Young Stroke - The Changing Paradigms

JD Mukherji, KK Singh, J Kotwal, A Singhal, GS Khalon

Army Hospital (Research and Referral), Delhi Cantt.

Aim : To study the Etiological Factors in Young Stroke with Ischaemic Cerebrovascular Disease Aged Below 45 Years.

Introduction : Stroke in Young constitute 20%-30% of all ischaemic strokes in India. In majority of the cases the underlying etiology remains unexplained. However in the last decade a wide range of easily identifiable coagulation abnormalities have been identified as potential risk factors for ischaemic cerebral infarction. There is a perceptible shift from the earlier diagnosed underlying etiologies like cardiac embolism, infection and vasculitis, anaemia, etc.

Methodology : Consecutive 50 patients with completed stroke, aged 45 years and below, were included for the present study. The exclusion criteria were the presence of hemorrhage on brain CT scan and stroke resulting from infections or collagen vascular disease. Patients who were on oral contraceptives or anticoagulant therapy were also excluded.

All the selected patients were subjected to detailed general/ neurological exam. They also underwent routine hematological, biochemical, neuroimaging, Carotid doppler, echocardiography, vasculitic and procoagulant work up. Care was taken to ensure that procoagulant factors were measured at least 12 weeks after the occurrence of stroke to avoid false negative results.

Summary of Results : The age range of the selected patients were from 12-45 years (Mean 35.10) and there were 03 female (6%) and 47 males (94%). The male bias was due to Military background. 14 (28%) patients were smokers, 09 (18%) patients were evacuated from high altitude area (height 3000 meters and above). 07 (14%) patients were hypertensives while 05 (10%) patients had a cardiac source of embolism. Only one patient (10%) had diabetes mellitus while one (10%) was an alcoholic. No risk factors could be identified in 23 (46%) cases in spite of intensive etiological search.

Middle cerebral artery was the commonest artery which occluded-35 (70%) followed by posterior cerebral artery 7 (14%), anterior cerebral artery - 01 (10%). In seven cases (14%) there were multiple cerebral infarcts.

Procoagulant factors were found positive in 15 cases (30%) as follows - Anticardiolipin antibody - 03 (06%), lupus anticoagulant - 1 (2%), protein S deficiency - 3 (6%), protein C deficiency - 1 (2%), hyperhomocysteinemia was found in 6 cases (12%), factor V leaden deficiency in 1 (2%).

Conclusions : Procoagulant factors are emerging as important etiological cause for stroke in young. They constituted 30% cause for young strokes in this study and need to be identified proactively as they can be easily treated/preventable. Stay at high altitude itself is also an independent risk factor in our study.

Study of Neuropsychiatric Manifestations of SLE in a Tertiary Referral Center of Eastern Railway

S Sengupta, B Ghosh, J Jha, S Majhi, A Ghosh, SB Sarkar

BR Singh Hospital, Eastern Railway, Sealdah, Kolkata.

Introduction : Neuropsychiatric manifestation of SLE are well known and nervous system involvement is often regarded as a poor prognostic marker is patients with SLE. Not enough data is available about the neuropsychiatric manifestations of SLE from Eastern part of India.

Aims and Objectives : To find out the prevalence of neuropsychiatric manifestations in patients of SLE attending BR Singh Railway Hospital and to correlate with serological, neuroimaging and electrophysiological parameters.

Material and Methods : Patients of SLE who attended BR Singh Railway Hospital Rheumatology Clinic for management were included in the study. Detailed clinical evaluation followed by hematological, biochemical, serological, neuroimaging and electrophysiological investigations were carried out. Course of the disease and follow-up were recorded.

Results and Analysis : Fifty patients, (Male - 5, Female - 45, age range - 5 yrs to 58 yrs) of SLE were included in the study. We followed them up for 6 months to 15 years. 40% of the patients had only neuropsychiatric manifestations sometimes during their illness. 14% patients presented to us with only neuropsychiatric manifestations at the onset of the disease. Amongst the various manifestations, cognitive dysfunction, seizure, mood disorder, CVA, headache, acute confusional state, peripheral neuropathy, psychosis, IIH and chorea were seen. All patients were ANA positive, abnormal MRI of brain was noted in 5 patients, abnormal CT of head was noted in 3 patients, abnormal NCV in 2 patients, abnormal EEG in 8 patients.

Conclusion : Neuropsychiatric manifestations are common manifestation of SLE. Cognitive dysfunction, seizure and mood disorders are the commonest manifestations of SLE in our series. As 14% of our patients presented to us with neuropsychiatric manifestations as initial presentation of disease, one should always look for SLE in any female (5-58 yrs) presenting with this sort of presentation.

Correlation Between Peripheral Sensory Neuropathy and Dizziness

PS Sandhu, BS Bal, PS Sandhu, HS Thukral

Government of Medical College, Amritsar.

Dizziness or vertigo is a major problem in patients with peripheral sensory neuropathies. This symptom is mostly attributed to either peripheral sensory system involvement or central nervous system involvement.

