Study of Stroke Patients in Chhattisgarh Institute of Medical Sciences (CIMS), Bilaspur Chhattisgarh, India

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Abstract:

Objective: To delineate various aspects of stroke in our setup and to analyze the clinical profiles and to arrives at important facts contributing to stroke in both the sexes

Material methods: This descriptive retrospective observational study carried out on acute stroke victims admitted to CIMS over a period of four months in the year 2014

Results: Total subjects enrolled where 281CVA patients. 65.8% males and 34.2% females contributed our study. Young strokes where noted among male and female, 7.1% and 5.3% respectively, was brought within golden period of 6hours. 11.7% presented with mild GCS score (> = 13/15). Among total of 281 patients 67.6%had infarct and 32.4 % had haemorrhage(ICH).Risk factor were hypertension(HT)(44.5%)diabetes mellitus(DM) 12.1% , cardiac disorder(IHD)(17.4%)and repeated CVA (5.3%).CVA patients with adverse social habits,Tobacco in 65.8and alcohol in18.5%.

Conclusion:significant proportion of CVA was seen in young patients having male preponderance. Strong association co morbid illness and association of stroke in female and adverse social habits in male noted .a definite approach comprising of public awareness and modification of life style and management of co morbid illness is need of an hour.

Keywords: cerebrovascular accidents, CVA, stroke

I. Introduction

Stroke is a major health problem. It is most common neurological condition causing long term disability and has enormous emotional and socioeconomically consequences in patients. 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[1]. ThoughIndia was ranked among countries lacking sufficient stroke research data,[2] some of the recent studies have elucidated the stroke pattern to considerable extent in our countrywith a prevalence rate of 471.58/1,00,000 population.[3] Despite many studies prevail stroke remaining major health problems. Hence this study was undertaken to delineate the comprehensive information 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 an acute CVA patients admitted to CIMS department of medicine Bilaspur,Chhattisgarh,India,to assess and analyse the epidemiological, clinical and risk factorprofile of these stroke victims with particular reference to males and females.

II. Material and Methods

This is a descriptive, retrospective, observational study carried out on acute CVA patients admitted to the Chhattisgarh institute of medical sciences Bilaspur ,Chhattisgarh, India. Patients admitted for hemi paresis other than CVA were excluded from the study. Sample size was 281 CVA patients. This study was conducted over a period of 4 months during the year 2014. 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 (diagnosedand/ or under treatment) : Systemic hypertension (HT), diabetes mellitus (DM), cardiac disorders

(ischemic heart disease, valvular heart disease, atrial fibrillation, cardiomyopathy, congenital heartdiseases). Adverse personal habits : Tobacco abuse (smoking, chewing, snuff), alcohol abuse.

Statistical analysis was done by Pearson chi square test using SPSS 11.5 version software. Ethical committee approval for the above work was obtained before commencement of the study.

Table 1: Clinical profile in male and female

Clinical profile	Male (n =185)	Female (n=96)
GCS Mild (n=185)	60%	77%
Left hemiplegia(n=131)	51.3%	37.7%
Right hemiplegia(n=150)	48.6%	62.5%
Speech disorder(n=112) (aphesia+dysarthria)	37.8%	43.7%
Cranial nerve involvement(n=7)	3.7%	0%

Findings under the clinical profile given in this Table are those which were encountered maximum. Monoplegia, Cruciate, cannot be assessed; Speech - Aphasia : Motor, Sensory, global cannot be assessed.
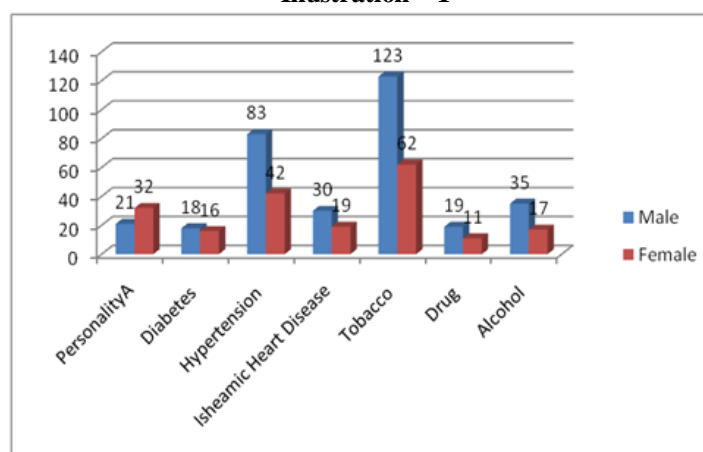
Illustration – 1

Fig. 1 : Risk factors in males and females. The values in the Y-axis represent cases(%). The percentages given in the bar diagram indicate the percentages of males and females with each of the following risk factors- Type A

personality, Tobacco abuse, Alcohol abuse, Systemic Hypertension, Diabetes Mellitus and Cardiac disorders.

This diagram compares the proportion of males and females with these risk factors.

