A Study on Stroke Victims in Rajiv Gandhi Government General Hospital, Chennai

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Abstract

Objectives: Stroke is a devastating and disabling cerebrovascular disease with some amount of residual deficit leading onto economic loss. Recent Indian studies have shown a stroke prevalence rate of 471.58/1,00,000 population. This study was undertaken to analyse the clinical profile and to arrive at important facts contributing to stroke in both the sexes.

Methods: This is a descriptive, retrospective cross-sectional study carried out on acute stroke patients, admitted to the I.I.M., RGGGH, Chennai. 150 patients were studied over a period of 3 months in the year 2011.

Results: 58% males and 42% females constituted our study population. Among males 18.4% and among females 22.2% were young stroke patients. Only 33.3% of patients were brought to the hospital within 6 hours. 90% patients had mild GCS score(≥13/15) and presented with hemiplegia. 76% and 18% had infarct and intracerebral haemorrhage (ICH) respectively. Risk factors: Type A personality (70.7%), Tobacco (60.7%) and Alcohol (44.7%) abuse, Systemic Hypertension (60.7%), Diabetes Mellitus (33.3%), Cardiac disorders (14%).

Conclusion: Significant proportion of Cerebrovascular accidents (CVA) was seen in the young females. Type A personality was seen in large number of study subjects. Personal habits in males and chronic comorbid illness in females had a strong association with occurrence of stroke. A holistic approach encompassing public awareness, behavioural modification and comorbid medical illness management is the need of the hour.

Introduction

Stroke is a devastating and disabling cerebrovascular disease with significant amount of residual deficit leading on to economic loss. It has been defined as a rapidly developing signs of focal (or global) disturbance of cerebral function with symptoms lasting for ≥ 24 hours, or leading to death with no apparent cause other than vascular origin. In the west, it is the 3rd most common cause of morbidity and mortality. Though India was ranked among countries lacking sufficient stroke research data, some of the recent studies have elucidated the stroke pattern to considerable extent in our country with a prevalence rate of 471.58/1,00,000 population. Despite many studies prevail regarding stroke, still this major illness remain widely prevalent. Hence this study was undertaken to delineate the various aspects of stroke in our setup which shall be of immense use to the physicians who are required to manage the patients disabled by stroke. This study was conducted on acute cerebrovascular accident (CVA) patients admitted to the Institute of Internal Medicine, Rajiv Gandhi Government General Hospital, Chennai, to assess and analyse the epidemiological, clinical and risk factor profile of these stroke victims with particular reference to males and females.
Methods and Materials

This is a descriptive, retrospective, cross sectional study carried out on acute CVA patients admitted to the Institute of Internal Medicine, Rajiv Gandhi Government General Hospital, Chennai. Patients admitted for hemiparesis other than CVA were excluded from the study. Sample size was 150 CVA patients. This study was conducted over a period of 3 months during the year 2011. Patient data collection forms were used to collect data on age, sex, educational status, time of occurrence, time lapse, clinical profile and risk factors - chronic medical illness (diagnosed and/ or under treatment) : Systemic Hypertension (HT), diabetes mellitus (DM), cardiac disorders (ischaemic heart disease, valvular heart disease, atrial fibrillation, cardiomyopathy, congenital heart diseases). Adverse personal habits : Tobacco abuse (smoking, chewing, snuff), alcohol abuse. Personality Types : Type A : Ambitious, aggressive, highly competitive; Type B : Apathetic, patient, relaxed. Type A may be associated with cardiovascular diseases.

Statistical analysis was done by Pearson chi square test using SPSS 17.0 version software. Ethical committee approval for the above work was obtained before commencement of the study. Informed consent was obtained from the study subjects.

Results

Our study population consisted of 150 CVA patients of which 58% (n=87) were males and 42% (n=63) were females. The percentages of young stroke (<45 yrs) were 18.4% (n=16) and 22.2% (n=14) in males and females respectively (Table 1). 52% (n=78) of our study population were illiterates, of which 39.1% (n=34) were males and 69.8% (n=44) were females. With respect to the Golden period of 6 hours, 33.3% (n=50) patients were brought to the medical attention within this period. 34.5% (n=30) of males and 31.7% (n=20) of females belonged to the above category. 28.2% (n=22) of illiterates and 38.9% (n=28) of literates were brought within the “Golden period”. The clinical profile in
males and females is shown in Table 1. The various risk factors in males and females is given in Figure 1.

The pathology encountered in plain computed tomography (CT) brain was infarct in 76% (n=114) and intracerebral haemorrhage (ICH) in 18% (n=27). However no subarachnoid haemorrhage was encountered in the study. 73.6% (n=64) of males and 79.4% (n=50) of females had infarction. 21.8% (n=19) of males and 12.7% (n=8) of females had ICH. Considering the site of involvement of stroke in the brain, sub cortex accounted for 52.7% (n=79). Other sites involved were sub cortex + cortex 18.7% (n=28), only cortex 15.3% (n=23) etc. The relative distribution of infarction and intracerebral hemorrhage in the various comorbid illnesses is depicted in Figure 2.