Material and Methods : Twenty five patients suffering from peripheral sensory polyneuropathy and dizziness were selected from OPD of neurology Department, Medical College, Amritsar. Out of 25 patients 15 were male and 10 were female. Mean age was 55 ± 5 years. Most of the patients (20) were known diabetic. Still routine investigations and ECG, blood sugar, blood urea were done in all patients. Audiometry was performed in all patients and bithermal caloric test was also performed.
Findings : Response to caloric testing was reduced bilaterally in 15 patients and unilaterally in 4 patients remaining 6 patients had normal response. Audiometry was also abnormal in 16 patients.

Conclusions : More than 70% patients with peripheral sensory neuropathy and dizziness show loss of vestibular function on caloric testing. These findings suggest that peripheral neuropathy may also involve vestibular nerve.

53. A Study of Plasma Ascorbic Acid Levels in Patients of Cerebrovascular Accident
S Afzaal, MS Aditya, SJ Rizvi, A Hasan, A Wahab
JN Medical College, Aligarh

Aims : To study the plasma AA (ascorbic acid) levels in patients of CVA [haemorrhage (h’age) and cerebral infarction (CI)] and also to look into relation of plasma AA to size of lesion and neurological status.

Material and Methods : The study was carried out on 85 patients of acute stroke syndrome in the Medicine ward, 50 patients of CVA consisting of 30 cases of CI and 20 cases of h’age. Thirty healthy age and sex-matched subjects were taken as control group. H’age or CI was diagnosed by brain CT scan. AA levels were determined by spectrophotometry. Students ‘t’ tests used for unpaired samples was used to compare the means of the control and the cases and also the various inter group differences.

Results : Plasma AA level was significantly reduced both in CI (37.9 ± 6.11 - con 51.85 ± 3.64 µmol/L, p < 0.001) and h’age groups (29.41 ± 4.99-con 51.85 ± 3.64 µmol/L, p < 0.001). AA levels were significantly reduced in the h’age group (CI 37.9 ± 6.11- h’age 29.4 µmol/L, p < 0.05) when compared to CI group AA levels were negatively correlated with lesion size in both CI (r = -0.56) and h’age group (r = -0.7). AA levels correlated positively with Glasgow coma scale both in CI (r = 0.58) and h’age groups (r = 0.9).

Conclusions : Plasma AA levels were less in both CI and h’age group patients, this is explained on the basis of oxidant, free radical stress that follows the onset of stroke and consequent depletion of antioxidants like AA. AA levels were less in h’age group as compared to CI group, correlated negatively with lesion size, and positively with Glasgow coma scale.

AK Misra, SK Das, T Roy, TK Banerjee, DK Raut, A Choudhury
Bangur Institute of Neurology, National Neurosciences Center, All India Institute of Hygiene and Public Health, Indian Statistical Institute, Kolkata.

Objective : To estimate the prevalence and pattern of different movement disorders in the urban population of Kolkata.

Design and Methods : This is a part of ongoing ICMR Project on “Random Sample Survey of major neurological disorders in the city of Kolkata” which conducted a door to door survey from randomly selected 144 NSSO Blocks and screened 52,377 persons. Field investigators administered the screening questionnaires. Neurologists examined all screened positive cases. Results : We found 296 persons suffering from different movement disorders. The details of types and their prevalence rate are given in the Table.

<table>
<thead>
<tr>
<th>Type of disorder</th>
<th>No. of case</th>
<th>Sex ratio (M:F)</th>
<th>Prevalence rate (per 100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parkinsonism</td>
<td>22</td>
<td>1:1.2</td>
<td>42</td>
</tr>
<tr>
<td>Tremor</td>
<td>228</td>
<td>1.02:1</td>
<td>435.3</td>
</tr>
<tr>
<td>Dystonia</td>
<td>27</td>
<td>6:1</td>
<td>51.5</td>
</tr>
<tr>
<td>Tics disorder</td>
<td>16</td>
<td>1:1</td>
<td>30.5</td>
</tr>
<tr>
<td>Choreoathetosis</td>
<td>3</td>
<td>3:0</td>
<td>5.72</td>
</tr>
</tbody>
</table>

Conclusion : Tremor is the commonest movement disorder. The prevalence of movement disorders in the urban population of Kolkata appears to be different in some spheres from that of Western countries. Besides this, the spectrum of movement disorders will help to detect the magnitude of the problem in the society and therefore will provide information for the planning of health care and resources.

55. Clinical Profile of Subacute Combined Degeneration of Spinal Cord
KP Anand, TVSVGK Tilak, R Varadarajulu, A Anand, AS Kashyap, Suman Kumar
Armed Forces Medical College, Pune.

Seven cases of subacute combined degeneration of spinal cord were studied over a two-year period (Jan. 2002 - Dec. 2003), in a tertiary referral teaching hospital. All were male. The mean age of patients was 35.9 years. All the patients were from Maharasthra or from Andhra Pradesh. All were vegetarians but consumed milk. None was vegan. Two patients were alcohol abusers. All presented with predominant motor symptoms, five had additional sensory symptoms. Objectively all had UMN motor deficit. Two patients had features of peripheral neuropathy as well. All patients were anaemic. Knuckle hyperpigmentation was seen in three. Megaloblastic picture in bone marrow was seen in three patients. Serum Vit. B12 was done in two patients only and was below normal. All patients were HIV negative. Upper GI endoscopy was normal in all. MRI spine revealed abnormal findings in five patients. Compressive myelopathy was excluded in all. All were treated with Inj. Vit. B12 and significant improvement was seen in four patients. Remaining three patients are under follow up. Severity of neurological illness had no relation with degree of anaemia.

