invasive and less expensive but very useful investigation.

**Landau - Kleffner syndrome (LKS): A rare disorder but worth to be recognized early – An updated study.** Darshan Lal, Mustafa Khan, Rahim Jan, Manzoor A Shah, Syed Ahmed Imran, Darshan Lal, Shehnaz Ibrahim, Khalid Ahmed, Bhojo Khelani, Saad Shafqat. Clinical Neurophysiology, Department of medicine and Department of pediatrics, Aga Khan University, Karachi, Pakistan.

Objective: To see incidence of Landau Kleffner syndrome in patients presented at tertiary care hospital who were misdiagnosed as focal epilepsy. Methodology: All patients who referred to CNP lab

between the age 3-9 years for BAEP as a part of evaluation of aphasia were interviewed and those who had history of seizures in addition to the primary symptom underwent a complementary EEG in addition to BAEP. Similarly all the patients who were referred to CNP lab for EEG as a part of evaluation of seizures were interviewed and those who had history of aphasia in addition to the seizures underwent complementary BAEP in addition to EEG. The patient who had normal BAEP and abnormal EEG from both the groups were then followed up. They were seen by pediatric neurologists and had MRI brain to exclude structural lesions. Results: A total 80 ( 62 male, 18 female) patients were selected. 58 ( 44 male, 14 female) out of 80 were initially came for BAEP and 22( 18 male, 4 female) were initially came for EEG test. 8( all male) patients out of 58 were diagnosed as LKS where as 4 ( 3 male, 1 female) out of 22 patients were diagnosed as LKS. EEG showed focal temporal epileptiform activity with Normal BERA. MRI of all diagnosed patients was Normal. Conclusion: LKS is a rare disorder but it is important to recognize as commonly used antiepileptic medications worsen the seizures associated with this syndrome and its prognosis if also different from other seizure disorders including temporal lobe epilepsy Vigilant observation towards CNP procedures, history and neurological examination will help physician in diagnosing syndromes like Landau Kleffner, which are there but rarely picked up in Pakistani population.

**Stem Cells in the management of spinal cord injury and its Relevance to Pakistan.** Farooq A Rathore, Department of Rehabilitation Medicine, Combined Military Hospital, Panoaqil Cantt, 65130 Sindh, Pakistan.

Objectives: To present an overview of the latest trends in the use of stem cells for the repair of the injured spinal cord and its relevance to Pakistan. Materials and methods: A literature search (1960-2010) was carried out on Pubmed, Science direct, Springerlink, Ovid and Google scholar using Spinal cord injury, stem cells, advances, management, paraplegia, quadriplegia as the Key words. Only English language articles were retrieved and analyzed. Because the purpose of this work was essentially descriptive, no attempt was made to weight the quality of the articles that were identified. The literature comprised case reports, case series, clinical experience, original research articles, expert opinion, and literature reviews. Results: Spinal cord injury is a devastating neurological injury with little chances of full recovery, especially in complete lesions.

Attempts to enhance recovery after spinal cord injury by stem cell transplant are a promising technique widely used in the animal models. Stem cells have been widely used in the animal models of spinal cord injury. There is evidence for some degree of recovery from spinal-cord injury in animals after experimental cell transplantation alone, or in combination with other agents. However there are important differences between the animal and human spinal cord which should be considered before reaching a conclusion. Conclusion: Although the exact mechanisms are not fully known a large number of spinal cord injury patients have already received transplants of stem cells and other cell types. A rigorous scientific analysis failed to demonstrate any benefit of stem cell transplant in human spinal cords in terms of improved functional outcome. Despite the resources spent on stem cell transplant in SCI, a comprehensive multidisciplinary rehabilitation remains the only intervention that can help patient regain functional independence and optimal community reintegration. In developing countries where financial resources are a major consideration and stem cells transplant is a distant dream, SCI rehab should be promoted as a cost effective and workable alternative.

**Myasthenia gravis: A Comparison of Clinical Presentation and Diagnostic Tests among different gender groups in Pakistani population.** Muhammad Azhar Saeed, Muhammad Amjad and Muhammad Tariq.

**Objective:** To study the clinical presentation and diagnostic tests utilized for the confirmation of Myasthenia Gravis (MG) in different gender groups. **Study design:** Cross Sectional Study. **Place and Duration of Study:** This study was conducted at Fauji Foundation Hospital, Rawalpindi and Pakistan Myasthenic Welfare Organization, Islamabad, from Feb 2008 to Jan 2010 **Patients and Methods:** A total of 64 patient having at least one diagnostic test positive for MG, were selected on purposive, non probability group basis, All those were excluded that lack pharmacological response, laboratory or electro-diagnostic result, in favor of MG. Comparison was made between two groups (male and female). Different diagnostic modalities utilized for the confirmation of MG were analyzed. **Results:** There were 32 patients in each group. Mean age at onset of MG was  $24.78 \pm 9.09$  and  $33.56 \pm 12.05$  in female and male group respectively ( $p=0.002$ ). Most of the patients (79.69%) had onset before 40 yrs of age and out of these 58.82% were females. Major clinical presentation includes ocular symptoms in 90.62% &

84.37% followed by easy fatigability in 81.25% & 71.87%, bulbar weakness in 46.87% & 56.25% and proximal limb weakness in 32.25% & 24.19% in female and male patients, respectively. Investigations utilized for confirmation of MG are Anti AChR antibody (87.1%), Repetitive Nerve Stimulation (69.35%) & Neostigmine test (20.97%). Thymic hyperplasia was found in 90% and 22% of thymectomy samples in female and male respectively. Conclusion: The clinical presentation of MG in both gender were comparable. Most of the patients had onset before 40 yrs of age and thymic hyperplasia was more common in this group. Commonly utilized investigations include AChR antibody, RNS & Neostigmine test.

**Pre- and Post Radiotherapy Predictors of Functional Outcome and Survival in Metastatic spinal cord compression.** Mutahir Ali Tunio, Assistant Professor Radiation Oncology, Sindh Institute of Urology & Transplantation (SIUT)-74200 Karachi, Pakistan.

**Background:** Metastatic spinal cord compression (MSCC) patients have poor prognosis. Several predictors including, type of malignancy, duration of symptoms, performance status, other sites of bone and visceral metastases have been reported. We evaluated the pre and post radiotherapy predictors of motor dysfunction recovery and on survival in MSCC in patients with urologic malignancies. **Materials and methods:** From July 2006 to April 2009, forty seven patients were treated for MSCC. Descriptive statistics (type of malignancy, performance status, age, sex, duration of symptoms prior to radiotherapy (RT), different fractionation of RT, and other sites of metastases) were evaluated. Further multivariate analysis (Cox-proportional hazard model/Bonferroni method) was performed and Kaplan Meier survival curves were obtained using SPSS version 17.0. **Results:** The actuarial survival rate of study population was 55% at five months, 30 % at 10 months and 5% at 15 months. According to histology, overall survival rates seen were 13, 15, 16, and 17 months for bladder, prostate, kidney and others (germ cell and ureteric) respectively. Complete responders were 100% in ambulatory patients as compared to non ambulatory (12% complete responders)  $p < 0.0001$ . Complete responders were found to have better survival (8.5 months vs. 4 months in minimal/non-responders  $p < 0.001$ ). However pretreatment ambulation, duration of symptoms, RT protocol, age, gender were not found as predictors of survival. Conclusion: Urologic malignancies are considered as aggressive. The ambulation and duration of symptoms at onset of RT are important

prognostic factors like other malignancies at time of radiotherapy for predicting motor dysfunction recovery and survival benefit.

**Familial Neuromuscular Junction (NMJ) disorders – Not always due to congenital myasthenic syndrome.** Muhammad Athar Javed. King Edward Medical University, Lahore.

Retrospective analysis of clinical and laboratory features in 13 cases from 5 families presenting with neuromuscular junctions disorder seen between July 2006 and February 2011. Five cases from two families had evidence of autoimmune myasthenia gravis and 8 cases from three families had congenital myasthenic syndrome. The mean age of onset in autoimmune MG was 38 years with M:F ratio of 3:2. The mean age of onset in congenital myasthenic syndrome was 2 years with range from 9 months of age till 7 years. The mean age at the time of diagnosis was 13 years with a range from 4 – 24 years. The male to female ratio was 1:3. Clinical features were similar in all cases with bilateral ptosis and proximal muscle weakness and evidence of diurnal variation and exercise induced worsening of weakness. However ophthalmoplegia was more common in congenital myasthenic syndrome. All patients showed more than 15% decrement response to repetitive nerve stimulation. Acetylcholine receptor (ACh) antibodies were positive in autoimmune myasthenia gravis. Response to neostigmine test was more in autoimmune MG and partial in congenital myasthenic syndrome. We conclude that autoimmune myasthenia gravis may rarely present with a family history but have later age onset, positive ACh receptor antibodies and better response to neostigmine tests.

**Miller Fisher Syndrome: An atypical presentation.** Haris Majid, M Tariq, M Irshad, Mazhar Badshah, Rao Sohail Y Khan. Department of Neurology, Pakistan Institute of Medical Sciences, Islamabad.

