Original Article

Hemorrhagic Stroke

Frequency of Hemorrhagic Stroke Among Hypertensive Patients

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ABSTRACT

Objective: To determine the frequency of hemorrhagic stroke among hypertensive patients.
Study Design: Descriptive / cross-sectional study.
Place and Duration of Study: This study was conducted at the Department of Medicine, Saidu Teaching Hospital Swat from 01-06-2016 to 25-06-2016.
Materials and Methods: 150 patients were observed. All patients were carefully scrutinized with detailed history and clinical examination. All the patients were subjected to Computed Tomography immediately after admission to detect cerebral hemorrhage. All the CT scans was reported by an expert radiologist having minimum of 5 years of experience. All the above mentioned information including name, age, gender and other information was recorded in a pre designed proforma. Exclusion criteria had strictly followed to control confounders and bias in the study results. For quantitative variables like age & duration of HTN, mean and standard deviation was calculated and for qualitative variables like gender and hemorrhagic stroke, frequencies and percentages was calculated.
Results: Our study shows that mean age was 55 years with SD ± 5.71. Fifty six percent patients were male while 44% patients were female. Mean duration of hypertension was 13 years with SD ± 4.63. The incidence of hemorrhagic stroke in hypertensive patients was found to be 54% in our setup.
Conclusion: Our study concludes that the incidence of hemorrhagic stroke among hypertensive patients was found to be 54% in our setup.
Key Words: Hemorrhagic stroke, hypertensive patients.

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INTRODUCTION

High blood pressure is the leading cause of cardiovascular disease and death worldwide. The disease is associated with at least 7.6 million deaths a year worldwide (13.5% of all deaths), making it a major risk factor for cardiovascular disease[1]. Most cardiovascular diseases occur in low-, middle-, middle- and high-income countries [1,2]. The importance of blood pressure as an adjustable risk factor for cardiovascular disease is well recognized and there are many effective and economical treatments to reduce blood pressure. Therefore, hypertension control and prevention of subsequent morbidity and mortality clearly should be achievable[3].

WHO has documented the prevalence of hypertension and some have recorded treatment rates[3]. The largest systematic analysis of health surveys was conducted in 199 countries for individuals aged 25 years and older in 2008 and reported prevalence and rate of hypertension[4]. The prevalence of primary hypertension is an alarming increase in the Pakistani population despite demographics to decrease body mass index and nutrition[5]. The prevalence of hypertension is about 10% in the general population of Pakistan, increasing to 20% of the population over 15 years, and increasing every three people over 45 years[6]. It is a serious problem called silent, which affects similarly the heart, brain, kidneys and peripheral vessels of the individual with hypertension[7].

Primary intracerebral hemorrhage (ICH), the most devastating form of stroke, accounts for between 10% and 15% of stroke victims. ICH has a more severe neurological deficit and a higher mortality than ischemic stroke[8]. Hypertension is the most common (65%) cause of spontaneous ICH, with other major causes being: amyloid angiopathy, brain tumors, aneurysms, arteriovenous malformations, cerebral cavernous malformations and arteriovenous fistula[9]. In addition to the suspicion, there are microblides without symptoms. Studies of "healthy" adults indicate that these cases occur in approximately 5% of the population and that rates of 11.1% to 23.5% have been reported in the elderly[10].

Hypertensive ICH is the deadliest, most disabling and least treatable form of acute cerebral accidents. A large number of patients die in a short time after the hemorrhage. However, the risk factors of early death in this pattern are still in debate[11]. In one study, 52.3% of patients with history of chronic hypertension and presenting with neurological deficit were having

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intracerebral hemorrhage[12]. South Asian patients had higher rates of hypertension compared to the other ethnic groups. South Asian and Chinese patients had a lower risk of death and developing cardiovascular outcomes compared to whites[13].

As mentioned above, HTN can be a strong risk factor of future development of ICH which if left undiagnosed and untreated, can lead to long term disability and even death. A thorough review of the literature suggested prevalence of HTN has changing trends and also varies with different age and ethnic groups. This study will be first of its kind in our local population presenting with a neurological deficit and having history of HTN. The results of this study will be shared with local health professionals and future recommendations regarding further research work will be given.

MATERIALS AND METHODS

This study was conducted at Department of Medicine, Saidu Teaching Hospital Swat. Duration of the study was one year (from 01-06-2016 to 25-06-2016). Study design was descriptive cross-sectional study in which a total of 150 patients were observed. All patients with Hypertension, Neurologic deficit, age ranging 18 to 60 years, both male and female genders were included while patients with history of anticoagulant therapy, patients with AV fistula, patients with cerebral aneurysms, patients having bleeding disorders, patients presenting with hemorrhagic stroke but having no history of hypertention were excluded. All patients were carefully scrutinized with detailed history and clinical examination. All the patients were subjected to Computed Tomography immediately after admission to detect cerebral hemorrhage.

