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Research Article

**ANALYSIS OF RISK FACTORS AND PATTERNS OF
STROKE IN PAKISTAN**Zainab Ali¹, Aiman Amjad², Talbia Yousaf³

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Abstract:

Introduction: Stroke is the second leading cause of death, accounting for 11.13 % of total deaths, and the main cause of disability worldwide. **Aims and objectives:** The main objective of the study is to analyse the risk factors and patterns of stroke in Pakistan. **Methodology of the study:** This cross sectional study was conducted in health department Punjab during 2019 to 2020. The data was collected from 100 patients which was suffering from high blood pressure and any kind of stroke. We collect the data in two sections, as first of all we collect some demographic information regarding age, sex, socio-economic status and history of blood pressure. **Results:** The data shows that there is a significant relationship between high blood pressure and stroke. There is also some positive relationship between socio-economic status and high blood pressure with respect to CVD. Table 01 shows the values of use of drug and other factors. **Conclusion:** In conclusion, Increase in number of deaths due to cardiovascular diseases in recent years diverted researchers' attention to prevention and controlling of HBP which is a leading cause of cardiovascular diseases.

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INTRODUCTION:

Stroke is the second leading cause of death, accounting for 11.13 % of total deaths, and the main cause of disability worldwide. The major type of stroke is ischemic, which occurs in about 87% of all stroke cases. According to Global Burden of Disease (GBD) study in 2010, more than 11 million ischemic strokes occurred while 63% of them were in low- and middle-income countries. Also, near 3 million deaths occurred due to ischemic stroke. About 13% of stroke is of a hemorrhagic type [1].

According to GBD study in 2010, there were about 5.3 million hemorrhagic stroke cases, out of which about 80% occurred in low- and middle-income countries. Over 3 million deaths occurred from hemorrhagic stroke [2]. The range of incident rates of stroke in Iran varies. According to the Mashhad Stroke Incidence Study, conducted during 2006-2007, the age-adjusted incidence rate of stroke was 203 per 100,000 individuals per year (95 % CI: 175-231) and this rate could be divided based on the stroke subtype into 113 (95% CI: 142-192), 26 (95 % CI 16-36), and 4 (95 %CI 0-8) per 100000 per year for ischemic, intracerebral hemorrhage, and subarachnoid hemorrhage stroke, respectively [3].

Stroke is the leading cause of long-term adult disability and the fifth leading cause of death in the US, with approximately 795,000 stroke events in the US each year. The aging of the population, coupled with the reduction in case fatality after stroke, is expected to increase the prevalence of stroke by 3.4 million people between 2012 and 2030 [4]. While stroke mortality had decreased in the US over the past two decades, recent trends in mortality indicate that these decreases may have leveled off, and that stroke mortality may even be rising again. Reasons for this remain uncertain, but could reflect the consequences of the obesity epidemic, and associated diabetes. The morbidity associated with stroke remains high, with costs estimated at \$34

billion per year for healthcare services, medications and missed days of work [5]. It is likely that estimates of morbidity and cost burden, moreover, based on studies of clinical stroke and using traditional measures such as physical disability and healthcare costs, underestimate the burden of cerebrovascular disease [6].

Aims and objectives

The main objective of the study is to analyse the risk factors and patterns of stroke in Pakistan.

METHODOLOGY OF THE STUDY:

This cross sectional study was conducted in health department Punjab during 2019 to 2020. The data was collected from 100 patients which was suffering from high blood pressure and any kind of stroke. We collect the data in two sections, as first of all we collect some demographic information regarding age, sex, socio-economic status and history of blood pressure. Then in second part we collect data regarding high blood pressure and heart issues. For this purpose we prepare a questionnaire and fill that from patients.

Statistical analysis

Student's t-test was performed to evaluate the differences in roughness between group P and S. Two-way ANOVA was performed to study the contributions. A chi-square test was used to examine the difference in the distribution of the fracture modes (SPSS 19.0 for Windows, SPSS Inc., USA).