56. A Comparative Study of Cognitive Function Impairment in the Healthy Elderly and in Parkinson’s Disease
SC Garg, BS Gill, K Gupta, GD Singh
Government Medical College and Rajindra Hospital, Patiala, Punjab - 147 001.

Aim of this study is to review the pattern of age related cognitive decline in the healthy elderly in comparison with Parkinson’s disease patients with advancing age. Two study groups each of 30 patients i.e. group I of healthy patients above the age of 60 years meeting the inclusion and exclusion criteria and group II of patients of Parkinson’s disease (age, sex and literacy matched) were taken for study. Both study groups were subjected to series of psychometric tests for specific cognitive deficits. It was concluded that both healthy elderly and patients of Parkinson’s disease showed preservation of cognitive function in the domains tested by orientation in place, orientation in time, visual command, sentence formation and object naming test. Whereas there was
impairment in the domains tested by attention and calculation (serial subtraction subset), attention and calculation (world backwards subset), constructional praxis, verbal fluency (fruit category), verbal fluency (animal category), world list learning, delayed recall, recognition (original), and recognition (foils) with impairment being more in the patients of Parkinson’s disease. Domains tested by three step task was equally impaired in both the groups while the domain tested by repetition was impaired only in patients of Parkinson’s disease. Hence in respective age groups of healthy elderly and Parkinson’s disease the cognitive functions in certain categories remain the same but in other categories it is definitely step down.

60. Fit, Faint, Fall or Funny Turn? Analysis of 250 Consecutive Patients Referred to Epilepsy Clinic

N Balamurugan, M Vivekanandhan, C Bhaskar, M Sangeetha, G Sivakumar
Sri Gokulam Hospital, Salem.

Background : A proportion of patients ranging 9-40%, attending epilepsy clinic present with non epileptic events (NEE) and nearly 20% of suspected refractory epilepsy patients are diagnosed later as NEE. Strategies like taking proper history, observing the attack and ancillary tests help in differentiation.

Methods : Two hundred and fifty consecutive subjects aged 13 or above, over a period of 26 months, referred to our epilepsy clinic were included. Detailed history, EEG and in needed cases video recording were analyzed. Diagnosis was based on history of pre and post ictal signs, video recording and technique of suggestion based seizure induction.

Results : There were 136 men and 114 women; mean age was 32.2 (Range : 13-68). Twenty-seven were diagnosed as NEE. Among the NEE (n=27), 9 had varied movement disorders (2-drug induced extra pyramidal reaction; 1 - Hemiballismus; 1 - truncal dystonia; 1 - Chorea; 1 - Paroxysmal Kinesigenic dyskinesia; 1 - Hypnic jerk; 2 - Hemifacial spasm), 9 had psycogenic seizures, 6 had syncope and 3 had positional vertigo. In 21 (8.4%), antiepileptics had already been started elsewhere, while a correct diagnosis was made latter. Mean delay in correct diagnosis was 6 months (Range : 0.2 to 3 yrs).

Conclusion : In our study, 10.8% of cases referred as epilepsy were NEE. Movement disorders and psycogenic seizures were the common causes for NEE. Many patients were taking multiple anti epileptic drugs and were exposed to potential short term and long-term effects unnecessarily in addition to the social stigma. This under scores the importance of epilepsy units in early diagnosis and proper treatment.

63. Serum Malondialdehyde Levels and Lesion Size in Acute Stroke

M Beg, S Gandhi, S Jahan, Z Tamanna, A Parvez, N Akhtar
JN Medical College, Aligarh Muslim University, Aligarh.

Seventy five subjects included in the study consisting of 25 each of intracerebral haemorrhage and cerebral thrombosis, were carried out at brain research laboratory, using Nadigar et al method for estimation of serum malondialdehyde (SMDA) level and lesion size were defined as per criteria Huang et al. SMDA level in control subjects were 1.9 ± 0.4 nmol/dl while corresponding value in thrombolic and haemorrhagic subject were 4.16 ± 1.04 nmol/dl and 4.63 ± 1.1 nmol/dl. The difference in SMDA level in subjects with thrombolic and haemorrhagic groups were statistically significant compared to control. The mean lesion size of larger group was 13.6 ± 3.0 cm² in thrombolic and the corresponding value for haemorrhagic group was 13.3 ± 1.9 cm² ; small group was 5.0 ± 1.4 cm² and 6.6 ± 1.9 cm². The mean SMDA level in large haemorrhagic and thrombotic lesion were 5.0 ± 0.7 nmol/dl and 4.89 ± 0.9 nmol/dl (p < 0.05) while corresponding value for small lesions were 3.13 ± 0.2 nmol/dl and 3.23 ± 0.4 nmol/dl. Thus, a significant difference was found in SMDA level (p < 0.01) in subjects of thrombolic and haemorrhagic stroke for both small and large lesions.

