Research Article

Frequency of Severely Elevated Blood Pressure on Admission in Known Hypertensive Patients Presenting with Acute Haemorrhagic Stroke

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Abstract

Introduction: Acute hypertensive response is the elevation of blood pressure (BP) above normal and premorbid values that initially occurs within the first 24 hours of symptom onset in patients with stroke.

Objectives: The main objective of the study is to find the frequency of severely elevated blood pressure on admission in known hypertensive patients presenting with acute haemorrhagic stroke.

Material and Methods: This cross sectional study was conducted in Shalamar Hospital Lahore during July 2021 till December 2021. The data was collected with the permission of ethical committee of hospital.

Results: In our study total 100 patients were enrolled mean age was 47.7 ± 10 years with minimum age of 18 years and maximum age of 65 years. Lesser patients belong to younger age group (18 years to 40 years) i.e. 54 while 170 belonged to elder age group i.e. 41 year to 65 years 24.1 % and 75.9% respectively. Out of which 62 (27.7 %) were male and 162(72.3%) were female.

Conclusion: It is concluded that hypertension were the commonest non communicable diseases (cardiovascular) risk factors in known hypertensive patients imparting with acute hemorrhagic stroke, followed by hypercholesterolemia, smoking, and use of smokeless/chewable tobacco.

Keywords: Acute Haemorrhagic Stroke; Blood Pressure (BP); Hypertension

Introduction

Acute hypertensive response is the elevation of blood pressure (BP) above normal and premorbid values that initially occurs within the first 24 hours of symptom onset in patients with stroke. This phenomenon was reported in >60% of patients presenting with stroke in a nationally representative study from the United States. With ≈980 000 patients admitted with stroke each year in the United States, the estimated annual prevalence of acute hypertensive response is more than half a million patients [1]. With ≈15 million patients experiencing stroke worldwide each year, the acute hypertensive response may be expected in ≈10 million patients per year [2]. Stroke has a global incidence of 15 million people per year, is the third leading cause of death and is the most common cause of disability in the western world. High-blood pressure (BP) is the leading modifiable risk factor for both ischaemic and haemorrhagic stroke affecting 1 billion people worldwide [3]. In acute stroke, 75% of patients have high BP and 50% of those have a prior history of hypertension. Although BP spontaneously falls in two-thirds of patients in the first week following stroke,

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one-third remain hypertensive and have an increased risk of a poor outcome. Data from the first International Stroke Trial demonstrated a U-shaped relationship between baseline systolic BP (SBP) and outcome, such that both high and low SBP were independently associated with increased early death and late death or dependency [4]. In addition, high SBP is associated with an increased risk of early stroke recurrence. Post hoc analyses from several acute stroke clinical trials suggest that as well as increased SBP, other haemodynamic variables including higher peak SBP, mean arterial pressure (MAP), pulse pressure and increased SBP variability, are each associated with poor functional outcome, early neurological deterioration, recurrent stroke and death [5]. The Severely elevated Blood Pressure, coated for this study, refers to systolic blood pressure (SBP) of 185 mmHg or greater, or diastolic blood pressure of 110 mm Hg or greater. It can be classified as hypertensive urgency or hypertensive emergency. Hypertensive urgency can be defined as severely elevated blood pressure in a patient without signs or symptoms of end-organ damage [6]. Hypertension is the most important risk factor for ischemic and hemorrhagic stroke, and an acute hypertensive emergency is often observed in patients with intracranial hemorrhage (ICH). SBP before admission is directly correlated with blood pressure on admission and associated with ICH volume expansion at the time of admission. According to the latest research conducted by Jessica lin, systolic blood pressure varied dramatically among intracerebral causes, at the time of admission and during hospitalization [7]. This study concluded that BP in the acute intracerebral hemorrhage is at least partly associated with ICH cause. Hypertensive emergency (hypertensive crisis) occurs when signs or symptoms of end-organ damage occur.4 Blood pressure should not be corrected until and unless the blood pressure is very high (systolic blood pressure >220 mm Hg) [8].

Objectives

The main objective of the study is to find the frequency of severely elevated blood pressure on admission in known hypertensive patients presenting with acute haemorrhagic stroke.

