

# Study of 100 Cases of Strokes for Infarction and Hemorrhage in Swat

Abdul Ahad, Bacha Amin Khan and Momin Khan

## ABSTRACT

**Objectives:** The main objective of this study conducted was to compare the incidence of cerebral infarction and hemorrhage in one hundred patients of stroke over a time span of one year in Swat.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at the Department of Medicine, Saidu Teaching Hospital Saidu Sharif Swat from January 2015 till January 2016.

**Materials and Methods:** Hundred patients were selected for this study and their data recorded including history of smoking or any medical disorder, especially Diabetes mellitus, previous cerebrovascular accident, transient ischemic attacks, history of previous cardiac events such as coronary artery disease, angina, Myocardial infarction. Vital monitoring was performed at the time of presentation and 24 hourly thereafter.

**Results:** Among selected patients 62% were males and 38% were Females.

18% patients were in age group 51- 60 year, 32% patients were in age group 61- 70 year, 24% patients were in age group 71- 80 year, 78% of patients were having cerebral infarction, while cerebral hemorrhage was found in 22% of patient. Hypertension was the most common risk factor among these stroke patients. Average blood pressure was 160 / 100.

**Conclusions:** Common cause of stroke is cerebral infarction while the leading risk factor found is Hypertension in patients with stroke.

**Key Words:** Hypertension, Stroke, Cerebral infarction, cerebral hemorrhage

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## INTRODUCTION

Stroke, also called as Cerebrovascular Accident, is a condition in which blood supply to the brain is disturbed resulting in rapid decline in functions of brain. The underlying pathophysiology is decreased blood supply to the brain cells due to narrowing or blockage of brain arteries (thrombotic or embolic) or leakage of brain vessels<sup>1</sup>.

Stroke is a major concern worldwide. It is the commonest cause of adult disability and the second major cause of death globally<sup>2</sup>. In developing countries, there was about 10% decrease in stroke between 1990 and 2010<sup>3</sup>. Stroke is the leading cause of morbidity in the United States and has declined from third to fourth leading cause of mortality<sup>4</sup>. Currently in Pakistan, no sizeable, epidemiologic or community based study is performed on stroke. According to one community based study conducted on Pushtoons living in Karachi, stroke has a prevalence rate of 4.8% in both genders<sup>5</sup>.

Department of Medicine, Saidu Medical College Saidu Sharif, Swat.

Correspondence: Dr. Abdul Ahad, Assistant Professor of Medicine, Saidu Medical College/Saidu Teaching Hospital, Saidu Sharif Swat.

Contact No: 0333 9487550

Email: dr.aahad@yahoo.com

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Cerebral infarction is the cause of stroke in 85 to 95% of patients while cerebral hemorrhage causes 10 to 15% of stroke in developing countries<sup>6</sup>.

Thrombosis and embolism are the main underlying cause for Infarction while leakage or bursting of brain arteries leads to hemorrhagic stroke. Symptoms in cerebral infarction are slow in onset and progresses over period of time while in hemorrhagic stroke these are abrupt in onset<sup>7</sup>. Initially patients are evaluated with complete history and thorough clinical examination, and diagnosis confirmed with computed tomography<sup>8</sup>. Computed tomography scan is a non invasive diagnostic medical tool which helps to differentiate cerebral infarct from hemorrhage<sup>9</sup>. By comparison with MRI, a CT scan would be better for detecting acute hemorrhage while MRI takes at least 48 hours in detecting acute intracranial bleeding episode<sup>10</sup>. In cerebral infarction as well as cerebral hemorrhage, hypertension is the first line risk factor<sup>11</sup>. Uncontrolled hypertension attributes to 18% to 42 % cases of cerebral hemorrhage reported in Pakistan. The aim of this study was to look for the frequency of both Ischemic and Hemorrhagic stroke and to point out the major risk factors in Swat.

## MATERIALS AND METHODS

100 patients of stroke with Infarction and Hemorrhage in Medicine Department of Saidu Teaching Hospital

Saidu Sharif Swat were evaluated. This study was conducted from January 2015 till January 2016. An inclusion criterion was patient having stroke and the underlying cause of their stroke was either infarct or hemorrhage confirmed with CT brain.

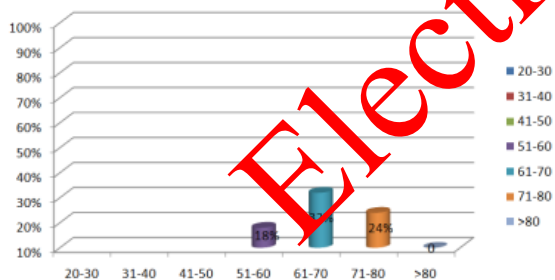
An exclusion criterion was stroke secondarily due to any blood disorder space occupying lesions or vascular problem.