69. Predicting Outcome at Discharge in Acute Stroke with Evaluation of 5 Post-Stroke Complications as Prognostic Models

R deSouza, U Sundar, I Harshad, R Ambekar, M Yeolekar
LTMG Hospital, Sion, Mumbai.

Aims : To assess independent value of post stroke complications (seizures, cerebral edema, aspiration pneumonia, bedsores, and low GCS score) in predicting in hospital mortality and functional status at discharge.

Material and Methods : One hundred and forty three serially recruited stroke patients were studied. Average hospital stay was 16 days. OCSP system of stroke classification was used. Seizures post stroke were classified semologically. Cerebral edema was diagnosed by Ropper - Shefran signs/CT brain. Bilateral crepitations and rhonchi with fever with/without dyspnea constituted aspiration pneumonia. A three day composite GCS score in the first 72 hours was calculated for each patient. Modified Rankin score at discharge was assessed.

Results and Conclusions : The 143 cases comprised 94 infarcts, 46 hemorrhages and 5 TIA's. Of 143 cases considered susceptible 12% (17/143) developed seizures, 68% in the first 4 days following stroke, 11/17 being hemorrhages. Alcoholism additionally yielded a relative risk (RR) of 2.1 of developing seizures post stroke. Of 143 susceptible patients, 36% (31/143) developed cerebral edema. Uncontrolled hypertension and poor premorbid physical activity contributed a relative risk of 2.1 and 2.3 respectively. Of preventive therapies given in 114 patients, mannitol alone or in combination was effective in 75%. Of 118 susceptible cases (GCS < 15, dysphagia, poor gag) 31.5% (34/118) developed aspiration pneumonia. Prophylactic head high position had a 0% efficacy in preventing aspiration. However mobilization 3 to 4 times a day reduced the risk by 32.3%. Of 100 susceptible cases (GCS < 12) 20% (20/100) developed bedsores. The preventive efficacy of 6 to 7 mobilizations per day and antiseptic application locally were 18% and 21% respectively. Overall mortality was 32/143. A combination of cerebral edema and aspiration pneumonia (mortality 100%) and aspiration pneumonia alone (58% mortality) predicted mortality independent of stroke subtype. A 3 day composite GCS score > 28 had a 100% positive predictive value for discharge by 2 weeks, modified Rankin score < 2 (alive and independent) being present in 6/41 patients at discharge. A composite GCS score < 24 positively predicted mortality in 93% of patients.

70. Clinical Diagnosis and Localization of Stroke Subtypes - Confounding Factors Affecting Accuracy

Santosh, U Sundar, R deSouza, K Amrit, M Yeolekar
LTMG, Mumbai.

Aims : To compare the clinical diagnosis (stroke subtypes, vascular territory) with imaging diagnosis using standard criteria, and evaluate the confounding factors affecting accuracy of diagnosis. To compare the degree of accuracy in anterior and posterior circulation strokes.

Material and Methods : One hundred and ninety five serially recruited stroke patients were evaluated. In the first 97 a clinical diagnosis of stroke subtype and vascular territory involved were made by 2 independent physicians. TIA’s cerebral venous thrombosis and cases with associated old strokes were excluded from the analyses. In the second 98, the Siriraj and Allen stroke
Focal motor seizure with or without secondary generalization were the predominant type of seizure in all three groups (immediate, early and late onset types). Seizures were more frequent in strokes involving cortex. Recurrent seizures were found only in late onset type. It may be worthwhile to take preventive steps in such stroke cases which are predisposed for seizures.

### 73. Incidence of Seizures in Cases of Stroke - A Prospective Clinical Trial

N Kumar, R Chandra, P Agarwal, IN Vajepyi, V Srivastava
GSVM Medical College, Kanpur.

Aims and Objectives: The study was performed to assess the incidence of seizures and its possible correlation with stroke.

Material and Methods: Two hundred patients of stroke were included. All patients with history of previous seizure, brain surgery, head trauma, subarachnoid hemorrhage, metabolic dysfunctions etc. were excluded. Patients with incidence of seizure after stroke were studied and followed up for 6 months. Three groups Group A having immediate onset (seizure within 24 hrs of stroke), Group B having early onset (seizure within 24 hrs to 2 weeks of stroke) and Group C having late onset (seizure after 2 weeks of stroke) were formed.

Result and Discussion: Twenty patients out of 200 stroke seizures. 12 patients (60%) had infarction (9 cortical and 3 subcortical) and 8 (40%) patients had hemorrhage (5 patients had cortical hematoma and remaining 3 had gangliocytic hemorrhage). Out of 20 patients, 8 patients (40%) had immediate seizure (Group A), 7 patients (35%) had early onset seizure (Group B) and 5 patients (25%) had late onset seizure (Group C) 16 patients (80%) had focal seizures with or without secondary generalization (8 immediate, 5 early and 4 late onset) and 4 (20%) patients had generalized seizure (4 early and one late). Recurrence occurred only in 2 patients (10%) all of them were late onset seizure.

