Clinical Audit of Patients with CVA in Medical Unit-I, Jinnah Hospital, Lahore.

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A clinical audit of patients of C.V.A admitted in medical unit 1 Jinnah hospital Lahore during months of September to January 1999-2000 is presented. During this period total number of 50 C.V.A patients were studied. There were 24 males and 26 females with a mean age of 59.5 years. Among them 34 were suffering from cerebral infarction, 5 had subarachnoid haemorrhage, 6 had intracerebral bleeds while 5 were victims of transient ischemic attacks. Out of these 22 patients improved, 9 expired while 19 of these showed no signs of improvement. Average hospital stay was 5.1 days. Hypertension, Diabetes mellitus, old age, smoking and previous C.V.A were the main culprits among the various risk factors.

Key words: Clinical audit, CVA, infarction, SAH, Intracerebral bleed

The development of better patient care and technological advances with increased awareness of the risk factors has lead to the decline in the annual incidence of stroke yet it remains the third leading cause of medically related deaths and the second most frequent cause of neurologic morbidity in developed countries[1,2].

The typical ischemic stroke presents with the abrupt onset of focal neurologic deficit and is characterized clinically by its mode of onset and subsequent course. The symptoms and signs of C.V.A vary but the hallmark presentation is the abrupt onset of hemiparesis. Virtually any symptom of brain dysfunction may occur.[3]

Department of medical unit 1 Jinnah Hospital Lahore is a general medical ward which deals with all sorts of medical ailment, treating patients inpatients, outdoors and medical emergencies.

A clinical audit of 50 patients with C.V.A is carried out in medical 1 in Jinnah hospital Lahore

Material and methods

A total number of 50 C.V.A patients, who were admitted in medical unit 1 through emergency or outdoor, were studied during the months of Sept to January 1999-2000. A history-based questionnaire was designed. Special consideration was given for the exploration of possible risk factors with their duration; classification of C.V.A based on clinical and CT findings; duration of hospital stay and the outcome of this episode of C.V.A.

In each case routine investigations were carried out like blood complete, urine complete, ECG, chest x-ray, blood sugar levels, blood cholesterol, echocardiography but CT scan remained the mainstay of the diagnosis.

Results

Department of medical unit 1 is a 40 bedded ward which deals with all sorts of medical emergencies, indoors and outdoors. Total number of 50 admitted patients were studied. There were 24 (48%) males with mean age of 58.25 years and 26 (52%) were females (Fig 1) with the mean age of 60.57 years, average mean age being 59.5 years. There were 2 admissions in September, 13 in October, 5 in November, 19 in December and 11 in January (Fig .2 Table 1).

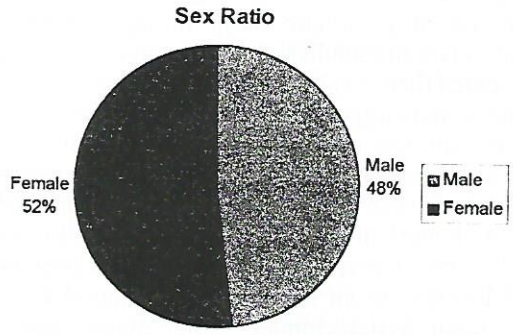

Fig. 1 Sex distribution for CVA

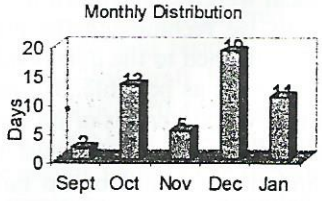

Fig. 2. Pattern of monthly presentation of CVA patients.

Out of total 50, 35 (68%) were suffering from cerebral infarction constituting the most common cause of C.V.A (Fig no.3 Table.2). 19(54.2%) were females and 16 (45.8%) were males with an average hospital stay of 5.59 days (Fig no.4). Total expiries were 2, mortality being 5.71% (Fig no.5).