Diagnosis of stroke was made on clinical basis initially and CT brain performed for confirmation. A complete history of smoking, Diabetes mellitus, any previous cardiac events such as coronary artery disease, angina, Myocardial infarction and atrial fibrillation along with history of transient ischemic attacks, previous stroke , history of drug intake taken. Vital monitoring was performed at the time of presentation and 24 hourly thereafter.

Stroke was diagnosed on basis of history, clinical signs and findings on the CT brain. Complete information was recorded in a proforma .All relevant investigations and biodata of patient is also noted in the proforma. SPSS was used to analyze the data including the different variables such as age of the patient, gender , history of hypertension, diabetes mellitus and subtype of stroke (ischemic or hemorrhagic). The data was described as mean±SD for numeric variables or frequencies or percentages for categorical variables

**RESULTS**

The study consists of a total of 100 patients with ischemic and hemorrhagic stroke. Among selected patients 62% were males and 38% were Females. The ratio of male to female was 1.6:1.

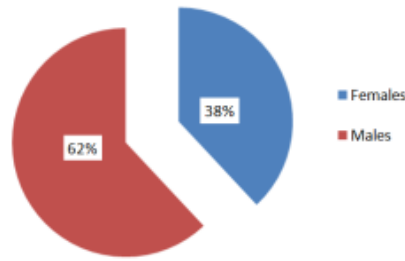


**Figure No.1; Age distribution**

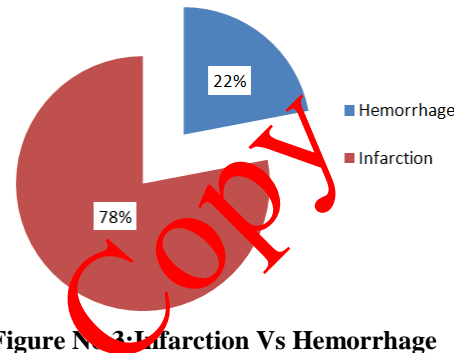
Following was the Age distribution:

- 18patients (18%) were in age group 51-60year.
- 32 patients (32%) belonged to the age group 61-70 year.
- 24 patients (24%) were in age group 71-80 year
- Among the 100 patients, 78(78%) had ischemic stroke and 22(22%) had hemorrhagic stroke.
- Out of 78 (78%) ischemic stroke patients, 52 were male and 26 females.
- Out of 22 (22%) patients with hemorrhagic stroke , 16 were males and 6 females.

All patients in this study were known hypertensive. 22% patients were smoker and 8% patient's have previous history stroke or TIA. Average blood pressure recorded was 160/100.



**Figure No.2: Gender Distribution**



**Figure No.3: Infarction Vs Hemorrhage**

**Table No.1: Previous history of diseases in various patients.**

| Diseases/Risk Factors | No. of Cases | Percentage |
|-----------------------|--------------|------------|
| Hypertensive          | 100          | 100%       |
| Smoking               | 22           | 22%        |
| Previous Stroke       | 8            | 8%         |

**DISCUSSION**

Stroke is a global health problem. It has a significant impact on a patient, his family as well as puts financial burden on care take. Furthermore it results in health care system to become under stress. Health care budget of Pakistan already overburdened, will be facing difficulty in coping with the increasing number of stroke patients.

The most common Risk factors for stroke includes smoking, Hypertension, Atrial fibrillation, and metabolic disorders such as diabetes mellitus and dyslipidemia. Hypertension and diabetes are growing risk factors leading to cardiovascular disease and stroke<sup>12</sup>.

Cerebral infarction, as a cause of stroke, was seen in about 80% cases in developed countries and in developing countries it was found to be 60%, where as hemorrhage was seen in 10% to 30%<sup>13</sup>. In one study it was observed that out of 50 cases of stroke 82% was having cerebral infarction and 18% cerebral hemorrhage<sup>14</sup>. In another study the frequency of

cerebral infarction was estimated to be 78% to 79% and that of cerebral hemorrhage 17% to 21 %<sup>15,16</sup>.

In our study 100 hypertensive patients with stroke were evaluated. 78% were having infarction and 22% were having hemorrhage as the underlying cause. All patients were hypertensive. So hypertension was considered as important risk factor for both types of stroke. Similar findings were also reported by other studies.<sup>6-7, 13-14, 17,19</sup>

In our study males were more than females, with male to female ratio of 1.6: 1, which is almost the same as reported by other studies<sup>9,13,18</sup>. On the contrary, some studies show more females compared to males<sup>14,20</sup>. Increasing age is a risk for stroke particularly in patients with history of hypertension. In the age of 61-70 years, higher risk of stroke has been reported<sup>21, 22</sup>. This is in agreement with our study.

The major risk factor for stroke is hypertension<sup>23</sup> which is also in agreement with our study.

## CONCLUSION

Most common form of stroke is ischemic stroke rather than hemorrhagic stroke. Hypertension is a major risk factor. Most common age is 60-80 years. Addressing hypertension significantly decreases stroke risk. Aim should be hypertension control and stroke prevention.

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

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