RESULTS:

The data shows that there is a significant relationship between high blood pressure and stroke. There is also some positive relationship between socio-economic status and high blood pressure with respect to CVD. Table 01 shows the values of use of drug and other factors.

Table 01: Statistical analysis values of Control group and diseased group

Characteristics	Current blood pressure level			
	Normal	PreHT	HT	Total
HT medication	n (%)^a	n (%)^a	n (%)^a	n (%)^b
Using regular	94 (22.9)	188 (45.9)	128 (31.2)	410 (84.5)
Using irregular	11 (14.7)	36 (48.0)	28 (37.3)	75 (15.5)
HT training	$X^2 = 2.80 P = 0.247$			
Not received	73 (23.4)	140 (44.9)	99 (31.7)	312 (64.3)
Received	32 (18.5)	84 (48.6)	57 (32.9)	173 (35.7)
Alternative or complementary medicine	$X^2 = 1.61 P = 0.447$			
Not admitted	65 (22.4)	126 (43.4)	99 (34.1)	290 (59.8)
Admitted	40 (20.5)	98 (50.3)	57 (29.2)	195 (40.2)
Exercise level	$X^2 = 2.24 P = 0.327$			
Not exercising	52 (20.6)	116 (46.0)	84 (33.3)	252 (52.0)
Inadequate	17 (21.0)	40 (49.4)	24 (29.6)	81 (16.7)
Adequate	36 (23.7)	68 (44.7)	48 (31.6)	152 (31.3)
Fruit and vegetable consumption	$X^2 = 0.96 P = 0.916$			
Not eat every day	23 (20.4)	51 (45.1)	39 (34.5)	113 (23.3)
One meal per day	19 (18.1)	55 (52.4)	31 (29.5)	105 (21.6)
Two meals per day	17 (18.9)	35 (38.9)	38 (42.2)	90 (18.6)
≥ 3 meals per day	46 (26.0)	83 (46.9)	48 (27.1)	177 (36.5)
Salt consumption habits	$X^2 = 9.17 P = 0.164$			
Normal/more salty	47 (24.2)	84 (43.3)	63 (32.5)	194 (40.0)
Less salty	33 (19.8)	81 (48.5)	53 (31.7)	167 (34.4)
Salt less	25 (20.2)	59 (47.6)	40 (32.3)	124 (25.6)
How to continue BP	$X_2 = 1.61 p = 0.807$			
Normal	84 (25.8)	163 (50.0)	79 (24.2)	326 (67.2)
High	11 (8.7)	43 (34.1)	72 (57.1)	126 (26.0)
Unstable	10 (30.3)	18 (54.5)	5 (15.2)	33 (6.8)

DISCUSSION:

There are some limitations to our study. Firstly, the study population consisted of residents in Pakistan. Secondly, the study enrolled only subjects from primary health centers, thus the data in hand can't reflect hypertensive subjects applied to secondary or tertiary health centers. Thirdly, this is a cross-sectional study based on claims of subjects, thus the answers of subjects may be biased [7,8].

Our approach to understand disease development in early life, identify key pathways of interest in predisposition to high blood pressure and develop specific preventive approaches has been to use multi-modality imaging to capture information on cardiovascular structure and function 'from heart to capillary' [9]. With this approach it becomes possible to model the interrelationship between features of the cardiovascular system and, with longitudinal data, study the progression of disease across vessel and heart. By extending the data collection to other organs such as brain and liver, a holistic view of disease development can be captured [10].

CONCLUSION:

In conclusion, Increase in number of deaths due to cardiovascular diseases in recent years diverted researchers' attention to prevention and controlling of HBP which is a leading cause of cardiovascular diseases. Recent years have witnessed tremendous strides in in our understanding of risk factors and prevention of stroke. Research into stroke risk factors has increasingly addressed the heterogeneous subtypes of strokes, including not only hemorrhagic versus ischemic stroke, but also the several etiologic subtypes of stroke. Thus studies have confirmed that lipids are a risk factor for atherosclerotic stroke, while atrial fibrillation and related atrial cardiopathies are associated with cardioembolic strokes.

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