**Introduction:** Guillain-Barré syndrome (GBS) historically considered to be a single disorder, is now known to be a heterogeneous syndrome with several variant forms. In addition to the classical demyelinating form, axonal and other forms are also recognized. Miller Fisher syndrome (MFS) constitutes 5 percent of all cases of GBS. Patients with MFS typically present with external ophthalmoplegia, ataxia and areflexia. CSF and electrophysiologic features are similar to those in AIDP. **Case Report:** A 31 years old male presented with 5 days history of numbness in hands and feet and 3 days history of inability to walk and drooping of right

eye lid. He associated his inability to walk to severe difficulty in maintaining balance. There was no fluctuation in the symptoms during the day and no associated history of fever, headache, drowsiness or visual disturbances. On examination he had normal higher mental functions, right eye ptosis with normal size and reactivity and no fatigability was noted. Eye movements were normal. He also had left facial weakness of lower motor neuron type and rest of the cranial nerves were intact. His power was reduced, 4/5 in all four limbs with absent reflexes and markedly impaired coordination, intention and postural tremors; and ataxia. Gait could not be assessed as he was unable to walk because of severe ataxia. Sensations were intact. In his workup his MRI brain and Tensilon test were unremarkable, whereas Nerve conduction studies revealed Demyelinating pattern. CSF showed protein cell dissociation. He was diagnosed as a case Miller Fisher Syndrome and managed with plasmapheresis. His ataxia improved markedly with treatment. **Conclusion:** This case represents an unusual presentation of Miller Fischer syndrome with ptosis, facial weakness, severe ataxia and areflexia in the absence of ophthalmoplegia.

**Utility and sensitivity of Sleep Deprived EEG in a Tertiary Care Hospital.** Asiya Bano, Musarrat, Erum Saeed, Naveed Udeen Ahmed. Clinical Neurophysiology Services and Neurology Department, Liaquat National Hospital, Institute of Postgraduate Medical studies and Health Sciences, Karachi.

**Background:** Routine EEG is an important diagnostic tool for epilepsy. International data suggests that a routine EEG has a diagnostic sensitivity of 50%. Sleep deprived EEG is a more powerful activator of epileptiform activity. **Objective:** Objective of this study is to determine the utility and sensitivity of sleep deprived EEG in routine use in diagnosis of seizure disorder. **Methods:** This is a retrospective review of 200 consecutive and during the last 06 years who were referred to tertiary care hospital with the clinical question of seizure disorder. All EEGs were digitally performed according to standard protocol of 10-20 electrode placements with 12 -14 hours sleep deprivation along with at least 1 ½ hour recording duration. All EEG were interpreted by neurophysiologist and neurologist. **Results:** A total of 200 charts were reviewed. There were a total of 135 females and 65 males. The age ranged between 8-60 years. The seizure types included GTCS, focal seizure, myoclonic and other type of seizures. Out of a total of 200 studies, 125 (62.5%) were abnormal and 75 (37.5%) were normal. Focal

temporal spikes was the commonest abnormality seen in 55 (44%) out of 125 abnormal studies with a history of focal seizures. Generalized poly spikes was the second commonest abnormality seen in 40 (32%) out of 125 abnormal studies that came with a history of myoclonic seizure. Generalized spike and wave discharges were seen in 30 (24%) out of 125 abnormal studies that came with the history of generalized tonic clonic seizures. Conclusion: Our data suggest that the sleep deprived EEG is a more sensitive tool in diagnosis of epilepsy, especially temporal lobe epilepsy.

**Frequency of autonomic dysfunction in guillain barre syndrome.** Eman Abdus Sami, Mohammad Tariq, Mohammad Irshad, Mazhar Badshah, Sohail Rao.

**Introduction:** Guillain Barre Syndrome is the most common cause of acute or sub acute paralysis in practice. The rate of incidence has varied between 0.4 and 1.7 cases per 100,000 persons per year. Disturbances of autonomic function occur in 66.7% of cases. Sinus tachycardia, bradycardia, arrhythmias, hypertension, orthostatic hypotension and syncope can cause severe life threatening manifestations. The diagnosis is made on Electrophysiological studies and Cerebrospinal Fluid Analysis. Treatment modalities include Plasmapheresis, immunoglobulins and supportive care. **Objective:** To determine the frequency of Autonomic Dysfunction in patients presenting with Guillain-Barre Syndrome. **Study design:** Cross-sectional study. **Place of study:** This study was carried out on patients of department of Neurology, Pakistan Institute of Medical Sciences (PIMS), Islamabad, affiliated with Quaid-e-Azam Post Graduate Medical College (QPGMC), Islamabad. **Methods:** All patients diagnosed as GBS presenting in the department of neurology, PIMS from September 2010 till February 2011 were included in this study. Patients with history of Diabetes, chronic renal failure, hereditary neuropathies and toxin exposure were excluded. After informed written consent, detailed history and neurological examination of all patients was done. GBS was diagnosed on clinical basis and Nerve Conduction Studies were performed on each patient. Pulse, Blood Pressure and Electrocardiogram of the patients was taken and questions regarding other symptoms of autonomic dysfunction were asked. The data was entered on a standardized Performa. Then I calculated the frequency of autonomic dysfunction in the patients. Data was entered and analyzed using SPSS version 17. **Results:** A total of 63 patients presenting with GBS were included in this study. 37 patients (58.7%) were

males and 26 (41.2%) were females. Symptoms and signs of Autonomic Dysfunction were found in 30 (47.6%) patients. Out of the 30 patients, 12.6% (n=8) had urinary complaints, 12.6% (n=8) had vasomotor instability, 3.2% (n=2) had abnormal papillary response, 22.2% (n=14) had heart rate abnormalities and 11.1% (n=7) had postural hypotension. Demyelinating type of polyneuropathy was found in 19% (n=12) of patients, while the axonal form was found in 42.8% (n=27) patients and 38% (n=24) had feature of both demyelinating and axonal forms. Conclusion: Autonomic Dysfunction is a common complication of GBS. For proper management of the patient consideration of Autonomic Dysfunction is important.

**Parkinson's disease dementia – are we seeing increased frequency in Pakistan?** Nilofer M. Khan, Arsalan Ahmad, Ismail A. Khatri, Maimoona Siddiqui, Nadia Mehboob, Sasha Kamal. Division of Neurology, Shifa International Hospital and Shifa College of Medicine, Islamabad, Pakistan.

**Objective:** To determine the epidemiology, risk factors, and frequency of different types of dementia by establishing a registry of dementia patients in Islamabad, Pakistan. **Background:** The number of people with dementia in Asia is expected to double every 20 years and by 2050 Asia will have the largest population of dementia patients in the world. We have established the first dementia registry in Pakistan and present some of the results of the first 66 patients. **Methods:** All patients with dementia were included in the registry if they or their next of kin consented. The enrolment started in October 2010 and all patients enrolled from October 1, 2010 to February 20, 2011 were included for analysis. Demographic and clinical data was recorded, including history and examination, pertinent investigations and findings of certain cognitive assessment tests. The classification of dementia was done by treating neurologist. Most diagnoses were made on clinical grounds. Data were analyzed using SPSS version 16. **Results:** Out of 66 patients, 28 (42%) were diagnosed with Alzheimer's disease or mixed Alzheimer's and vascular dementia; whereas 23 (35%) were diagnosed with Parkinson disease dementia (PDD), or related disorders. The mean age in PDD group was 70 years (range - 54-99). Out of the 23 patients 70% were males and 30% were females. 70% were married and 30% widowed. Educational background showed that 35% were graduates or postgraduates. Co-morbid conditions included hypertension (48%), and diabetes (35%), prior stroke (13%). The mean MMSE score was 20 in this group. Head

imaging was done in 65% patients. Most patients (82%) were prescribed dementia specific medications. Conclusion: The initial results of our cohort show a higher frequency of Parkinson disease dementia, and related disorders compared to published literature. This likely is due to selection bias; or possibly small number of patients in the registry so far. Larger similar studies are needed to better understand dementia in Pakistan.

**Frequency of newly diagnosed diabetes mellitus in acute stroke patients.** Fatima Zahra, Saera Suhail Kidwai, Shaista Siddiqui, Rashid M Khan. Jinnah Medical and Dental College Hospital, Karachi, Pakistan.

**Objective:** To determine the frequency of newly diagnosed diabetes mellitus in acute ischemic stroke patients. **Methodology:** This was a prospective study with convenient sampling done from June 2007 to June 2008. We included all adult patients (age >30 years, both genders) with the diagnosis of acute ischemic strokes admitted in the medical units of Jinnah Post Graduate Medical Centre. Patients who were known to have diabetes mellitus prior to stroke, had a non-lacunar stroke or were admitted to intensive care units for any reason were excluded. Detailed history and examination was done on each patient. Fasting blood sugar, fasting lipid profile and electrocardiogram were done on every patient along with a non-enhanced CT scan brain. Data was entered on a preformed proforma. The results were analyzed on SPSS version 10. Chi-square test was applied. P-value <0.05 was considered to be statistically significant. **Results:** A total of 250 patients were enrolled. The male: female ratio was 1: 0.9. Mean age was observed as 60.9±10.1 years. In total, 50(20%) new cases of diabetes mellitus were identified. Average fasting blood sugar in diabetic subjects was 148±10 mg/dl. The most common risk factors in the newly diagnosed diabetic subjects were hypertension 26 (52%), smoking 18 (36%) and hyperlipidemia 14(28%). Atrial fibrillation and myocardial infarction were seen in 12(24%) and 9(18%) subjects respectively (p -value < .05) as compared to non-diabetic patients. **Conclusions:** Stroke patients represent an enriched population for undiagnosed diabetes. Therefore, it is advisable to screen every stroke patient for diabetes to reduce their long-term morbidity and mortality.