III.   Results

In our study subjects enrolled were 281 CVA patients. The mean age of the patients 55.6 years (SD $\pm$ 0.33).The percentage of males where 65.8%(n=185) and females where 34.2%(n= 96). The percentages of young stroke(< 45 yrs) were 12.5%(n=35) .7.1% (n=20) and 5.3%(n=15) in males and females respectively. Population of our study population were illiterates, of which males was 50.3%(n=93) and 36.5%(n=35) were females. With respect to the Golden period of 6 hours, 11.7%(n=33)patients were brought to the medical attention within this period. 8.5% (n=24) of males and 3.2% (n=9) offemales belonged to the above category. Among the patients who reached the medical attention within 6 hours 54.54%(n-18) where literates and 45.45 % where illiterates The clinical profiles of male and female is shown in table 1 and various risk factors in male and female is given table 2 with their p values .

**Table 2:- Adverse social habits and co morbid medical illness.**

Social habits	Hypertension			Diabetes mellitus			Cardiac disorder (IHD)		
	Males	Females	Total	Males	Females	Totals	Males	Females	Totals
Tobacco	N=60 (32.4%)	N=29 (30.2%)	N=89 (31.7%)	N=13 (7%)	N=8 (8.3%)	N=21 (7.5%)	N=18 (9.7%)	N=13 (13.5%)	N=31 (11%)
Non-tobacco	N=23 (12.4%)	N=13 (13.5%)	N=36 (12.8%)	N=5 (2.7%)	N=8 (8.3%)	N=13 (4.6%)	N=12 (6.5%)	N=6 (6.3%)	N=18 (6.4%)
Alcohol	N=12 (6.5%)	N=3 (3.1%)	N=15 (5.3%)	N=6 (3.2%)	N=1 (1%)	N=7 (2.5%)	N=8 (4.3%)	N=7 (7.3%)	N=15 (5.3%)
Non- alcohol	N=71 (38.4%)	N=39 (40.6%)	N=110 (39.1%)	N=12 (9.7%)	N=15 (15.6%)	N=27 (9.6%)	N=22 (11.9%)	N=12 (12.5%)	N=34 (12.1%)

p-values: HT with tobacco abuse- 0.09; DM with tobacco abuse- 0.593;cardiac disorders with tobacco abuse- 0.676; HT with alcohol abuse-0.123; DM with alcohol abuse- 0.739; cardiac disorder with alcohol abuse-0.016

The pathology encountered in plain computed tomography (CT) brain was infarct in 67.6% (n=190)and intracerebral haemorrhage(ICH) in 32.4% (n=91). However no subarachnoid haemorrhage wasencountered in the study. 44.5% (n=125) of males and 23.1% (n=65) of females had infarction. On CT scan finding of ICH males where 21.4%(n=60) and 11% (N=31) were females. Site of involvement of stroke encounteredin the brain were cortex and subcortex and combination of both .The distribution of various co morbid illness and infraction and ICH is depicted in figure 2.

Of the total females 79.5 %(n=83) were in premenopausal age and rest were reproductive and puerperal group. The patient of ICH with tobacco users were 22.1%(n=62) and infraction 43.8%(n=123) and alcohol with infraction were 13.2%(n=37) as compared to alcohol abuse with ICH 5.3%(n=15).

Figure 2 :- Chronic medical illness and CVA pathology. The values in the Y –axis represent the percentage of chronic medical illness in patients with infarction and ICH.
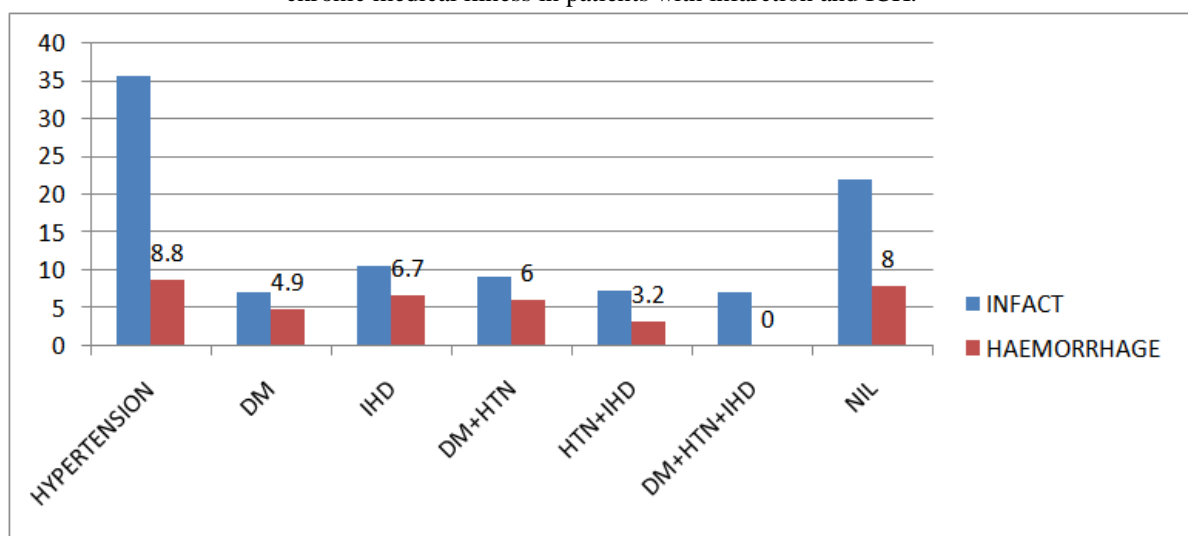
IV. Discussion