Conclusion: Incidence of seizure in cases of stroke is 10%.

### 75. Hyperhomocysteinemia - An Independent Risk Factor in Ischemic Strokes

P Hushe, MK Bang, D Kurhade, MW Wadikahaye
St. George’s Hospital (JJ Group of Hospitals), Mumbai.

Introduction: Besides the traditional risk factors (smoking, dyslipidemia, HT, DM) over last several years, observational and epidemiological studies have identified a lot of new and potential risk factors for atheroembolic vascular disease, of which hyperhomocysteinemia has received increasing attention during past decade. It has been implicated in variety of other clinical conditions including neural tube defects, spontaneous abortions, placental abruption, low birth weights, renal failure NIDDM, rheumatoid arthritis, alcoholism, osteoporosis, and neuropsychiatry disorders. Elevated levels of plasma homocysteine has been repeatedly implicated in various studies as risk factor for ischemic stroke, however results of prospective studies are conflicting.

Aim: This study aimed at identifying serum homocysteine level and its role in ischemic stroke as a risk factor, in subgroup of Indian patients. Also to evaluate the correlation of serum homocysteine levels (it’s magnitude) and other risk factor in ischemic stroke.

Material and Methods: We evaluated 65 patients of cerebrovascular accident at a teaching institute which centers to large urban and suburban population, in Mumbai. Inclusion criteria: acute or gradual onset focal neurological deficit and CT scan showing infarct. Exclusion criteria: Patients with chronic renal failure, Chronic liver failure, malignant neoplasm, collagen vascular disease like SLE, uncontrolled diabetes, patient on phenytoin, etc. After applying these criteria, we had 30 patients to be included in our study. We took similar numbers of controls i.e. 30, considering the age and sex of the study group patients.

According to proforma detailed clinical history was obtained and recorded with special attention was given to evaluation of risk factor. The details of patient’s diet, smoking, alcoholism, medications, hypertension and diabetes were recorded. Blood was sent for following investigation CBC, RBS, fasting and postprandial samples for sugars, liver function tests, serum lipid profile, serum B12 level, serum homocysteine levels. Blood samples were drawn from an arm vein from patients in the fasting state. Homocysteine testing performed by fluorescent polarization immunoassay.

Results: A study of 30 patients with stroke with CT scan showing infarct was done in our institute. In our study out of 30 subjects 20 were male and 10 were female. Out of 20 male cases, 16 had increased homocysteine level i.e. 80% of males had increased serum homocysteine level. Out of 10 females, 7 female had increased serum homocysteine levels i.e. 70% females ha increased homocysteine levels. Of total patients, 23 i.e. 76.6% subjects had raised fasting serum homocysteine level. 11 patients were vegetarian i.e. 36.6%. Of 11 vegetarian subjects 8 had increased homocysteine level i.e. 72.2% vegetarians had raised homocysteine level. Out of total 30 subjects 6 had diabetes mellitus (20%), 5 were hypertensive (16.6%), 12 were smokers and 18 were non smokers. Out of 12 smokers 11 had increased level of serum homocysteine i.e. 91.6% had increased homocysteine level. Serum homocysteine was found to be higher in smokers who had stroke. All diabetic female had increased homocysteine level.

Conclusion: Our study supports the evidence that elevated
plasma homocysteine level play important causes role independently and in combination with other factors like hypertension, diabetes, smoking, alcohol, increased level of cholesterol and dietary habits. The major shortcoming of our study was limited number of patients. It would be desirable to have larger and longer trials in different populations with elevated total homocysteine.

78. Clinical Profile and EEG Pattern in Patient Presenting as Juvenile Myoclonic Epilepsy in Kanpur

H Shanker, A Trivedi, N Kumar, R Chandra
KPS PG Institute of Medicine, GSVM Medical College, Kanpur.

Aims and Objective: To study the clinical profile and EEG pattern in patients presenting as juvenile myoclonic epilepsy.

Material and Methods: Forty-nine patients of JME and 5 relatives were included with history of bilateral myoclonic jerks beginning at teen age with no neurological and intelectual deficit and with normal CT scan and MRI.

Observations: Most common seizure type was myoclonic jerks with GTCs which was present in (83.67%) while absence with myoclonic jerk was present in 2.04%, 8.16%, presented with myoclonic jerks absence seizure and GTCs. 6.12% patient only had myoclonic jerks, 61.2% patient had 1-2 seizure per month and 32.6% patient had 1-2 seizure per month. Although 1.17 patient had 8-10 seizure before treatment. Most common precipitating factor was sleep deprivation. Photosensitivity was found in 38.7% patient.

Two patient had history of febrile convulsions in childhood 42 patient had abnormal EEG on first or second too.

Majority patient 8.2% responded to YPA while 6.2% patient required more than one antiepileptic drug 6% patients were treated successfully without VPA. Family history was positive in 13 (20.53%) patients. 27 patients of 13 patients of JME were affected successfully without VPA. Family history was positive in 13 (20.53%) patients. 27 patients of 13 patients of JME were affected successfully without VPA.