Material and Methods

This cross sectional study was conducted in Shalamar Hospital Lahore during July 2021 till December 2021. The data was collected with the permission of ethical committee of hospital.

Inclusion Criteria

- The data was collected from both male and female patients.
- Patients with acute ischemic stroke

- Age between 18 to 60 years

Exclusion Criteria

- Those who do not want to participate.
- Age < 18 years.
- Taking any other anti-coagulant drug

Data Collection

The data was collected from those patients who fulfill the inclusion criteria. We collect all the data related to age, sex, history of diseases, risk factors, baseline values and CT response. All suspected strokes who presented to the ED within 24 h of onset of first symptoms were included in this prospective study. The study performa took into account the demographic data of the patient and few questions that were to be answered by the bystander. Following the filling up of pro forma, the bystander was interviewed using a Knowledge, Attitude and Practices (KAP) questionnaire. Data were statistically described in terms of range, mean ± standard deviation (± SD), median, frequencies (number of cases), and relative frequencies (percentages) when appropriate.

Results

In our study total 100 patients were enrolled mean age was 47.7± 10 years with minimum age of 18 years and maximum age of 65 years. Lesser patients belong to younger age group (18 years to 40 years) i.e. 54 while 170 belonged to elder age group i.e. 41 year to 65 years 24.1 % and 75.9% respectively. Out of which 62 (27.7 %) were male and 162(72.3%) were female (Table No. 1).

Hypertension was present in 24 patients, smoking was present in 12 patients and 50 patients were diabetic.

Table 1: Age stratification of sampled population.

Age	Frequency	Percentage
20 - 40 years	54	24.10%
41 - 65 years	170	75.90%
Total	224	100.00%

Table 2: Frequency of risk factor in sampled population.

Risk factors	Frequency	Percentage
Hypertension	124	55.40%
Smoking	112	50.00%
Diabetes	50	22.30%

Table 3: Results of cardiological assessment in ischemic stroke patients.

Cardiac risk factors	Number (167)	Percent
Rheumatic heart disease	36	21.6
Atrial fibrillation	44	26.3
Atrial myxoma	1	0.6
Prosthetic valve	3	1.8
Mural thrombus	3	1.8
Ischemic heart disease	15	9
Left ventricular hypertrophy	51	30.5

Discussion

It is considered as the most effective treatment for treating acute ischemic stroke by dissolving thrombus, recanalization of occlusive blood vessels and reconstruction of blood flow. Intravenous thrombolysis (IVT) is simple, but the time window remained short, while intra-arterial thrombolysis (IAT) has a certain degree of trauma in association with complex operation, but the time window is relatively long [8]. There are several articles that compared the differences between IAT and IVT in patients with ischemic stroke, and there exists various research designs, enrollment and exclusion criteria, methods and so on [9]. Goyal in his study stated that both IAT and IVT have similar effects. While Qureshi reported that IVT was much better than IAT for patients with ischemic stroke [10]. Treatment of acute ischemic stroke attempts to open the occluded blood vessels in order to re-establish blood flow and to improve outcomes. Reperfusion can be attained by intravenous thrombolysis (IVT) or by intra-arterial thrombolysis (IAT) [11]. It is recommended that IVT be given as first-line therapy for acute ischemic stroke within 4.5 hours of the onset of symptoms; however, approximately 50% of patients treated with IVT do not recover and die. In addition, although overall recanalization rates are approximately 46%, those of IVT are low when the occlusion is in a large artery. In these cases, published rates range from 4% to 68% and depend upon both the location of the occlusion and the study [12-14]. The findings from a number of studies suggest that IAT may be a reasonable alternative to IVT. In some studies, IAT is associated with higher rates of recanalization than is IVT. There are several potential advantages to IAT, such as angiographic planning to customize therapy, locoregional injection, and the ability to use mechanical devices to speed up the recanalization rate. There is a delay in treatment with IAT relative to IVT, and this delay may lessen the advantages of the procedure, since time to treatment is a major predictor of outcome for acute stroke [15-16].

Conclusion

It is concluded that hypertension were the commonest non communicable diseases (cardiovascular) risk factors in known hypertensive patients imparting with acute hemorrhagic stroke, followed by hypercholesterolemia, smoking, and use of smokeless/chewable tobacco.

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