

Original Article

Frequency and Type of Stroke in Hypertensive Patients

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ABSTRACT

Objective: To describe the frequency and type of stroke in hypertensive patients

Study Design: Descriptive study.

Place and Duration of Study: This study was conducted in the carried out in the Department of Medicine (ICU) at Peoples Medical College / Hospital Nawabshah, from 1st September 2008 to 28th February 2009.

Patients and Methods: A total of 100 patients were admitted to the ICU of medicine department. Relevant investigations like CT Scan brain, ECG and routine investigations like blood CP, Serum cholesterol and random blood sugar were done. Data was retrieved from the files on a structured performa.

Results: 65 were male and 35 female with ratio of 1.8:1. Mean age was 60.58 ± 4.25 years for male and 59.22 ± 3.25 for female. Ischemic stroke were 73% cases while 27% cases were recurrent hemorrhagic stroke. In ischemic stroke uncrossed hemiplegia occurred in 69(94.5%) cases and crossed hemiplegia occurred in 4(5.5%) cases while all hemorrhagic stroke patients suffered from uncrossed hemiplegia (100%).

Conclusion: Frequency of ischemic stroke was more common then hemorrhagic stroke in hypertensive patients.

Key words: Frequency, Stroke, ischemic stroke, hemorrhagic stroke.

INTRODUCTION

Cerebrovascular disease is the third most common cause of death in developed world and the second most common cause of death worldwide^{1,2}. According to World Health Organization (WHO) 5.5 million people died of stroke in 2002 and roughly 20% of these deaths occurred in South Asia³. Although since past three decades there is a decline in the incidence of the disease in the Western population¹, but the burden of the disease has increased in South Asian countries (India, Pakistan, Bangladesh, and Sri Lanka), and is expected to rise⁴.

Two thirds of all deaths due to circulatory disorders (stroke and ischemic heart disease) occur in developing world. In white people, 80-85% of strokes are ischemic in origin but In Asians and blacks the proportion is 60-70%⁵. Stroke is common complication of hypertension and may be due to cerebral hemorrhage or cerebral infarction. Carotid atheroma and transient cerebral ischemic attacks are more common in hypertensive patients. Hypertension is major risk factor for ischemic as well as hemorrhagic strokes. Hypertension is found in 72-81% of patients with intracerebral hemorrhage⁷. 80% of patients with diagnosis of acute stroke are hypertensive on admission to hospital and although the elevated blood pressure levels spontaneously decline over subsequent 7-10 days, 30% of patients still may be classified as hypertensive (B.P more than 169/95mmhg) at long term follow up⁸.

Stroke occurs mostly in middle aged subject (45 to 69years), and occurring in developing region⁹. Acute stroke is characterized by the rapid appearance (usually over minutes) of a focal deficit of brain function, most commonly a hemiplegia with or without signs of focal higher cerebral dysfunction (such as aphasia), and hemi sensory loss and visual field defect or brainstem deficits¹⁰. Computerized Tomography (C.T) is very sensitive and specific for hemorrhage within first eight days of stroke only, in general strategies in which most patients were scanned immediately cost least and achieved the most qualities as cost of providing C.T, (even out of hours) was less than cost of in patient care¹¹.

PATIENTS AND METHODS

This case series study was carried out in the Department of Medicine (ICU) at Peoples Medical College / Hospital Nawabshah, from 1st September 2008 to 28th February 2009. 100 patients history of hypertension associated with acute stroke or after 24 hours of stroke and patients having infarction or haemorrhage stroke diagnosed on CT scan of the brain were included. Exclusion criteria were subarachnoid hemorrhage, syncopal attack, neurological deficit secondary to epilepsy or an infective, metastatic etiology and blood dyscrasias.

Detailed History was taken from all the patients regarding to hypertension, duration of hemiplegia, headache, vomiting, symptoms of higher cerebral dysfunction (such as aphasia), hemisensory loss and visual field defect and physical examination regarding

record of blood pressure, pulse, neurological and cardiovascular examination done. Relevant investigations like CT scan brain, ECG and routine investigations like blood CP, Serum cholesterol and random blood sugar were done. Results were prepared with help of tables and graphs. Data was analyzed through SPSS v.16 software.

RESULTS

100 consecutive patients with ischemic and hemorrhagic stroke were admitted. 65 were male and 35 female with ratio of 1.8:1. There was wide variation of age ranging from a minimum of 31 years to 80 years with mean age was 60.58 ± 4.25 years for male and 59.22 ± 3.25 years for female.

The stroke was more common in married 92% than unmarried 8% (Chart 1). Majority of the ischemic strokes were newly onset strokes 73% cases while 27% cases were recurrent hemorrhagic strokes. In ischemic stroke uncrossed hemiplegia occurred in 69(94.5%) cases and crossed hemiplegia occurred in 4(5.5%) cases while all hemorrhagic stroke patients suffered from uncrossed hemiplegia (100%).