*79. Randomized Control Study of Early Use of IV Magnesium Sulphate within 12 Hours of Acute Stroke

P Agarwal, A Batla, RN Dwivedi, N Kumar, R Chandra, IN Vajpai
PG Institute of Medicine, GSVM Medical College, Kanpur.

Background: Intravenous magnesium has neuroprotective role in animal models of stroke, and potential benefit in human subjects. We aimed to test whether intravenous magnesium sulphate, given within 12 hr of stroke onset, reduces death or disability at 90 days.

Methods: Patients were randomized to receive 16 mmol Magnesium sulphate iv over 15 min and then 65 mmol over 24 hr, or matching placebo and followed for 90 days. Primary outcome was mortality. Secondary outcomes were death or disability, defined as Barthel index < 60 independent and ≥ 60 considered disabled and modified Rankin score, with patients scoring ≤ 2 independent and others disabled. Patient subgroups were ischaemic and hemorrhagic, stroke syndromes and patients in whom treatment commenced ≤ 6 hr versus > 6 hr.

Findings: The study included 45 patients. Primary outcome was not improved by magnesium in all patients. In infarction subgroup (n=34) which included 17 cases and 17 controls mortality was less in magnesium treated group (OR = 2.87, 95% CI 1.57-4.17 P = 0.07) but no such difference was found in hemorrhage patients. There was significant benefit of magnesium on morbidity in the less than 6 hour treatment subgroup in infarction (n=19) (OR = 8, 95% CI 5.9-10.1 P = 0.03).

Conclusion: Magnesium given within 12 hr of acute stroke does not reduce the mortality or disability significantly in hemorrhage, although it showed benefit in ischaemic stroke which was significant on morbidity if administered within 6 hours of stroke onset. Larger studies are needed to establish it's beneficial role on mortality and morbidity if used within 6 hrs in ischaemic stroke.

80. Clinical Features, Serial Electrodiagnostic Profiles and Prognostic Indicator in Patients with Gullian Barre Syndrome

A Trivedi, R Chandra, SK Saxena, N Kumar
KPS PG Institute of Medicine, GSVM Medical College, Kanpur.

Aims and Objective: To study the clinical features and social echodiagnostic profile and prognostic indicators in cases of Gullian Barre Syndrome.

Material and Methods: Twenty patients of GB syndrome were included in study all patients weakness of two and more limbs due to neuropathy and disease progression less than four weeks.

All patients were clinically examined and nerve conduction studies were done at the time of admission, discharge from hospital and after four weeks.

Observation: Nerve conduction studies were done in 13 patients (65%). Four patients showed prolonged distant latencies. Dispersion of evoked cMAP with normal amplitude of cMAP. Suggestive of demyelination six patient has reduced amplitude of cMAP suggestive of axonal degeneration. Only one patient among axonal variety has reduced sensory nerve action potential (SNAP) indicative of AMSAN the remaining five patients of axonal variety were of AMAN. Three patients had evidence of both demyelination and axonopathy.

Conclusion: GBS is a heterogenous condition. Older age, antecedent gastroenteritis an electrophysiological evidence of axonopathy may be independently associated with a more severe disease and poor chance of recovery.

81. Posterior Circulation Ischemic Stroke

S Kumaravelu, A Harris, S Johri, SP Gorthi
Armed Forces Medical College and Command Hospital (Southern Command), Wanowrie PO.

Objective: It was proposed to study the aetiology, risk factors, clinical presentation of posterior circulation ischaemic stroke and correlate with anatomical localization using neuroradiological techniques.

Methodology: A serial sampling of patients of posterior circulation ischaemic stroke was done. Transient ischaemic attacks were excluded. Historical evaluation included demographic data, neurological symptoms, risk factors profile and relevant family history. A detailed clinical examination was done. Investigations included risk factor profile, and neuro imaging. Patients were followed up till death or 03 weeks and outcome classified as poor and good.

Results: Fifty patients of posterior circulation ischaemic stroke were studied over 2 years (April 2002 to March 2004) in a tertiary referral service hospital. Males predominated (2:57:1). Majority (54%) were in the fifth and sixth decades. Risk factors were hypertension (36%), smoking (30%), alcohol (28%) and diabetes mellitus (22%). Four patients (20%) each had HHD, TIA, hypercholesterolemia and obesity. Common presenting symptoms
were vertigo (54%), ataxia (52%), dyathria (44%) and vomiting (40%). Subset analysis showed appropriate symptoms. Cerebellar lesions (36%) were the commonest, followed by posterior cerebral artery territory (PCA) (26%), andons (24%) medulla (16%) and mid-brain (12%). Multiple infarcts were seen in 18%. Good outcome was seen in 31 patients (62%). Five patients (10%) died.

Conclusion: Posterior circulation strokes are common in the fifth and sixth decades. Hypertension and smoking are common risk factors. Cerebellar infarcts are the commonest to occur followed by PCA territory. Coma at onset is associated with poor outcome. PCA territory strokes have the best outcome.

84. Study of Newer Risk Factors in the Incidence of Stroke
AA Khandekar, PP Ashok, FD Dastur
PD Hinduja Hospital, Mahim, Mumbai.