**Orthostatic Tremor: A case report.** Farwa Ali. Medical student, Aga Khan University, Karachi, Pakistan.

**Introduction:** Primary orthostatic tremor or shaky leg syndrome is a rare movement disorder. Clinically described as unsteadiness and tremulousness of lower limbs present only on standing still and associated with a 14-16 Hz burst on EMG. To the best of our knowledge this is the first case of OT described in the Pakistani patient population. **Case presentation:** We describe the medical history, neurological examination and investigations of a 65 year old female presenting with typical features of primary orthostatic tremor. Her condition has been slowly progressive and medically intractable. **Discussion:** A review of pertinent literature, done via a Pub med and Medline search and subsequent comparison with the described case is also presented. **Conclusion:** Primary orthostatic tremor is an important cause functional impairment. Awareness about primary orthostatic tremor among local physicians as an important cause of functional impairment would facilitate diagnosis, pharmacological management and protect patients from undue over medication.

**Neuro degeneration in children: Developing country perspectives.** Tipu Sultan, Naveed ul Asar, Ashfa Ameer Khan. Department of Pediatric Neurosciences, Institute of Child Health and Children Hospital, Lahore, Pakistan.

**Objective:** To find out the spectrum of neurodegenerative disorders of childhood, its diagnosis and role of pediatrician in the management. **Design:** Descriptive study. **Place & duration of study:** Department of Neurology Children's Hospital, Lahore from June 1, 2005 to May 31, 2009. **Subjects & Methods:** A total of 7273 patients were admitted in the Neurology department with the diagnosis of DBD. **Results:** Male to female ratio was 1.4:1. Age range was one to fifteen years. Majority of children presents at quite late. Metachromatic leukodystrophy was the predominant type (21%) followed by adrenoleukodystrophy (16%), SSPE (12%), Wilson Disease 10%, Alexander disease 3%, Hellervordenspatz disease 2% and canavans leukodystrophy in 1.5%. **Conclusion:** Degenerative brain diseases are quite common entity in paediatric population. Commonest presentation is regression of milestones with variable mode of presentation. Pediatricians and General Physicians must look into it when dealing with children having regression of milestones to diagnose them earlier. As in majority of patients there is yet no curative therapy available, so role of palliative care is very important. Collaboration should be established between the regional institutes to establish facilities for enzyme assays and gene detection.

**Neurofibromatosis Type-II: A Rare Neurocutaneous Syndrome.** Tipu Sultan, Ashfa Ameer Khan, Nadeem Malik, Nazir Malik. Department of Child Neurology, Department of Child Radiology and Department of Neurosurgery, Institute of child health, Children Hospital, Lahore.

Neurofibromatosis type-II accounts only 10% of all neurofibromatosis cases with estimated annual incidence of one in fifty thousand live births. We present a child with headache, progressively decreasing vision and hearing. His neurological examination is suggestive of upper motor neuron findings. We perform MRI of brain which shows bilateral acoustic neuromas. He was referred for surgery and post op course was fine.

**Myotonia congenital.** Dr. Tipu sultan, Dr Naveed ul Asar. Department of child Neurology, Institute of child Health, Children Hospital, Lahore.

Myotonia congenita is a rare channelopathy and carries a good prognosis. Myotonia is defined as slow relaxation of skeletal muscle after voluntary contractions created by a slow tonic response to mechanical or electrical stimuli. Two cases of young sibling are presented with difficulty in gait and motor activities. Both had typical hypertrophied body musculature. These children presented with difficulty in gait and muscle hypertrophy, they are likely to be labeled as Duchene muscular dystrophy. Myotonia congenita has a separate pathology which is primarily a chloride channelopathy. EMG was diagnostic.

**Morquio's syndrome: A case report.** Najam Younas Butt, M Tariq, M Irshad, Mazhar Badshah, Rao Sohail Y Khan, Yasir Mehmood. Department of Neurology, PIMS.

**Background:** Morquio's syndrome (Mucopolysaccharidosis type IV) is an autosomal recessive disorder characterized by skeletal deformities including short stature, pectus carinatum, kyphosis, odontoid hypoplasia, genu valgus and other features of coarse facial features, corneal clouding, hepatomegaly and aortic valve disease. **Case Report:** An 18 years old male presented with history of progressive weakness of all four limbs for 3 years, with background of having short stature. He was delivered normally, achieved milestones timely, having normal intelligence and puberty. On general examination a short statured male with coarse facial features, proportionately short limbs, pectus carinatum and hyperextensible joints. Neurologically he had generalized hypotonia and floppy limbs

with generalized hyperreflexia and bilateral Babinski's positive. Sensations were normal. MRI cervical spine revealed odontoid hypoplasia with atlantoaxial subluxation causing cervical cord compression. Skeletal survey showed characteristic changes including diffuse osteopenia, flattening of vertebrae, odontoid hypoplasia, irregular epiphysis and loss of femoral heads. **Conclusion:** This case represents a rare entity i.e Morquio's syndrome presenting with neurologic manifestation of cervical cord compression.

**Maternal and fetal complications in pregnant epileptic women.** Maimoona Siddiqui, Ahmed Y. Javed, Ismail A. Khatri. Division of Neurology, Shifa International Hospital, Islamabad.

**Introduction:** Epilepsy is amongst the most common serious neurological conditions. Pregnancy has variable effect on seizure frequency. Problems related to pregnancy and birth defects in the baby are another major concern, both due to epilepsy itself and due to antiepileptic medications. **Objective:** To determine the maternal and fetal complications in pregnant epileptic women seen at a tertiary care out-patient neurology clinic. **Methods:** Retrospective chart review of pregnant epileptic women who presented in neurology clinic of Shifa International Hospital, Islamabad from January 2009 to December 2010. The data including demographics, type of epilepsy, antiepileptic drugs, seizure frequency, and complications during pregnancy, delivery and fetal outcome were recorded in a structured proforma. Data was analyzed using SPSS version 16. **Results:** A total of 16 patients were seen during this period. The mean age was 26.7 years ( $\pm 3.7$ ), 18.8% were illiterate. All were on antiepileptic medications, 7 (43.7%) were on dual antiepileptic drugs (AED). Among 16 patients, 5 (31.2%) were on valproate either alone or in combination. Three (18.8%) had generalized epilepsy, 9 (56.2%) had partial epilepsy and 4 (25%) had juvenile myoclonic epilepsy. Twenty five percent patients had history of abortions and intra-uterine deaths (IUD) before current pregnancy. Twelve (75%) patients remained seizure free during pregnancy, 4 (25%) had seizures during second trimester of pregnancy only. A total of seven complications occurred in six pregnancies including premature labor in 3 (18.8%), IUD in 2 (12.5%), ectopic pregnancy and intrauterine growth retardation in 1 patient each. Twelve women were followed up to delivery. Two patients had low birth weight babies. None of the children born had any major malformation. **Conclusion:** The frequency of major malformations in babies was low; however, pregnancy related complications were

seen in almost 1/3 of patients in our cohort. There is a need to establish epilepsy registries in Pakistan to evaluate the complications of epilepsy and AEDS, risk of malformation and AED side effects.

**Is 20 Minutes Duration Of EEG Mandatory?** Ahsan Numan, Muhammad Nasrullah. Department of Neurology, Services Institute of Medical Sciences & Services Hospital, Lahore.

Electroencephalography (EEG) is the recording of electrical activity along the scalp produced by the firing of neurons within the brain. In clinical contexts, EEG refers to the recording of the brain's spontaneous electrical activity over a short period of time, usually 20–40 minutes. I had very interesting observation that in patients with infrequent clinical and with single abnormality on EEG, the time of appearance of electrical abnormality was between 11 to 14 minutes of EEG duration. On the basis of this interesting observation I interviewed four EEG technicians in Lahore to know about the significance of 20 minutes duration. Results were very disappointing and made me to collect the data of those epileptic patients that have infrequent fits (01 to 03 a year) and preferably primary epilepsy and single electrical activity on EEG tracing. In this regard the patients with these criteria were selected in the year 2006 to 2008 in the private setup. The single electrical abnormality was found to appear between 11 to 14 minutes. It should be emphasized that every EEG should be done for at least 20 minutes duration as recommended, especially when the first 10 minutes are normal.

**Instant gas geysers in bath rooms – are they hidden culprits for provoked seizures?** Abeera Khan, Muhammad U. Awan, Ismail A. Khatri, Maimoona Siddiqui, Arsalan Ahmad. Division of Neurology, Shifa College of Medicine and Shifa International Hospital, Islamabad.