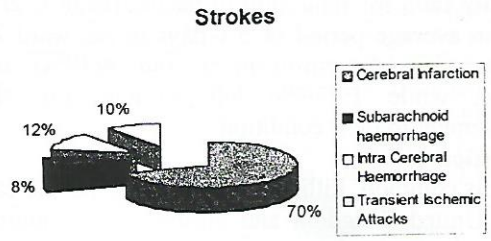

Fig. 3. Percentages of different stroke type presentation

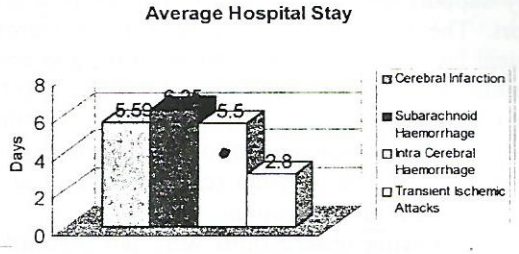

Fig. 4. Average hospital stay.

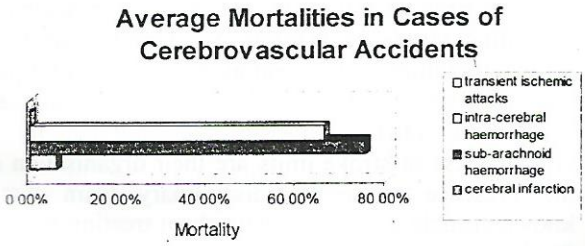

Fig. 5. Mortality in different types of stroke.

In haemorrhagic cases 4 were of subarachnoid haemorrhage with 1 male (25%) and 3 females (75%) with average hospital stay of 6.25 days. 3 expired with mortality of 75%, while 6 were of intracerebral bleeds 3 (50%) males and 3 (50%) were females and average hospital stay was 5.5 days, 4 of these expired with a mortality of 66%.

Five cases of transient ischemic attacks were admitted with 4(80%) being males and 1(20%) female, average hospital stay was 2.8 days with no mortality.

Mean average hospital stay was 5.1 days. Total expiries were 9 with average mortality in C.V.A 18% (Fig 6).

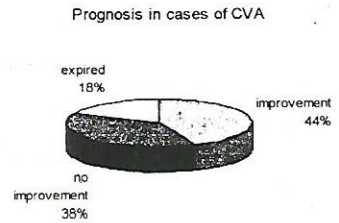

Fig. No.6. Prognosis in CVA

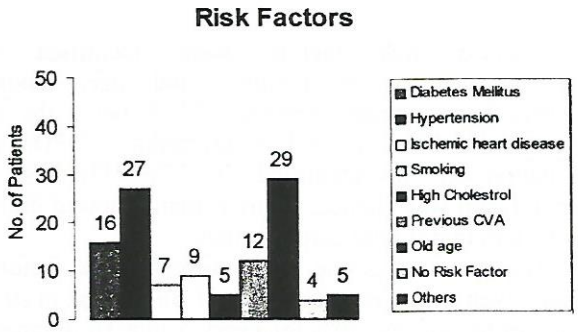

Fig 7. Main risk factors of CVA

Discussion

Many studies have been conducted in the Western community involving the patients of stroke. A study conducted by J Bamford etal,[4] in Oxford U.K showed 81% cerebral infarcts, 10% intracerebral haemorrhages and 5% subarachnoid haemorrhages. Overall fatality was 19%, 10% being from cerebral Infarcts, 50% from intracrebral haemorrhage and 46% from subarachnoid haemorrhage.

In another study carried out by Christopher J Weir etal.,[5] in Glasgow U.K showed 86% ischemic infarcts and 14% haemorrhages while a study conducted by Gord Gubitz and Peter Sandercock in Canada [6] showed 80% ischemics and the rest with haemorrhage and overall mortality of 10% and the same results were obtained by the study of Gross C etal[7] carried out in South Alabama USA.

Study by M.A Javaid etal [8] in Lahore, Pakistan revealed 55.4% ischemic strokes, 37.3% intracerebral haemorrhages and 5.5% subarachnoid haemorrhages and study by

Table 1. Monthly presentation and sex distribution of the cases of CVA.