Of the total females, 76.2% (n=48) were in perimenopausal age group and 23.8% (n=15) were in reproductive age group, of whom 20% (n=3) were in puerperal period and 26.7% (n=4) had a positive history of recurrent pregnancy loss. 60.9% (n=70) of patients with infarct and 59.3% (n=16) of patients with ICH were tobacco abusers (p-value:0.878). 43.5% (n=50) of patients with infarct and 55.6% (n=15) of patients with ICH were alcohol abusers (p-value:0.257).

90.9% of patients with positive past medical illness and without adverse social habits were females, whereas 9.1% were males (p-value: < 0.001). The proportion of patients with past medical illness having / not having adverse social habits is given in Table 2. On the contrary, males constituted 100% of patients with only adverse social habits and without past medical illness (p-value: < 0.001) (Figure 1).

6% (n=9) of cases had history of recurrent CVA. 4.6% (n=4) of males and 7.9% (n=5) of females had the above history.

**Discussion**

In our study population, majority of patients were males (58.1%). As with previous research works, this study also showed a sex ratio with female predominance in young stroke patients.\(^5\) A prior angiographically proven study reported that 50% of the total cases of stroke in young women were related to pregnancy and puerperium.\(^3\) In our study 20% of young females were in the puerperal period. Stroke is a quintessential medical emergency. CVA patients who receive neurological care within 6 hours of onset of symptoms have a fourfold greater chance of good outcome than those treated after this acute period.\(^7,8\) In the study only 50 patients (33.3%) were brought within 6 hours, of whom males predominated (60%).

Non contrast computed tomography brain is the first imaging modality adopted in CVA patients as it reliably distinguishes acute ICH from cerebral ischaemia.\(^8,9\) In this study, pathological process involved in causation of stroke was evaluated using plain CT-brain. In accordance to prior studies conducted in India, cerebral infarction was the major pathology encountered (76%) in the study.\(^10,11\) On comparison between men and women, females had predominantly infarction and males had ICH (Figure 2). Recent Indian Stroke studies have shown ratio between Infarction : ICH is 2.2:1 (western countries ratio is 5:1).\(^10\) However in our study, it is in the ratio of 4.2:1.

Identification of risk factors for stroke as well as an awareness of the relative importance of each and their interaction carries prime importance in the pathological outcome in both the sexes. Though innumerable risk factors exist for the occurrence of stroke, the most salient and common ones encountered in our setup and those risk factors whose modification has a great positive impact on the occurrence and outcome of stroke has been considered in this study.\(^10,14-16,27\) As far as the chronic medical illness is considered, the most common encountered is the systemic hypertension seen in 60.7% of patients, followed by DM (33.3%) and cardiac disorders (14.1%).\(^2,24\)

Study of pattern of past medical illness in patients with infarct, showed that large number of patients were hypertensives. Whereas in patients with ICH, maximum no. of them had DM and hypertension in combination. Though tobacco abuse was equal among patients with infarct and ICH, alcohol abuse was more among patients with ICH (in accordance to prior studies).\(^29\) Interestingly 70.1% of our study population had Type A personality of whom males predominated.\(^27\)

In assessing the combination and their effects of risk factors, tobacco abuse and hypertension appear to act synergistically as stroke risk factors\(^30\) which was evident in this study also by the following data – hypertensives who were tobacco abusers were 60.43% in contrast to 39.57% who were non tobacco abusers. Similar relation with tobacco abuse was also seen in DM\(^23\) and cardiac disorders.

In this study chronic medical illness had significant contribution in occurrence of stroke in females as for adverse habits in males. Recurrent CVA was most commonly seen in female patients.\(^33\)

Since our sample size was limited, statistical significance could not be met in certain areas, still considerable correlations were presented and discussed in our study setup.
Conclusion

Stroke as a disease entity has significantly accelerated the morbidity and mortality in our country. In the west it is the 3rd most common cause of mortality and in our country figures are fast rising to reach such gigantic proportions. Stroke in women is a potential area to be explored where significant fraction of the CVA was seen in the young females with special reference to the puerperal period. Interestingly most of the patients with ICH were alcoholics whereas tobacco abuse was equally distributed between Infarction and ICH. This opens new avenues to explore the association between prediction of probable CVA pathology and adverse personal habits. As expected, systemic hypertension was the most common factor with significant contribution by diabetes mellitus and cardiac disorders in both the sexes. Type A personality, a less described variable, was seen in a large number of study subjects which needs further elucidation in the future. Thus in a concise manner, personal habits in males and chronic comorbid illness in females stroke victims had a strong association with occurrence of stroke. Therefore the real panacea lies in generating urgent and adequate public awareness on stroke - its causes, symptoms, effects and the need for immediate medical attention within the golden period of 6 hours from the onset of symptoms so that people in general and affected victims in specific can receive early and effective therapy through modern means. Management of chronic medical illness, the most important risk factor in the community, is far from satisfactory especially in women which is well evident from this study and needs serious attention. Thus behavioural modification is the key to long term permanent management of stroke especially in the case of substance abuse which can significantly control the occurrence of stroke specifically in males. Thus a holistic approach is the need of the hour to contain the tough challenge of stroke in our country which is now poised to become a giant threat in near future.

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References