RESULTS

This study age distribution among 150 patients was analyzed as 12(8%) patients were in age range 31-40 years, 36(24%) patients were in age range 41-50 years, 50(33%) patients were in age range 51-60 years and 52(35%) patients were more than 60 years of age. Mean age was 55 years with SD ± 5.71 (Table No 1). Gender distribution among 150 patients was analyzed as 84(56%) patients were male while 66(44%) patients were female. (Table no 1). Duration of hypertension among 150 patients was analyzed as 54(36%) patients had hypertension ranged from 1-10 years, 96(64%) patients had hypertension ranged from 11-20 years. Mean duration of hypertension was 13 years with SD ± 4.63. (Table no 3). Hemorrhagic stroke among 174 patients was analyzed as 81(54%) patients had hemorrhagic stroke while 69(46%) patients didn't had hemorrhagic stroke. (Table no 1). Stratification of hemorrhagic stroke with respect to age, gender and duration of hypertension is given in table no 2,3.

Table No. 1: Demographic Variable (n=150):

Variable	Number of patients	Percentage
Age Distribution		
• 31-40 years	12	8%
• 41-50 years	36	24%
• 51-60 years	50	33%
• >60 years	52	35%
Gender Distribution		
• Male	84	56%
• Female	66	44%
Duration of Hypertension		
• 1-10 years	54	36%
• 11- 20 years	96	64%
Hemorrhagic Stoke		
• Yes	81	54%
• No	69	46%

Table No. 2: Stratification of Hemorrhagic Stoke with reference to age Distribution (n=150)

Hemorrhagic Stoke	31-40 years	41-50 years	51-60 years	>-60 years	Total
Yes	4	20	28	29	81
No	8	16	22	23	69
Total	**12**	**36**	**50**	**52**	**150**

Chi square test was applied in which P value was 0.5232

Table No. 3: Stratification of Hemorrhagic Stoke w.r.t Duration of Hypertension (n=150)

Hemorrhagic Stoke	1-10 years	11- 20 years	Total
Yes	26	55	81
No	28	41	69
Total	**54**	**96**	**150**

Chi square test was applied in which P value was 0.2808

DISCUSSION

World Health Organization (WHO) has documented prevalence of hypertension (HTN) and some have recorded treatment rates[3]. The largest systematic analysis of health surveys from 199 countries for individuals aged 25 years and older was conducted in 2008 and reported the prevalence and mean of hypertension[4]. The prevalence of essential hypertension is alarmingly increasing in Pakistani population inspite of the demographics being of lower BMI and nutrition[5]. The prevalence of hypertension is about 10% in the general population of Pakistan and it is increased to 20% of population over the age of 15 years and it is increased to every third person over the age of 45 years[6]. It is a serious problem and called silent killer, which equally effect the heart, brain, kidneys, and peripheral vessels of the individual with hypertension[7].

Our study shows that among 150 patients 8% patients were in age range 31-40 years, 24% patients were in age range 41-50 years, 33% patients were in age range

51-60 years and 35% patients were more than 60 years of age. Mean age was 55 years with SD ± 5.71. Fifty six percent patients were male while 44% patients were female. Thirty six percent patients had hypertension ranged from 1-10 years, 64% patients had hypertension ranged from 11-20 years. Mean duration of hypertension was 13 years with SD ± 4.63. More over the incidence of hemorrhagic stroke in hypertensive patients was found to be 54% in our setup.

In one study, 52.3% of patients with history of chronic hypertension and presenting with neurological deficit were having intracerebral hemorrhage[12]. South Asian patients had higher rates of hypertension compared to the other ethnic groups. South Asian and Chinese patients had a lower risk of death and developing cardiovascular outcomes compared to whites[13].

Similar results were found in another study conducted by Din Abro A et al[14] in which 50 patients out of total were found to have intracerebral hemorrhage, 46 patients had cerebral infarction and 04 patients had subarachnoid hemorrhage. The patients were divided into five categories according to level of blood pressure and highest number of patients (36) related to severe hypertensive group i.e. ≥ 180/110 mm of Hg. Out of 54 hypertensive hemorrhagic stroke patients, 24 (44.4%) were associated with severe hypertensive level of blood pressure. Similarly in infarctive hypertensive stroke patients (46), maximum number (12) belongs also to severe hypertension.

Similar results were found in another study conducted by Calandre et al[15] in which 20 reported percentage of hypertensive hemorrhagic patients in a range of 45-70%, while 54% of our stroke patients exhibit hemorrhage. Many studies suggest higher percentage of infarction (52-68%) in stroke patients[16,17] which is in contrast to our observation i.e. (46%).

CONCLUSION

Our study concludes that the incidence of hemorrhagic stroke among hypertensive patients was found to be 54% in our setup which shows that hypertension is an important risk factor for hemorrhagic stroke so an effort should be placed to control blood pressure and other modifiable risk factors to reduce incidence of hemorrhagic stroke and improve patient outcomes.

Author's Contribution:

Concept & Design of Study:	Momin Khan
Drafting:	Abdullah Jabbar
Data Analysis:	Abdul Ahad & Ziaullah
Revisiting Critically:	Abdul Jabbar & Momin Khan
Final Approval of version:	Momin Khan

Conflict of Interest: The study has no conflict of interest to declare by any author.

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