**Background:** Oxygen depletion can lead to nausea, vomiting, loss of consciousness, convulsions, respiratory collapse and may even cause death. Recent increase in the use of instant gas geysers inside bath rooms is a potential health hazard. The purpose of this case series is to increase awareness among public and physicians to consider its indoor use as a serious health issue. **Methods:** We report a series of 3 cases who presented with sudden loss of consciousness with seizure like activity while taking bath, with the indoor instant gas geyser turned on. These patients were seen during the winter months of January and February

**2011. Results:** A total of 3 patients, previously healthy young adults, 2 men and 1 woman, with a mean of 29 years (range 23-38) presented with sudden loss of consciousness in the bath room while taking bath with the instant gas geyser turned on at the time of event. None of the three had prior history of neurological illness, only one had known dyslipidemia. One complained of preceding headache and the other two had breathing discomfort, anxiety and dizziness before losing consciousness. All three were discovered unconscious by the family when they did not come out of the bath room in due time. The episodes lasted 30 to 90 minutes. Two of them had stiffening of the body and frothing from the mouth when family first found them. All three regained consciousness without any medical intervention. No post-ictal confusion was seen. None of them had recollection of the event. Neurological examination was normal. EEG and MRI brain were also unremarkable in all three of them. Antiepileptics were not offered. **Conclusion:** This case series highlights potential danger of instant gas geysers inside bath rooms that can result in unconsciousness and seizure like activity. We believe this occurs due to depletion of oxygen due to combustion of natural gas in closed bath room. Public and physician education is needed about this potential hazard and proper use of instant geysers, as their use is increasing in Pakistan particularly during winter months.

**Gender difference in the frequency of acute stroke and outcome in hospital patients.** Farzin Majeed, Dr Mohammad Wasay. Aga Khan University, Karachi, Pakistan.

**Introduction:** Stroke is the most common cause of disability and a leading cause of mortality worldwide. Though the incidence is falling in West but probably is rising in Asia. The risk of stroke has increased by 100% in low and middle income countries over the last decade and the developing world accounts for 85.5% of mortality due to all stroke deaths worldwide. The prevalence of stroke in Pakistan is almost twice the highest reported prevalence in the world to date. The information on the existence of sex differences in the epidemiology and management of stroke patients is scarce. Stroke has a greater effect on women than men because women have more events and are less likely to recover. Age-specific stroke rates are higher in men, but, because of their longer life expectancy and much higher incidence at older ages, women have more stroke events than men. Moreover, stroke-related outcomes, including disability and quality of life

(QOL), are consistently poorer in women than in men. Unfortunately, few data are available that describe sex differences in age-specific stroke rates, stroke types and case fatality rates. Given these observations, we sought to determine among patients admitted to our Neurology section whether there were any gender differences in the frequency of acute stroke and outcomes. Objective: The objective of this study was to determine: 1) Gender difference of acute stroke and its types in males and females. 2) Difference in frequency of outcome of acute stroke in male and female hospitalized patients. Method: It was a prospective cross-sectional single centre study, in which 213 adult patients > 18 years with a diagnosis of acute stroke were enrolled and followed for a maximum of 7 days for outcomes of mortality and functional recovery. All the information regarding demographics, pre-stroke functional status and stroke type at diagnosis were recorded on a predesigned proforma. Outcome was assessed at 7th day of admission by using Modified Rankin Scale. All analyses were conducted by using the Statistical package for social science SPSS (Release 16.0, standard version, copyright © SPSS; 1989-02). Stratification was undertaken for age, gender, diabetes, hypertension, severity of stroke at presentation and outcome and results presented accordingly. Results: There were 138 males (64.8 %) and 75 females (35.2 %) in the study population. The mean age of the included patients was  $61.20 \pm 12.88$  years (range from 38 – 89 years). The mean age of males was  $61.25 \pm 13.56$  years (range 38 – 89 years), and that of females was  $61.15 \pm 11.60$  years (range 40 – 85 years). Of 213 consecutive hospitalized patients, 82% had ischemic stroke and of these 84% occurred in women. Out of 174 patients with cerebral infarct, 111 (80.4%) were males whereas 84% (63) were females. Women had more severe strokes, and were less likely to be independent prestroke (10% versus 16%) compared with men. The proportion of women, with stroke increased significantly after 60 years of age. Women were less likely to have infratentorial strokes (28% vs 29.7%), be able to walk unaided on discharge (53% vs 56%) or achieve a discharge Modified Rankin Scale of  $\leq 2$ . In-hospital mortality was higher in women than in men (6.7% vs 5%). No significant difference in presenting age of stroke was found between the two genders. However it was found that the frequency of stroke in the study population was higher in older people. Conclusion: The frequency of stroke was found to be more in males than in females (65% vs 35%). But age-specific stroke rates were higher in women than in men. Women have more cerebral infarcts whereas men have a higher per-

centage of intracerebral haemorrhage. Women are less likely to have infratentorial strokes and more likely to have right hemispheric strokes. This study also found that gender was a major predictor of mortality and morbidity with females having a high in-hospital mortality, longer length of stay and poorer discharge modified Rankin Scale scores.

**Correlation of CSF with clinical parameters in patients of GBS.** Muhammad Tariq, Yasir Mehmood Malik, Hasnain Hashim, Muhammad Irshad, Mazhar Badshah, Sohail Yasin Khan, Najam Younas Butt. Department of Neurology, PIMS, Islamabad.

Introduction: Guillian-Barre syndrome (GBS) is an autoimmune disorder which affects peripheral nerves and sometimes cranial nerves, its incidence is 1.3 / 100,000 population. Our intention to conduct this study was to find CSF cytoalbumino-dissociation and correlate it with clinical picture and therapeutic outcome. Objective: To determine the correlation between CSF cytoalbumino-dissociation and clinical picture of GBS patients. Study design: Descriptive Case Series. Methods: This study was conducted in department of Neurology, PIMS over a period of nine months (from May, 2010 to Feb, 2011). All patients above age of 12 years were enrolled irrespective of gender discrimination. After Nerve conduction studies, detailed examination including Modified Rankin scale (MRS) was carried, CSF and therapeutic plasmapheresis were done. MRS registration was done after every session of plasmapheresis as well as after 2 weeks. Then the DATA was analyzed by SPSS version 11. Results: We took 55 patients, diagnosed as GBS on the basis of Nerve conduction studies (NCS) out of these 36 (65.5%) were male and 19 (34.5%) were female. Majority belonged to younger age group with a range of 14 to 73 years (mean = 34.7). On NCS 27 (49%) patients had axonal, 27 (49%) demyelinating and a single patient had mixed type of polyneuropathy. On CSF examination 49(89%) patients displayed cytoalbumino dissociation, whereas 6(10.9%) lack such finding. Clinically 49 patients displayed ascending and 6 descending pattern of weakness and prodromal illness was observed by 33 (60%) patients. In rest of clinical findings respiratory difficulty in 14.5%, dysphagia in 32.7%, dysautonomia in 21.8%, sensory symptoms in 47%, ocular involvement in 14.7%, Ataxia 5.5% and cranial nerve involvement in 60%. All these clinical manifestations were markedly associated with cytoalbumino-dissociation and their frequency increased with increasing degree of cytoalbumino-dis-

more cytoalbumino-dissociation. Conclusion: Cytoalbumino dissociation was observed in 89% patients and it is associated with more severe and complex pattern of disease. Moreover it is observed more in demyelinating polyneuropathy. Improvement in MRS after therapy had no association with cytoalbumino-dissociation.

**Femoral neuropathy - A case report.** Muhammad Wasim, Naveed Uddin Ahmed. Clinical Neurophysiology Services, Department of Neurology, Liaquat National Hospital and Institute of Post graduate Medical studies and Health Science, Karachi.

Isolated lesions of femoral nerve are not common. NCS/EMG serves to localize the lesion and also assess the severity of axonal loss. Femoral neuropathy commonly results from compression during abdominal or pelvic surgery. Compression can also occur at the inguinal ligament from hematoma formation. Femoral nerve involvement can be seen as part of polyradiculoplexopathy in diabetics. Retroperitoneal hemorrhage from over anticoagulation cause results in lumbar plexopathy with prominent femoral nerve involvement. We describe the case of a 63 years old lady who presented to a cardiologist with shortness of breath on exertion since 2-3 months associated with intermittent chest pain. She was found to be in congestive cardiac failure and atrial fibrillation. The appropriate treatment was started (which included diuretics, amiodarone, nitrates and ACE inhibitors) and she was put on coumadin therapy in view of the intermittent nature of atrial fibrillation. She was subsequently lost to follow up. She presented 3 weeks later with sudden onset of buckling of left knee and inability to flex the left hip. On examination there was weakness of left quadriceps and iliopsoas. The left knee jerk was absent. There was mild decrease in pin prick sensation over medial thigh and medial calf. She was referred to a neurologist who checked her INR which was raised to 7.2. Her warfarin was stopped immediately. An impression of left femoral neuropathy was made. NCS/EMG (done 10 days later when her INR had normalized) revealed low CMAP amplitude and prolonged latency of left femoral nerve. Left tibial, peroneal motor nerves, H-reflexes and sural nerves were normal. The saphenous nerve on the left side revealed prolonged peak latency, low SNAP amplitude and slow conduction velocity. EMG of left quadriceps revealed denervation potentials with neurogenic units and decreased recruitment. Adductor magnus, tibialis anterior ad lumbosacral paraspinals were normal, thus excluding lumbosacral plexopathy and lumbosacral radiculopathy as the cause of the

patient's symptoms. MRI of the pelvis revealed a hematoma in left iliopsoas muscle. A diagnosis of left femoral neuropathy secondary to over anticoagulation with warfarin was made. Patient was treated consecutively and her weakness improved with physiotherapy.