Background and Aim: Stroke remains a major cause of mortality and morbidity worldwide. Only 50% of cardiovascular risk factors are due to conventional causes. The need to evaluate some of the unconventional risk factors like homocysteine (Hcyst) and lipoprotein (a) [Lp(a)] as a possible cause for stroke was felt and hence the present study was undertaken.

Method: Eighty-six consecutive patients aged 12-80 years presenting with a fresh stroke were included. Controls were chosen as patients who were admitted for conditions other than stroke. Hcyst and Lp(a) levels were done for both cases and controls. All conventional risk factors were also considered in both populations.

Result: The mean Hcyst levels in patients and controls were 2.61 mcg/ml and 2.34 mcg/ml respectively (odds ratio 1.5). Mean Lp(a) levels among patients and controls were 67.45 mg/dl and 78.14 mg/dl respectively (odds ratio 63). Both were statistically insignificant. There was no significant difference between the cases and controls when individual risk factors and type of stroke were taken into consideration.

Conclusion: There is no significant relation between either high Hcyst or high Lp(a) and stroke.

128. Dysphagia Following Stroke: Correlation with Stroke Subtype and Vascular Territory and In-hospital Respiratory Morbidity and Mortality
V Pahuja, U Sundar, R De'Souza, M Yeolekar
LTMG Hospital, Sion, Mumbai.

Aims: Correlation of dysphagia following stroke, with vascular territory and stroke subtype, and with in-hospital respiratory morbidity and mortality.

Material and Methods: 50 serially recruited consecutive stroke patients (41 infarcts, 9 hemorrhages) were evaluated. 3 stage Standardized Staff Swallowing Assessment (SSA) with pulse oximetry was performed in all patients. Failure at any stage defined was unsafe swallowing. Thrice weekly 14 days follow up was done. Clinical exam, chest x-ray weekly, ABG, and antibiotic use was evaluated. Barthel index score at discharge for dependency status was assessed. Statistics chi square test was utilized.

Results and Conclusions: 21/50 strokes had unsafe swallowing within 3 days of stroke onset. Unsafe swallowing was commoner in hemorrhages (7/9) versus infarcts (14/42) and in cortical strokes (7/11) vs subcortical strokes (6/30). 100% of anterior circulation strokes (4/4), 36% of partial anterior circulation (8/22), 33% of posterior circulation (1/3) and 18% of lacunar strokes (2/11) had unsafe swallowing 16/50 patients developed chest infection. In stage 1 and 2 of SSA poor consciousness level, weak voice, poor cough, tongue weakness, dribbling, impaired laryngeal movements, choking and wet cough had 100% positive value for respiratory morbidity. In stage 3, negative predictive value for development of chest infection was 80% to 87% for water dribbling, choking, coughing and poor voice quality. Age greater than 65 years, GCS < 10, unsafe swallowing on SSA, (15/16 patients with chest infection had unsafe swallowing) and desaturation on pulse oximetry > 2% in stage 2 or 3 (11 of 14 such patients developed chest infection) were all independent predictors of respiratory morbidity. Respiratory morbidity was significantly commoner in hemorrhagic strokes (6/9) vs infarcts (10/41) and in total anterior circulation (4/4) vs lacunar strokes (0/11). 5/21 patients with unsafe swallowing had residual dysphagi at discharge. Ward stay was significantly longer in this group (10.8 days vs 6.5 days in safe swallowing). Overall mortality was 5/50, all belonging to “unsafe swallowing” group, 2 from total anterior circulation territory, 2 hemorrhagic strokes and 1 posterior circulation stroke. It is surmised from the data that early intervention at 48 hours in the form of percutaneous esophagogastroduodenoscopy would prevent respiratory morbidity and mortality following stroke.

129. Botulinum Toxin Therapy in 102 Patients of Various Disorders - A 5 Years Experience
B Ghosh, I Jha, S Sengupta, S Pulai, S Mukherjee, SB Sarkar
BP Singh Hospital, Eastern Railway, Sealda, Kolkata 700 014.

Botulinum Toxin Type A is a potent neuromuscular blocking agent that has been in various disorders. Here we present our experience of using botulinum toxin in different conditions over past 5 years. Cases were grouped as I. Hemifacial spasm (HFS), II. Blepharospasm, III. Various dystonias, IV. Orofacial dyskinesias, V. Spasticity, VI. Headache, VII. Tics, VIII. Hyphersudorhys of palms. Relevant investigations were done to exclude secondary causes of blepharospasm, dystonia, HFS, and headache. Exclusion criteria for spasticity were fixed contractures, loss of power in agonist and antagonist muscle, significant cognitive impairment, and age < 2 years. Efficacy of drug was assessed by patient’s self-assessment, clinical examination based on different scales, pre and post-injection videography. Out of 102 patients group I - Consisted of 20 patients (M:F - 7:13, mean age 48.2 yrs, dose range 30-40 u, all benefited); group II - 7 patients (M:F - 4.3, mean age 47.1 yrs, dose range 40-60 u, all benefited); group III - Majority being Writer’s cramp (16 patients all male, mean age 38 yrs, dose 30-50 u, 50% benefited) and cervical dystonia 2 (M:F 1:1, mean age 21 yrs, dose range 100-200 u, both benefited); group IV - Comprised of 8 patients (M:F 7:1, mean age 54.3 yrs, dose range 50-80 u, 80% benefited); group V - 26 patients, majority being cerebral palsy and post-stroke spasticity, (dose range being 100-300 u, functional benefit 40%); group VI - Headache (20 patients, 15 patients of chronic migraine - 10 had excellent response. 5 tension type headache - only 2 had response); group VII - 2 cases who had excellent response; group VIII - 1 patient of hyperhydrosis of palms - responded nicely. Thus, botulinum toxin is safe, has minimal adverse effect and provides short and long term benefit in most of the patients.