In our study majority of patients showed males preponderance (65.8%). The percentage of age of young stroke in males (7.1%) as compared to females (5.3%), this is notaccordance to theprevious studiesconducted by Radha Krishnan etal[4] Abraham et al[5] Dalal et al[6] Banerjee et al[7]and Das et al[10] which showed females preponderance in young stroke, this study also showed a sex ratio with female predominance in young stroke patients. In our study 79.9% of young females were in the perimenpausal age.. Strokeis a quintessential medical emergency. CVA patients who receive neurological care within 6 hours of onsetof symptoms11.7% out of which 8.5% were male predominant which was similar to studies conducted by Dipti et al .[9] Stroke patient who received care within 6 hours of golden period have much betterchance of good outcome than those treated after this acute period, further interaction with medical individual and the public is very necessary to improve the awareness.

In our study the pathological processevolved in causation of stroke was evaluated by using plain CT scan Brain[6,9]. In our study cases of cerebral infarct were67.6% This is in accordance to the prior studies[7,10].conducted in which cerebral infraction was major pathology encountered (76%).On comparison of gender, male had predominantly infraction and haemorrhage as compare to female which is not consistent to finding in the study conducted by Dipti et al [9],which had infarction predominantly in female than male. Ratio between infarction :ICH in our study was 2.08:1 ,this is more or less consistent with Indian studies (2.2:1),western countries ratio is 5:1[7]

As far as,chronic medical illness is concerned, the most common encountered is the systemic hypertension (44.5%), followed by cardiac diseases (17.1%),diabetes mellitus (12.1%).,which is not similar to studies by Philipet al[11],Bruchfiel etal[12].Mendes et al[13] reported that in middle and low income countries one in two patients has at least two or more risk factor for ischemic heart disease and stroke and significant number of patients do not receive appropriate medication.Thoughinnumerable risk factors exist for the occurrence of stroke, the most salient and common one 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[7,14,5-28].The

observation from current study reflect need for building integrated programmes in reducing the burden of stroke .

Study of pattern of past medical illness in patients of infarct, large number of patients were of diabetes mellitus with tobacco abuse (17.4%,p -.110),as compared to hypertension with tobacco abuse(97.5%,p-.146) than diabetes and hypertension(11.7%,p=0.46). Tobacco abuse were 22.1% in haemorrhage as compared to 22.8% in infarct as compared to alcohol abuse 13.2% in infarct and 5.3% in haemorrhage which is not in accordance with previous studies conducted by goldman MR etal.[29] ,which showed alcohol abuse more in haemorrhage.

In analysing the combination and their effect of risk factors, tobacco abuse and hypertension appears to act synergistically as stroke risk factors.[30], which is clear from the following data , hypertensions with tobacco users were 31.7% , p=0.090 , as compared to non tobacco users , 12.8%.In contrast to alcohol with hypertension 5.3% and more number were non-alcoholic with hypertension(13.1%) . similar relation was shown in table 3 with p values.In our study recurrent CVA were found more in females then in males.

Since our sample size waslimited,statistical significance could not be met in certain areas , but considerable correlation were presented and discussed in our study.

V. Conclusion

After coronary artery disease and cancers of all types, stroke is 3rd common cause of death in our country and has significantly acceleratedthe morbidity and mortality in our country.[31]This change in mortality profile paralleled change in dietary habits and change in life style of the subjects has to be taken into consideration. Patients with tobacco abuse with infarction were more than in patients with alcohol abuse, this opens new avenues to explore the associations with CVA pathology with adverse social habits. In our study systemic hypertension was most common factor with significant contribution by diabetes mellitus and cardiac disorders; this is similar to multicentric study.[32]

The personal habits in males and chronic medical illness had strong association with occurrence of stroke, from these facts it is evident that modifying risk factors remains the major strategy for decreasing stroke burden.[33,34,35]

There is a need of adequate public awareness for the patients to be presented with in the golden period of 6 hours from the onset of symptoms. The window of thrombolytic has been widened to 4.5 hours, however, small proportions of stroke patients can avail this therapy .the reasons are multiple, the awareness of the community about reaching the hospital in case of paralytic stroke is still wanting.

The behaviour modification in the long term management, especially in the case of substance abuse with recognization of stroke poses major health problem and need s long term continuous in targeted plans and good quality information to monitor trends, identify risk factors, develop implement and evaluate interventions.

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