**Awareness and adherence to Occupational Therapy among Doctors in a tertiary care hospital.** F. Kamran, A. Malik, S. Malik, N. Soomro, S. Z. Khan, S. I. Ahmed. Institute of Physical Medicine Rehabilitation Dow University of Health Sciences, Karachi, Pakistan and Neuro Clinic & Falij Care, Karachi, Pakistan.

**Background:** The estimated ratio of disability in Pakistan is 2.5 percent of the population (census, 1998), though the ground realities indicate that ratio of disability in the country is much higher than that given by the 1998 census. Thus comprehensive rehabilitation is integral to the attainment of a better quality of life for disabled persons. Occupational therapy has been recognized as an important ingredient of rehabilitation. The prime focus of Occupational therapy in patient is to develop independence in Basic Activities of Daily Living (BADL) and Instrumental Activities of Daily Living (IADL). Physicians in the clinical field play an important role in identifying and referring patients for Occupational therapy. In Pakistan, there is a wide gap and majority of doctors are not familiar with the importance of occupational therapy. **Objectives:** The objectives of this study were: 1) To assess the awareness of occupational therapy services among doctors. 2) To estimate the frequency of referral for occupational therapy. 3) To identify the rationale for minimum referral to Occupational Therapy. **Method:** Design: descriptive study. Setting: Civil Hospital Karachi. Population: Doctors (pediatrician, neurologist, physician and orthopedic surgeon). A semi structured questionnaire was used to obtain respondent's particulars; academic achievements and work experience, usage of occupational therapy services, views and referrals. Data analysis was done using SPSS. **Results:** Results show that out of 77 respondents 38% was fully acquainted with the service of occupational therapy, 39% of them was not quite aware of the service and 23% were not at all familiar with occupational therapy. Most of the respondents (70.7%) said that they referred patients for physiotherapy, 10.7% referred for occupational therapy and only 9.3% referred cases for psychotherapy and speech therapy, respectively. Reasons for the least referral to occupational therapy reflect that 42.2% of participants were unaware about occupational therapy services, 16.9% were of opinion that occupational therapy is not useful. 6.5% of doctors

commented that service is not easily available, 9.1% viewed that patients do not comply with the treatment and 3.9% did not refer patients because of its cost. 6.9% were of the opinion that expertise in the field is unavailable. Conclusion: This study reveals that there is lack of awareness about occupational therapy among the doctors and the need is that more and more awareness must be created among the doctor's community. Additionally, pro-active collaboration between rehabilitation personnel and doctors in the clinical field needs to be developed.

**A young girl with right sided facial wasting – A report of a case of Parry Romberg syndrome.** Sahrish A .Kazi, Ismail A. Khatri. Department of Medicine and Division of Neurology, Shifa International Hospital, Islamabad, Pakistan.

**Introduction:** Progressive facial hemiatrophy or Parry Romberg syndrome is a rare, sporadic disease of unknown etiology characterized by progressive shrinking and deformity of face with loss of subcutaneous and fatty tissue. **Case Report:** A 20 years old right-handed girl with no known co-morbid presented to our clinic with complaint of right sided facial shrinking and wasting. It started 6 years back when she started to develop dark, patchy discoloration of right side of her face. Over a few months, she started to develop wasting of right side of her face. She also complained of wasting in right side of her neck. There was no pain in facial area, no problem with vision, no change in sweating on either side of her face. She reported no difficulty with mastication, and no weakness in her arms and legs. There was no family history of facial weakness and she was not on any medication currently. On examination, she was a well developed girl, right side of her face slightly smaller than left. Higher mental functions and speech were normal. Cranial nerve examination was normal. Facial examination showed loss of subcutaneous fat on right side of her face over masseter, mentalis, levator labii superioris aleque nasi, and orbicularis oris (pictures to be shown). Rest of the neurological as well as systemic examination was unremarkable. We diagnosed her to be a case of Parry Romberg syndrome. She is advised to have neurophysiological studies of face and MRI of brain. She is likely to benefit from plastic surgery. **Conclusion:** While the result of MRI brain and neurophysiological studies pending, the clinical index of suspicion for Parry Romberg syndrome is very high. We anticipate that we will be able to share the findings of her diagnostic evaluation and surgical outcome during the proceedings of meeting.

**Tarsal tunnel syndrome - A review of 10 cases.** Sadaf Taj, Muhammad Wasim, S. Aqeel Raza, Asiya Bano, Naveed Uddin Ahmed. Clinical Neurophysiology Services, Department of Neurology, Liaquat National Hospital and Institute of Post graduate Medical studies and Health Science, Karachi.

**Objective:** To emphasize the existence of a very rare entity that is often difficult to diagnose both clinically and electrophysiologically. **Background:** Tarsal tunnel syndrome results from entrapment of the distal tibial nerve under the flexor retinaculum at the medial ankle. The most common cause is trauma. Paresthesia and sensory loss involving the sole of the foot may occur. **Material and methods:** 25 consecutive patients presenting to the neurophysiology lab of Liaquat National Hospital over a period of 3 years with a history of foot pain, sole numbness or a question of tarsal tunnel syndrome were included in this study. Patients with polyneuropathy were excluded. All patients underwent NCS/EMG according to standard protocol. **Results:** Of the 25 patients, 10 had a normal nerve conduction study and EMG were thought to have a local orthopedic problem of the foot. 5 had polyneuropathy and were excluded from this study. The results of the remaining 10 patients will be interpreted. 8 patients were male and 2 were female. Age ranged from 32 years to 75 years, the mean age being 55 years. **Motor nerve conduction study:** Peroneal and tibial nerves had normal latencies and CMAP amplitudes, conduction velocity and F-wave latencies in all patients. H-reflex was normal in all patients except 1 in whom it was prolonged. **Sensory nerve conduction study:** Sural nerves had normal latency, SNAP amplitude and conduction velocity in all patients. Medial and lateral plantar nerves showed prolonged latencies, low amplitudes and slow conduction velocities on the affected side in all patients. EMG revealed denervation potentials and neurogenic units with decreased recruitment in abductor hallucis and abductor digiti quinti minimi in all patients. Needle exam of tibialis anterior was normal in all patients. Only 1 patient (in whom H-reflex was prolonged) showed denervation in gastrocnemius, flexor digitorum longus and lower lumbosacral paraspinals suggesting a superimposed S1 radiculopathy. **Conclusion:** True tarsal tunnel syndrome is a rare entity. It is important to recognize this syndrome as it is cause of significant pain and disability. Early intervention can help alleviate patient's symptoms.

**Perception of Health Care Professionals Regarding Autism.** Tahmeena. T. Latifi, Sumera Azam, Shazia Noureen, Naveed uddin Ahmed. Neuro-rehabilitation

Unit, Department Of Neurology, Liaquat National Hospital, Karachi, Pakistan.

**Background:** Autism is a neurodevelopmental disorder which belongs to a group of pervasive developmental disorders with onset prior to age 3 years. This shows significant qualitative and quantitative delay in social interaction, communication with stereotyped patterns. These delays exhibit echolalic speech, social isolation and odd play. Due to variety of disorders this disorder is still unexplored and less understood among health care professionals. Lack of knowledge and awareness about autism, especially among health care professionals can compromise early recognition and interventions which had been known to improve prognosis in children with autism. **Methods:** We prospectively collected data from doctors, nurses and allied health workers. Doctors and nurses were selected from neurology, psychiatry and pediatric department. Total 100 questionnaires were distributed to these departments. Only 50 questionnaires were fully completed. **Result:** 62 % of respondent of this study were doctors, 26% were allied health workers and 12% were nursing staff. Out of 62% doctors 13% were from psychiatry, 29% from pediatric, 36% from neurology as 22% was from other departments. 16% participants had not heard the word autism yet. 50% participants perceived that onset of autism is usually occurring in childhood period. 44% respondent recognized that autism is prevalent in higher socioeconomic and higher educational class. 44% participants responded that autism is mostly attributed to neglect in early childhood parenting. 24% participants don't know that it is a neurodevelopmental disorder. **Conclusion:** This study revealed knowledge deficits about autism perception, causes and characteristics among health care workers. Autism is a complex lifelong neurodevelopmental disorder. Knowledge of this disorder is not only necessary to treat the patient but also for the early detection and identification which leads to better prognosis.

**Speech Language Therapy After CVA: A Case Study.** Sumera Azam, Tahmeena.T. Latifi, Shazia Noureen, Azra Zafar. Neurorehabilitation Unit and Department Of Neurology, Liaquat National Hospital, Karachi, Pakistan.