262. Increasing Risk of Carbonmonoxide Neurotoxicity Among Drivers in Delhi: A Landmark Study
R Dewan, D Manocha, R Nehru, A Gupta, R Anand, S Zachariah, K Kumar, P Mehta
Maulana Azad Medical College, Lok Nayak and GB Pant Hospital, New Delhi.

Background: Delhi’s vehicular density in last 5 years has increased by 30% contributing to carbon monooxide load in the air. Neuropsychological assessment can be used to detect the earliest neurotoxic effects of carbon monooxide.

Aims: To compare the levels of carboxyhemoglobin of study subjects who drove in Delhi in 2003-2004 with those who drove in the year 1997-1998. To compare performance of these groups in...
neurobehavioural tests. To find any correlation between neurobehavioural test scores and levels of carboxyhemoglobin.

Methodology: Thirty healthy medical students driving to college in the year 2003-2004 formed group A and fifty healthy medical students driving to college in the year 1997-1998 formed group B. The neurobehavioural tests used in both the groups were: Story recall test, Finger tap test and Digit symbol test.

Results: The age distribution of both the groups were comparable. Mean age in Group A was 24.50 ± 2.66 years and in Group B was 24.42 ± 4.28 years. Carboxyhemoglobin level in group A (6.10 ± 1.24%) was significant higher (p < 0.0001) than that of group B (3.96 ± 1.67%). Cumulative scores of group A (14.67 ± 4.58) in Story recall test were significantly lower than those of group B (16.36 ± 4.74). Scores of both the groups were comparable in finger tap test and difference was statistically insignificant. Subjects of group A scored significantly lower than that of group B in Digit symbol test at 90 seconds and 120 seconds. The total time taken to complete the Digit symbol test by group A (153.90 ± 16.76) was significantly higher than that taken by group B (144.86 ± 9.76). The scores of story recall test and Digit symbol test showed significant correlation and variance with carboxyhemoglobin levels.

Conclusions: A significant increase in Carboxyhemoglobin levels indicates higher degree carbon monoxide exposure in last 5 years. Neurobehavioural derangements after driving have worsened significantly in last 5 years especially the short-term memory, visual perception, visual-motor skills, symbol manipulation, problem solving, reasoning and judgment.

695. Epidemiology of Stroke in Rural West Bengal, Eastern India: A 5 year Prospective Study

SK Das, SK Bhattacharya, SP Saha, B Maity, T Roy, A Basu
Bangur Institute of Neurology, SSKM Hospital, Kolkata.

Background and Purpose: Longitudinal, community-based, prospective studies in stroke are lacking from India. For the first time, we conducted this 5-year (May 1992 to April 1997) prospective, neuroepidemiological study based on WHO protocol to find out the incidence/prevalence, morbidity/mortality and risk factors for stroke in rural West Bengal, an eastern state of India.

Methods: 20842 individuals (Male: 11037, Female: 9805; Census 1991) residing in a cluster of well-demarcated villages with stable population were followed over a 5 year period in this study. A team of neurologists performed surveillance over this time period, which consisted of house-to-house survey, identification and examination of stroke cases and post-stroke one year follow up.

Results: 128 (M/F = 68/60) first ever stroke cases were detected in 5 years with crude incidence rate 123/100,000 persons/year and age adjusted incidence rate (AAIR) 262/100,000 persons/year based on USA population, 1991. Sex specific AAIR among men and women was 253 and 274/100,000 persons/year respectively. Age and sex specific stroke incidence was 62/100,000 persons-year at age < 40 which continued to double with each decade up to seventh decade in both sexes and declined thereafter in women. 30 day mortality of all stroke cases was 18% with men twice the rate of women. Mean age of stroke onset was 61 year, which is lower, compared to western population. Complete improvement was noticed in speech/language in 47%, in ADL in 62% of cases with residual spasticity in 46% patients. Risk factor analysis has shown that hypertension; heart disease and smoking are significant risk factors.

Conclusions: This study indicates a higher incidence and earlier onset of stroke in India as compared to that of developed countries. Women were slightly more affected than men. Maximum stroke occurrence had been documented during seventh decade and hypertension, heart disease and smoking are important risk factors.

* Adjudged Best Papers and got an award of Rs. 1000/- each from Chairman Scientific Committee, Diamond APICON 2005.