Months	Total admission of CVA	Males	Females
September	2	2	0
October	13	7	6
November	5	2	3
December	19	8	11
January	11	5	6
Total	50	24	20

Table 2. Different pathological varieties of CVA, average hospital stay and prognosis

Pathology	n=	Male	Fe-male	Ave. Hospital stay (days)	Morta lity	%age
Cerebral infarction	35	16	19	5.59	2	5.71
Subarachnoid haemorrhage	4	1	3	6.25	3	75
Intracerebral haemorrhage	6	3	3	5.5	4	66
Transient ischemic attacks	5	4	1	2.8	0	0
Total	50	24	26	5.1	9	18

Rafique Ahmed Basharat etal [9] of Islamabad, Pakistan, brought forth the results with 54% cerebral infarcts and 46% haemorrhages.

Various risk factors were identified with hypertension, diabetes mellitus, old age, smoking, ischemic heart disease, previous C.V.A being the main factor and others: alcohol, bradycardia, COPD, atrial fibrillation were also identified (Fig 7.Table 3). In 4 cases no risk factor was elicited. Many patients showed multiple risk factors in different combinations.

Hypertension is the most powerful risk factor for stroke. Even within normal ranges of BP the risk of strokes increases by approx. 50% for every 5 mm Hg increase in diastolic pressure throughout range of 70-100 mm Hg. The risk of stroke is approx. 4 times greater in-patients with definite hypertension[10]. In our study there were 27 hypertensive patients making it 54% of the total. While the other study also showed similar %age of hypertensive patients i.e 59%[11].

Risk factors

	Total	Males	Females
Old age (60 & above)	29	13	16
Hypertension	27	15	12
Diabetes mellitus	16	7	9
Previous CVA	16	7	9
Smoking	9	10	2
Ischemic heart disease	7	5	2
High cholesterol (220mg/100ml & above)	5	3	2
Others			
Atrial fiberillation	1	1	0
Bradycaraia	1	1	0
Idiopathic thrombocytopenic purpura	1	1	0
COPD	1	1	0
No risk factors elicited	4	2	2

Diabetes mellitus independently causes a 3 fold increase in the incidence of stroke[10]. In various studies the incidence of diabetes in patients of stroke is 8%[5] and 21% [12] and 21% [13].We had 4(8%) patients who were suffering only from diabetes but on the whole 16 (32%) had diabetes along with its other complications like hypertension, etc.

Old age is unalterable risk factor for stroke. Incidence of stroke approx. doubles with each decade of life between ages 45 and 85[10]. Half of the patients with stroke are over 75 years of age[6]. We had 29 of our patients who were above 60 years and it constitutes 58% of all the patients. Mean age for C.V.A being 59.5 years in our setup.

The occurrence of an initial stroke is a powerful predictor of recurrent stroke. 12 (24%) of the patients of C.V.A from our study had history of previous stroke or TIA.

Smoking increases stroke risk 2-4 fold[10]. The contribution to inequalities in mortality of disease specific risk factors like smoking and alcohol consumption varies greatly between countries[12]. 9 males were identified to be smokers and this gives smokers a percentage of 18 among the sufferers of C.V.A.

The prognosis for survival after cerebral infarction is better than after cerebral or subarachnoid haemorrhage. Ratio of infarct: haemorrhage in our study is 70:20 and mortality ratio for infarction to haemorrhage is 2/35:7/10. With an average period of 5.1 days in the ward 22(44%) patients showed improvement and 9(18%) of them expired, while 19(38%) left without any signs of improvement in their condition.

Suggestion

Stroke is common, killing around 65 000 people each year in the United Kingdom and disabling even more [14]. A patient who is struck by stroke is completely dependent on the other people for all his needs. During this time he needs a lot of family support and care. In our society family support and caring is there but we lack technical support. The need of the hour is that we increase the technical facilities for the patients of stroke and especially rehabilitation centers should be established at least in the major government hospitals. These centers are going to go a long way in the improvement of living standards of the patients who are left with the residual debility after they are discharged from the hospital.

The following observations were put forward by M. Dennis and P. Langhorn[15] in their fortnightly review on the stroke units:

- Treating stroke has three main components: acute care, rehabilitation, and prevention. A comprehensive stroke service therefore includes an assessment area for acute stroke, a stroke rehabilitation unit, and continuing care.
- The most obvious factors contributing to the effectiveness of stroke units are their organisation and the presence of a multidisciplinary team that is knowledgeable and enthusiastic about treating stroke.
- Stroke services should be tailored to local conditions.