**Background:** Aphasia is a language disorder which occurs after the damage of that part of brain that are responsible for language. Aphasia usually occurs suddenly, often as a result of a stroke or head injury but it may also develop slowly as in the case of brain

tumour, an infection or dementia. The disorder impairs expression and understanding of language as well as reading and writing. There are 2 broad categories of aphasia: fluent and non fluent. Damage for the left temporal lobe of the brain may result in a fluent aphasia (wernicke's aphasia). Damage with the frontal lobe may have the non-fluent aphasia called broca's aphasia. Another type of non-fluent aphasia is global aphasia; result from the damage of extensive language area. Although the treatment of aphasic adults is available in selected hospitals of Karachi but mostly people conclude that the treatment for aphasia provides no significant improvement in speech and language area. This case was conduct to evaluate the efficacy of speech and language therapy after CVA. Most of the time aphasia may occur with dysphagia. Dysphagia is the inability of swallowing mechanism and needs to be deal with utmost comprehensive and concise swallowing management. **Case:** a 55 years old female banker by profession came with complain of sudden onset of R sided weakness. She was unconscious at the time of admission. **Clinical Diagnosis:** Left MCA. **Assessment Of Speech Language:** After the improved conscious level when her GCS reached at 13, she was referred for speech language therapy services and bedside swallow evaluation. Western Aphasia Battery was used to evaluate language functioning. Which shows intact naming; function recognition and tag questions. In auditory comprehension she can follow the single commands but confused in complex instructions. Weaknesses were observed in repetition delayed responses number recognition, numeric word recognition and logical questions. **Bedside swallow evaluation** was conducted which shows "Safe Swallow". **Diagnosis:** Expressive Aphasia (non-fluent). Frequency for therapy was 5 days a week. After the intensive therapy of 1 year now she can talk in full sentences with normal speed of expression delivering in dysarthric manner. **Conclusion:** The early treatment can make a difference.

**Sudden unexplained deaths in neurology – a tertiary care in-patient dilemma.** Fahd Sultan, Ismail A. Khatri, Maimoona Siddiqui, Arsalan Ahmad. Division of Neurology, Shifa International Hospital and Shifa College of Medicine, Islamabad

**Introduction:** Unexplained death is an aspect which has always interested physicians as they try to decipher the mysteries of life and death. Mortality reviews help us to learn from our deficiencies and share our experience. The ultimate aim is to be better prepared when faced by another similar clinical

scenario/diagnostic challenge. **Methods:** We report a series of 3 patients who presented to Shifa International Hospital, between August, 2010 and December, 2010 with different neurological symptoms and died quickly without explanation. The patients were identified through patient register and data was collected by chart review. **Case Summaries:** A 17 year old man developed progressive leg pain and weakness, back ache, neck pain, constipation, vomiting, urinary retention, nasal twang, nasal regurgitation and shortness of breath, requiring elective intubation. Diagnostic evaluation showed hypocalcemia and hypokalemia. CSF exam showed lymphocytic pleocytosis with raised proteins and normal glucose. Diagnostic possibilities included myelitis/brainstem encephalitis. He was treated with pulse steroids, antibiotics and antituberculous therapy along with supportive treatment but did not improve. His GCS decreased to 3/15 with absent brain stem reflexes. Prognosis was explained to family and ventilatory support was withdrawn. A 45 year old man presented with high grade fever for 2 months, neck pain and stiffness for 15 days, severe headache and altered mentation for 2 days. His examination and CSF were consistent with meningitis. CT brain showed hydrocephalus. External ventricular drain was placed but he deteriorated clinically, developed quadriplegia and had seizures requiring intubation. Next day, his GCS decreased to 3/15 with absent brain stem reflexes. CT brain (to be shown) showed complete loss of grey-white matter differentiation. Prognosis was explained to family and they opted for support withdrawal. A 5 year old boy presented with high grade fever, GTC seizures, nasal twang, difficulty in neck holding, walking and breathing. He had asystole and was revived after CPR of 10 min. CT brain showed a hypodensity in left temporal lobe, CSF had mildly raised proteins and EEG showed subclinical status epilepticus. Our differentials included ADEM, Miller-Fisher syndrome and cerebritis. He received IVIG, antibiotics, antivirals, antiepileptics and supportive treatment. He initially improved but then worsened again, with GCS falling to 3/15. Repeat EEG showed burst suppression without epileptiform discharges. Family decided for DNR status. He underwent cardiac arrest while on ventilatory support. **Conclusion/ Discussion:** Despite all the recent advancement in medical diagnostics, we are still unable to diagnose several conditions that result in irreversible neurological injury or death. Post mortem examination may help in understanding the underlying mechanisms and should be routinely performed.

#### **Stroke survivors feel emotionally and socially well**

**despite their physical limitations.** Nadia Mehboob, Maimoona Siddiqui, Ismail A. Khatri, Nilofer M. Khan, Arsalan Ahmad, Faika Usman. Division of Neurology, Shifa International Hospital, Islamabad, Pakistan.

**Background:** Quality of life (QOL) is an important issue in stroke survivors. It is important for clinicians to be aware of the impact of stroke on the QOL of their patients. 36-Item Short Form Health Survey (SF-36) is widely used to evaluate quality of life. There is no data available to our knowledge in local literature that has assessed the quality of life in stroke patients in our population. **Objective:** To assess the quality of life in patients six months post stroke seen at Shifa International Hospital. **Methods:** This is ongoing local IRB approved cross sectional observational study. Patients who present in neurology clinic for follow up at any time after 6 months of their stroke are recruited after informed consent. SF-36 is used to assess their QOL. All patients recruited between February 2010 and February 2011 were included in this analysis. **Results:** Forty one stroke patients were assessed for their quality of life out of which 23 (56%) were males (mean age of  $60.19 \pm 10.1$  years). Thirty nine (95%) had ischemic stroke and 2 had hemorrhagic stroke. Among ischemic strokes 21 were large vessel strokes, 15 were small vessel, 2 cardioembolic, and 1 was of undetermined etiology. 25 patients presented with right sided weakness, 14 with left sided weakness; and one patient each with visual and speech difficulty only. Only 46% patients felt they were physically functioning adequately; whereas 76% felt their role was limited due to their physical health. Compared to that 56% felt they were feeling emotionally well and only 48% felt that their role was limited due to emotional problem. Sixty six percent had returned to their social life despite their strokes, and 53% patients were pain free. Overall satisfaction with general health was 47%. **Conclusions:** We conclude that our patients with stroke had good emotional and social well being despite physical limitation, and almost half were satisfied with their general health.

**Stroke and pregnancy.** Haris Majid, M Tariq, M Irshad, Mazhar Badshah, Rao Sohail Y Khan. Department of Neurology, Pakistan Institute of Medical Sciences, Islamabad, Pakistan.

**Introduction:** Pregnant women develop stroke (incidence 11 to 34 per 100,000 deliveries) more frequently than their nonpregnant counterparts (annual incidence, 10.7 per 100,000 women of reproductive age). Approximately 10 percent of strokes occur in the

antepartum period, 40 percent occur proximate to delivery, and 50 percent occur postpartum and after discharge. Cerebrovascular disorders during pregnancy are divided into two major categories: thrombosis/ischemia and hemorrhage. Risk factors for stroke related to pregnancy include cesarean delivery, pregnancy-induced hypertension, postpartum infection, and possibly multiple gestation. Methods: We report a case series of 10 patients presenting to neurology department at PIMS between August 2010 and February 2011. Data was collected prospectively. The objective was to identify the type of stroke presenting in pregnancy and peripartum and also to record the variety of clinical presentation and frequency of various complications after hospital admission. Results: A total of 10 patients were included in the study. The mean age was 28.6 years. All 10 patients presented in peripartum. 3 patients developed stroke on the day of delivery. 2 patients (20 %) had ischemic stroke (arterial), 5 patients (50 %) had cerebral venous thrombosis and 3 patients (30%) had hemorrhagic stroke. Only 3 patients (30%) had co-morbidities of pre-eclampsia or Hypertension. The most common symptom was weakness, either hemiparesis or hemiplegia in 9 patients (90 %), followed by fits in 8 patients (80 %). Conclusion: The frequency of pregnancy related strokes has been progressively increasing in our part of the world. The most common type of stroke in our case series was Venous thrombosis (50 %) which is not as common as in the U.S (2%). Fits was a common occurrence in our patients which is unusual for stroke occurring in non-pregnant patients. There is need for research into the possible risk factors for development of Cerebral Venous thrombosis, so that effective preventive strategies can be formulated.

**Spinal Injuries in the developing and developed countries: A tale of two different worlds.** Farooq A Rathore. Department of Rehabilitation Medicine, Combined Military Hospital, Panoaqil Cantt, 65130 Sindh, Pakistan.