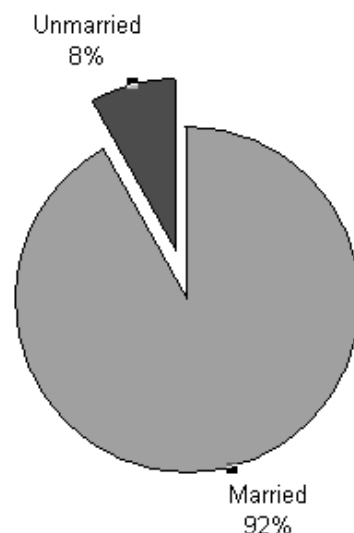
Table No.1:

Variable	Number of Patients	Percentage
Gender		
• Male	65	65%
• Female	35	35%
Type of Stroke		
1. Ischemic stroke	73	73%
• Lacunar	25	34%
• Putaminal	15	20%
• Thalamic	8	10%
• brain stem	4	5%
• Cerebellar	4	5%
• Unlocalized	17	23%
2. Hemorrhagic stroke	27	27%
• Putaminal	10	37%
• Thalamic	5	18%
• Brain stem	4	14%
• Cerebellar	3	11%

Out of 73 patients with ischemic stroke, the frequency of patients in descending order regarding territorial distribution were lacunar 25(34%) cases, putaminal 15(20%) cases, thalamic 8(10%) cases, brain stem 4(05%) cases, cerebellar 4(05%) cases and unlocalized 17(23%) cases while out of 27 in hemorrhagic stroke frequency were putaminal 10(37%) cases, thalamic

5(18%) cases, brain stem 4(14%) cases and cerebellar 3(11%) cases (Table No.1).

Chart No.1



DISCUSSION

Stroke is very common disorder in Pakistan and is one of the major causes of mortality and morbidity after ischemic heart disease and cancer. Studies show stroke to be the third commonest cause of death in developed countries and second most common cause of death worldwide^{1,2}. Stroke according to WHO classification stroke is "A focal (or at times global) neurological impairment of sudden onset, and lasting more than 24 hours (or leading to death), and of presumed vascular origin"^{10,12}.

In our study the hypertensive stroke was found more common in male with male:female ratio was 1.8:1. However the male to female ratio given by Portugal¹³ is 1.2:1. However another studies conducted at Poland¹⁴ and Taiwan¹⁵ population showed male:female ratio of 1.6:1 and 1.4:1 respectively which are quite different from present study, because of lesser number of female patients who smoke and take alcohol in Pakistan while study conducted at Poland showed regular smoking and alcohol used by women. The study conducted by Javed MA et al. showed ratio of 1.9:1 in Pakistan¹⁶. The age ranged from 31 to 80 years with mean age was 60.58 ± 4.25 years for male and 59.22 ± 3.25 for female which is comparable to other study Fonesa et al where mean age are 68 years¹³ and Mexican American population a relatively young mean age was found 58 years, which they attribute to high prevalence of Diabetes Mellitus in their population¹⁷. Similar observations were reported by All-Rajeh et al in Saudi Arabia¹⁸.

In the present study we had 73% of infarctive stroke and 27% hemorrhagic stroke. Compared to study conducted at Japanese population showed an incidence of infarctive stroke to be 56%¹⁹. Brazilian population showed an incidence of 73% for cerebral infarction, 19% for cerebral hemorrhage and 8% for subarachnoid hemorrhage²⁰. However American population showed an incidence of infarctive stroke to be 78%²¹. Only 9 out of 55 patients of age more than 61 years suffered cerebral hemorrhage in our study. This shows that not only the incidence of stroke increases with age but also shows that the incidence of cerebral infarction increases with age as compared to cerebral hemorrhage. Similar observation was made by Davis et al in the United States where 88% of stroke in the elderly hypertensive patients were found to be infarctive²². This fact is probably related to increase thromboembolism due to atrial fibrillation, carotid stenosis and left ventricular failure in elderly patients.

Crossed vs uncrossed hemiplegia was compared in our study 94.5% patients with infarctive hypertensive stroke had uncrossed hemiplegia, whereas 5.5% of the infarctive hypertensive stroke patients had crossed hemiplegia. All hemorrhagic stroke patients were found to have uncrossed hemiplegia. This observation is also seen in the study conducted by Geffier D et al, in the United States²³.

Regarding the territorial distribution of hypertensive strokes in our study was commonest site of infarction was to be lacunar 34.25% followed by second most common site of infarction in hypertensive stroke was putaminal lesion 20.5% and 23.25% patients exact site of lesion in infarctive hypertensive stroke could not be localized probably because of early CT scan intervention done in these patients, in which it is some times difficult to exactly localize the lesion.

Similar observation is also made by Mast H et al in Germany²⁴ in a study which was conducted on hypertensive diabetes patients in which lacunar infarction was found in 30% of the cases and putaminal infarction in 22% of the cases and in another study of Fonesca reported an incidence of 34% of lacunar infarction and 18% for putaminal infarction in the study conducted only on hypertensive patients¹³.

Out of the 22 hemorrhagic hypertensive strokes the commonest site of bleed was putamin 35% in our study. This fact is also observed by Davis BR et al in a study conducted at Houston United States, in which putaminal hemorrhage was found more commonly 31% in hypertensive patients²².

CONCLUSION

Frequency of ischemic stroke is much greater and related with disability then hemorrhagic stroke due to

less public awareness regarding outcome of hypertension.

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