Conclusion

1. Male female ratio is almost equal for C.V.A.
2. Mean age is 59.5 years.
3. Mortality in cases of haemorrhage is 12 times more than infarction, showing poor prognosis.
4. Old age, hypertension, diabetes mellitus, previous C.V.A along with smoking are the main risk factors for C.V.A.

References

1. Caplan LR: Stroke: A Clinical Approach, 2nd ed. Butter Worth-Heinemann, 1993. Current Medical Diagnosis and Treatment 1997.
2. Bonita R. Epidemiology of Stroke. Lancet 1992; 339: 342-34.
3. J. Donald Easton, Stephen L. Hauser, Joseph B. Martin, p: 2325 Harrison's Principles Of Internal Medicine, 14th edition.
4. Bamford J, Sandercock P, Dennis M, Warlow C, Jones L, McPherson K. A prospective study of acute cerebrovascular disease in the community: the Oxfordshire community stroke project, 1981-1986. 1. Methodology, demography and incident cases of first ever stroke. J Neurol Neurosurg Psychiatry 1988; 51: 1373-1380.
5. BMJ 1997;314:1303 (3 May)Papers Is hyperglycaemia an independent predictor of poor outcome after acute stroke?

Results of a long term follow up study :Christopher J Weir, MRC training fellow,[a] Gordon D Murray, reader in medical statistics,[b] Alexander G Dyker, lecturer in stroke medicine,[a] Kennedy R Lees, clinical director, acute stroke unit [a] Acute Stroke Unit, University Department of Medicine and Therapeutics, Western Infirmary, Glasgow G11 6NT, [b] Robertson Centre for Biostatistics, University of Glasgow, Glasgow G12 8QQ. Correspondence to: Mr Weir

6. BMJ 2000;320:692-696 (11 March)Clinical review : Extracts from "Clinical Evidence":Acute ischaemic stroke :Gord Gubitz, clinical research fellow, Peter Sandercock, reader in neurology.Neurosciences Trials Unit, Department of Clinical Neurosciences, University of Edinburgh, Edinburgh EH4 2XU.Correspondence to: G Gubitz, Division of Neurology, Room 3833, NHI Site, Queen Elizabeth II Health Sciences Centre, 1796 Summer Street, Halifax, NS, Canada B3H 3A7.
7. Gross C, Kase C, Mohr J, etal., Stroke in South Alabama : Incidence and diagnostic features in a population based study Stroke, 1984; 15 249-54.
8. M.A Javaid etal., Cardiovascular accident pattern and distribution of different types based on computed tomography, Pakistan Journal of Surgery, 1995 oct-dec, vol 11 no.4 : 213-15.
9. Rafique Ahmed Basharat etal., One month Audit of Stroke at PIMS, Pakistan Journal of Neurology, 1999 jan-june,vol.5 no.1: 12-16.
10. William A. Pulsinelli, p: 2070 Cecil Text Book of Medicine, 20th edition.
11. BMJ 1998;316:1636-1642 (30 May). Occupational class and cause specific mortality in middle aged men in 11 European countries: comparison of population based studies.Anton E Kunst, assistant professor, Feikje Groenhof, researcher, Johan P Mackenbach, professor, EU Working Group on Socioeconomic Inequalities in Health.
12. Weinberger J. Biscorrav, Weisbery M. K. Factors contributing to stroke in patients with 15 atherosclerotic disease of the great vessels : The role of diabetes. Stroke, 1983
13. Bamford, P Sandercock, M Dennis, J Burn and C Warlow J: A prospective study of acute cerebrovascular disease in the community: the Oxfordshire Community Stroke Project--1981-86. 2. Incidence, case fatality rates and overall outcome at one year of cerebral infarction, primary intracerebral and subarachnoid haemorrhage University Department of Clinical Neurology, Radcliffe Infirmary, Oxford, United Kingdom.
14. 709 : Secretary of State for Health. The health of the nation. London: HMSO, 1991. (Cm 1523.)
15. M Dennis, P Langhorne: Education and debate :Fortnightly Review: So stroke units save lives: where do we go from here? BMJ 1994;309:1273-1277 (12 November) :. Department of Clinical Neurosciences, Western General Hospital, Edinburgh EH4 2XU.