Introduction: Spinal Cord Injury (SCI) has been studied in detail in the Western world and thousands of manuscripts have been published in the last few decades. But this covers only a part of the world population. More than 80 percent of the world's population lives in the developing countries and little is known about SCI form this part of the world. The aim of this study is to present an overview of the salient features and differences in SCI demographics, management and complications in the developing and the developed regions of the world. Methods: An electronic literature search

(from 1950 -2010, English language only) was performed on the Medline, Google Scholar, ScienceDirect & Springer Link databases, with keywords epidemiology, spinal cord injury, paraplegia, quadriplegia, disability, developing countries, pressure ulcers, spinal trauma, spinal surgery, rehabilitation. Author had the experience of working in the largest Spinal Rehabilitation unit of the country for over 5 years. Results: There are no established national trauma or SCI registries in the developing countries. In contrast to the developed countries, falls are more likely etiology with paraplegia being more common at presentation. Pre Hospital trauma care and infrastructure for transport of spinal trauma patients are inadequate in most of the developing countries. There are only few spinal centers established in the developing world catering for a small population. The ones which are available many a times don't have all the members of a standard multidisciplinary rehabilitation team available. The high frequency of preventable complications reported from developing countries indicates a general lack of awareness in the health care professionals as well as inability of the patients to adhere to a lifelong prevention regime. Data on long term mortality statistics is not available in the literature for the SCI patients in the developing world. Conclusions: The demographics, epidemiological pattern of SCI in the developing world is different from the developed world and this should be considered while formulating policies for the SCI in future. Research is sparse and data is missing. Multi center trials or population based surveys are needed to assess the true magnitude of the problem in the developing world. Trauma evacuation protocols need to be developed and pre hospital care of suspected SCI patient should be improved. Regional and national to spinal injury centers providing a comprehensive treatment and multidisciplinary rehabilitation should be established

**Effects of Swallow Therapy in GBS.** Shazia Noreen, Sumera Azam, Dr. Naveed Uddin Ahmed, Tahmeena T. Latifi. Neurorehabilitation Unit, Department of Neurology, Liaquat National Hospital.

Background: Guillain-Barre is a neuropathy causing rapid onset of paresis, which may progress to complete paralysis requiring tracheostomy and mechanical ventilation. The general weakness and paralysis usually begin within a day or two after the swallowing problem is noticed. Radiographic studies of swallowing usually reveal a generalized weakness in the oral and pharyngeal swallow, resulting in reduced range of motion of the oral tongue, tongue base, and larynx. Although the

progressive paralysis is rapid (i.e., over a period of several days), recovery can be very slow, lasting a period of months or years. Respiration is often unstable for a period of time in these patients, so swallowing therapy that affects duration of airway closure, such as swallow maneuvers, should be used carefully or not at all until respiratory control has stabilized. Even manipulation of a tracheostomy tube, such as cuff deflation, can be problematic and should not be done without medical approval. Generally, therapy of patients with GBS begins with gentle resistance and range-of-motion exercises, increasing effort as the patient improves. When respiratory control has improved, the patient may benefit from swallow maneuvers, particularly the superaglottic swallow and the Mendelsohn maneuver. Occasionally, the first sign of GBS is swallowing difficulty. Case: Right handed 50 year old male admitted under care of neuro medicine in medical ICU of Liaquat National Hospital present with progressive lower limb weakness and followed by upper limb weakness. Clinical Diagnosis: After 2 days of admission he was diagnosed as Acute motor axonal neuropathy (AMAN). Speech Language Pathology Assessment: Oral motor examination: On oral motor examination variety and control of movement for lips, cheeks, jaw, and tongue were checked during Speech, Drinking, Eating, and Chewing. During oral motor examination decrease range of motion of articulators were observed. At bedside swallowing evaluation: The bedside evaluation revealed poor bolus acceptance, inability of bolus formation with weak propulsion, poor mastication efficacy. Oral residue after swallow. At pharyngeal phase prolong bolus transit time with clinical signs of aspiration were observed. Result: Not A Safe Swallow. Diagnosis: Oro pharyngeal dysphagia - Plan of treatment: Enroll the patient for Swallow therapy after one month. Frequency for therapy twice a week. Conclusion: After six months of intensive therapy he was able to safely swallow all levels of liquid and all level of diet.

**Early Intervention in ADHD: A Case Study.** Sarah Jehangir. Neuro Rehabilitation Unit, Department of Neurology, Liaquat National Hospital, Karachi, Pakistan.

**Background:** Early detection and intervention has a key importance in the rehabilitation of the children with ADHD. Early enrollment of ADHD children in rehabilitation program is the key factoring in bridging the gap of their development and progress. Case: A 4.5 years old girl came to the neuropsychologist for the purpose of Psychological Assessment with the complain of severe

concentration problem, poor academic functioning, abrupt social adjustment and lack of parental compliance. After obtaining detailed case history, parental interview and administration of Psychological Assessment batteries, she was diagnosed as Attention Deficit Hyperactivity Disorder. The assessment findings revealed that the child needs therapeutic measures for: Delayed Speech, Attention and concentration, Low Cognitive Level. Frequency of therapy was five days a week. Parent's Education works a lot. Behavior modification Program was made for home and school. Relaxation Training also applied to improve emotional control. Cognitive Behavioral Therapy used to improve motivation, social skill, problem solving skills and self esteem. After the intensive therapy of two year the child is now able to perform according to her age level. Now she is studying in a mainstream school at Kindergarten level. Conclusions: The early diagnosis and rehabilitation of neuropsychological problems can make the difference in the child development and decrease future risk.

**Outcome at 30 days in patients with subarachnoid hemorrhage managed conservatively.** Mansoor Iqbal. Resident Neurology, PIMS.

**Introduction:** Subarachnoid hemorrhage is a relatively uncommon neurological condition but is associated with significant morbidity and mortality. Internationally, subarachnoid hemorrhage is managed surgically with either clipping or coiling of aneurysm but in our setup it is still managed conservatively due to limitations of technical and financial resources and patients' preference. The purpose of our study is to develop some basic statistics regarding the outcome of subarachnoid hemorrhage when managed conservatively as there is lack of data that determine the outcome of the disease with modern day conservative management. **Objective:** To determine the outcome at 30 days in patients with subarachnoid hemorrhage managed conservatively. **Study design:** Descriptive case series. **Place and duration of study:** Study was carried out from 5th December 2009 to 5th June 2010 in the department of Neurology, Pakistan Institute of Medical Sciences (PIMS), Islamabad, Pakistan. **Subject and methods:** Thirty five patients of subarachnoid hemorrhage of age more than 13 years were managed conservatively and outcome was measured using modified Rankin Scale at day 30. Frequency of different outcome like complete recovery (mRS 0,1), partial recovery (mRS 2), dependant (mRS 3,4,5) and death (mRS 6) was determined. **Results:** A total of 35 patients were enrolled in the study. Mean age was  $52.37 \pm 12.56$

years, 20 (57.1%) were females and 15 (42.9%) were males. By day 30, 15 (42.85%) patients had complete recovery, 6(17.14%) had partial recovery, 3(8.57%) were dependant, 11(31.42%) were dead. Conclusions: This study showed that with conservative management of subarachnoid hemorrhage, 43 % patients had complete recovery, 17% had partial recovery while 9 % were dependant and 31% dead one month after the event.

**Risks of stroke in general population. (Results from screening of participants in stroke day awareness program).** Brohi H, Laghari A. Jinnah Medical College Hospital, Karachi, Pakistan.

**Introduction:** Stroke remains the third leading cause of death after Ischemic heart disease and cancer. It is a leading cause of disability as well. Approximately 15-30% are permanently disabled while 20% of survivors need institutional care. It not only affects the patient badly but also is a life changing event in the life of the care giver. Primary prevention can play a vital role as 77 % strokes are usually first events. Primary prevention is best possible by modification of risk factors. We conducted a screening study on the participants of stroke awareness day program conducted in collaboration with world stroke day in Korangi at a tertiary care hospital. **Method.** We screened our participants for stroke according to score card established by world stroke organization, All participants above 20 were screened by trained staff for stroke risk factors like spot blood pressure, random cholesterol, pulse, BMI, daily exercise and history of heart disease and stroke in family. Patients was categorized as having mild, moderate and sever risks. **Results.** Total 58 participants were enrolled, 28 were male, 30 were female. Stroke risk was noticed to be moderate in 55 % while 3.4% had a high risk. Among the risk factors, major contribution was of body mass index (BMI) as 43% were found to have a body mass index between 25—29 while 17% had BMI of 30 or above, while other important risk factors were, lack of exercise (72 %), at least one family member with stroke (31 %), elevation in cholesterol level (moderate 22%, sever 5%) and chronic smoking (10%). **Conclusion:** Our study suggests that risk of stroke in general population is significantly high as more than 50% had moderate to sever risk. Modification of risk factors can play a major role prevention of stroke..

**Rising tendency of intramuscular injection induced nerve palsy.** Muhammad Irshad, Mazhar Shah. Department of Neurology, PIMS, Islamabad.

Giving an intramuscular injection is common practice in general practitioner clinic. Sometime this injection is given for rapid relief of symptoms but commonly it is given as routine, as a part of practice without any real indication. I/M injection if given carelessly is not without hazard. Nerve palsy is one of these hazards. Common sites for injections are upper arm and buttock. In arm Radial nerve is susceptible and in legs sciatic nerve palsy may be damaged. We collected the data of 206 patients with injection induced nerve palsy referred for nerve conduction study in our Electrophysiological lab of neurology department of PIMS in last 6 years. Small rising frequency was noted each year. Wrist drop, foot drops and in some cases long lasting neuralgic pain are common disabilities of these faulty injection. If not treated in time, resulting disabilities may stay for rests of the life of the patient. Inadequately trained dispensers working in private clinics are responsible for most of injection induced palsy. Injection induced nerve palsy is rarity in western world because of better training of paramedics and giving injection when necessary. This data is from one centre in the country probably thousands of cases are occurring each year in whole country. This is completely preventable and avoidable cause by better training of paramedics and avoidance of unnecessary intramuscular injection.

**Pneumorrhachis of thoracic spine after gunshot wound: first case report from Pakistan.** Farooq A Rathore, Zaheer A Gill, Malik A Yasin. Department of Rehabilitation Medicine, Combined Military Hospital, Panoaqil Cantt, Sindh, Pakistan; Spinal Unit, Armed Forces Institute of Rehabilitation Medicine, Abid Majeed Road, Rawalpindi, Pakistan and Department of General Surgery, Combined Military Hospital, Rawalpindi, Pakistan.

**Objective:** To present a rare complication of traumatic spinal cord injury (SCI) and first case report of pneumorrhachis from Pakistan. **Participant/Methods:** A 32 years old previously healthy Pakistani male soldier sustained gunshot wound to lower neck, initially resulting in quadriparesis. Computerised Tomography cervico-dorsal spine was suggestive of fracture of spinous process and left lamina of DV1 along with spinal stenosis and air in the spinal canal. Clinical examination was consistent with complete Spinal cord Injury (SCI) ASIA-A at T2. **Results:** He was managed conservatively for the spinal trauma and underwent comprehensive SCI rehabilitation for six months. Repeat scan showed complete resolution of the pneumorrhachis. At one year follow up neurological status remained

unchanged without any complication. Pathogenesis of this rare finding along with review of relevant literature is presented. Conclusions: This is the first documented case of Pneumorrhachis from Pakistan. Pneumorrhachis is an uncommon finding, is asymptomatic and resolves spontaneously most of the times. Rarely, it may cause cord compression resulting in neurological deterioration. Once diagnosis of Pneumorrhachis is established, it is important to rule out potentially serious causes like basilar skull fracture, injury to lungs, mediastinum, mastoid air cells, frontal sinuses or intestine. It is important to rule out the serious etiologies and to offer prompt effective surgical measures if needed.

**The frequency of Intracranial & Extracranial Carotid Artery Stenosis in Acute Ischemic Stroke Patients at a tertiary care hospital in Karachi, Pakistan.** Junaid Akhtar, Mohammad Wasay. Section of Neurology, Department of Medicine, Aga Khan University Hospital, Karachi, Pakistan.

**Background:** Intracranial stenosis (ICS) due to atherosclerosis of the large arteries is the most common cause of stroke among Asians as well as African and Hispanic populations. Carotid artery stenosis (CAS) is pathologic atherosclerotic narrowing of the extracranial carotid arteries (ECS). Although a large amount of research is being conducted on ICS & ECS throughout the world, there is very little data addressing this issue for our population. **Methods:** Prospective analysis of 177 patients, who admitted in the AKU neurology ward and fulfilling the inclusion criteria were enrolled in the study. An informed consent was taken by the principal investigator from the patient or his or her attendants. Questionnaire collect data regarding demographic characteristics like Age, Gender, risk factors like diabetes mellitus, hypertension, ischemic heart disease, smoking and dyslipidemia, MRA Brain finding for Intracranial Stenosis (flow of blood in intracerebral arteries) and Carotid Doppler Ultrasound (CDUS) for Extracranial stenosis (Stenosis of 69% or more of extracranial internal carotid artery). **Results:** There were 113 males (63.8 %) and 64 females (36.2 %) in the study population. The mean age of males in the study population was 60.44 years (range 22 – 90 years), as compared to the mean age of females in the study group which was 61.75 years (range 29 – 90 years). The frequency of ICS was found to be 12.99 % & ECS was 3.38 % in acute ischemic stroke patients. There is significant difference in frequency of ICS & ECS was found between the two genders. However it was found that the frequency of ICS in the study popu-

-lation was higher in older people. **Conclusion:** Frequency of ICS as compared to the ECS in our study population is high. It is found that there is significant difference in the frequency of ICS & ECS between the two genders. Increasing age, smoking, IHD & presence of other vascular risk factors are major contributing factors.

**Unusual presentations of acquired neuropathies – Are these variants of GBS or new disease?** Naseebullah Kakar, Ismail A. Khatri, Sahrish A. Kazi, Nadia Mehboob. Division of Neurology, Shifa International Hospital, Islamabad.

**Background:** Guillain-Barré syndrome (GBS) is an acquired acute neurological disorder, with significant variations in presentation. It requires high index of suspicion and a very clear, detailed and accurate neurological history and examination to make the diagnosis. Early diagnosis and treatment can be life saving and may limit disability. **Methods:** We report a case series of 7 patients who had unusual presentations, and were ultimately diagnosed as GBS between March 2010 and February 2011 at Shifa International Hospital, Islamabad. Data was collected retrospectively through chart review, and follow-up information was obtained from clinic visits, and phone interviews. **Results:** A total of 7 patients were included, 5 (71%) were males, with mean of 28 years (range 10 – 42). Onset was rather acute with significant progression in less than 4 days in 4 (57%) cases. Facial weakness was seen in 5 (71%), ophthalmoplegia was seen in 2 (29%), severe dysphagia was seen in 3 (43%), ataxia was seen in 3 (43) patients. Two (29%) had no motor weakness, whereas 1 out of 5 who had motor weakness had descending paresis. Reflexes were preserved in 4 (57%). One patient developed severe dysautonomia and subsequent acute myocardial infarction, without any risk factors. Only 3 (%) patients had preceding illness, whereas one was in puerperium. One patient initially presented with predominantly cerebellar syndrome and was diagnosed as postinfectious cerebellitis, and then evolved to be diagnosed as Miller Fisher syndrome. One patient with quadriparesis had up going plantar on one side, and his MRI of C-spine showed abnormal signal for which he was given intravenous steroids, but did not improve, so nerve conduction studies (NCS) were performed that showed AMAN. NCS showed predominantly motor axonal abnormalities in 5 (71%), demyelinating abnormalities in 1, and mixed abnormalities in 1. One of the 5 patients with motor axonal abnormalities had a follow-up nerve conduction study in 6 weeks that showed severe demyelin-

demyelinating abnormalities. Four patients were initially treated with plasma exchange and 3 with IVIG; but one on IVIG had a relapse and required plasma exchange. In follow-up so far, all have shown improvement, some with complete resolution of symptoms. Conclusion: This series of acute acquired neuropathies shows that onset can be very sudden with rapid progression, cranial nerves can be involved early, and severely. Initial presentation can be misleading. Nerve conduction studies may evolve with time. Some of the combinations of symptoms and signs to be presented are not well defined in GBS literature and may suggest unusual variants or new entities.

**Video-EEG: Its Role in the Management of Intractable Seizures and Non-epileptic spells – A Review.** Mustafa Khan, Qurban Ali, Maqsood Ahmed, Zhara Bano, Darshan Lal, Mughees Shirani, Bhojo Khealani, Saad Shafqat. Clinical Neurophysiology and Section of Neurology, Department of Medicine, Aga Khan University Hospital, Karachi.

**Objective:** The purpose of this study is to identify the role of Video-EEG (VEEG) monitoring in the diagnosis and management of intractable 'epileptic' or 'non-epileptic' events. **Background:** VEEG is cornerstone in the management and treatment of intractable seizures and pseudoseizures. 'Epilepsy Monitoring Units' helps to characterize seizure type, identify and localize seizure foci. This helps in evaluation for the Epilepsy Surgery and distinguishes 'epileptic' from 'non-epileptic' seizures. Aga Khan University Hospital is providing the VEEG monitoring facility for the last 18 months. **Methodology:** This is a prospective cross sectional study of 60 consecutive patients referred to clinical Neurophysiology lab during the year 2009-2010. The indications were recognition of pseudoseizures, localization of seizure focus for surgery and identifying the seizure type. The VEEGs were reviewed by trained neurologist with experience in VEEG monitoring. **Results:** Fifty nine percent patients were females. Mean age of patients was 18.5 (range 1-60) years. Mean duration between the diagnosis and VEEG was 9 (ranges 1-38) years. Two common indications of VEEG were to 'rule out' pseudoseizures (46%) and to localize epileptic focus for epilepsy surgery (36%). Clinically, 32% patient had generalized and 68% had partial seizures. 65% had daily seizures. 56% patients were taken multiple antiepileptics with poor seizure control. The mean duration of VEEG recording time was 24 (range 10 - 48) hours. During VEEG recording, 1-6 clinical epileptic events were noted in 82% cases, among those, 41% cases revealed abnormal epileptic EEG

recording. In 7 (41%) patients who were referred with indication of pseudo seizures, 4 were epileptic as well as psychiatric, and the final diagnosis of pseudoseizure was confirmed in all of these cases, in next 41% (n = 7) who were referred for seizure focus for surgery, 5 (71%) of them were diagnosed with focal onset seizure with temporal focality while 2 of them were finally diagnosed as primary generalized seizure. The remaining 3 patients were referred for the diagnosis of type of seizure, 1 patient was diagnosed as generalized seizure while remaining 2 was reported as normal. Conclusion: Video-EEG not only helps in the diagnosis of epileptic seizures but also facilitates to rule out non-epileptic spells. Our study, like previous western data, suggests that higher number of these patients had 'partial seizures'. These can potentially become Epilepsy Surgery candidates, to manage and treat their intractable seizures. As this is a new technology in Pakistan, further larger trails will be necessary to evaluate the importance and cost effectiveness of VEEG in this population.