STROKE RISK FACTORS IN PUBLIC SECTOR HOSPITALS, PESHAWAR

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ABSTRACT:

OBJECTIVES:

To determine the incidence of risk factors regarding stroke amid diagnosed patients in public sector hospitals of Peshawar.

METHODOLOGY:

The study design was cross sectional. Duration of the study was from May till August 2018. It was conducted in two public sector hospitals of Peshawar (Khyber Teaching Hospital and Lady Reading Hospital). A total of 300 patients participated after taking informed consent. Convenient sampling technique was used. Data was entered in excel sheets and then imported for analysis in SPSS version 21.

RESULTS:

Study results showed that 62% patients were males and 38% were females. Males age distribution less than 40 years were 24% and more than 41 years were 76%. Similarly, females were 21% and 79% respectively. Major medical risk factors found were hypertension, diabetes and cardiovascular diseases. The environmental risk factors were physical inactivity, smoking and obesity. The less common risk factors were alcohol and oral contraceptive use.

CONCLUSION:

The identified medical risk factors in the study can be improved and modified by regular check-ups and drug compliance. However, the environmental factors including physical inactivity, smoking and obesity can be reversed by acquiring healthy lifestyles.

KEYWORDS: Stroke, Hypertension, Obese, Diabetes, Smoking

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INTRODUCTION:

World Health Organization (WHO) defines stroke as a "clinical syndrome characterized by rapidly developing clinical symptoms and/or signs of focal and at times global applied to patients in deep coma and those with subarachnoid haemorrhage, loss of cerebral function, with symptoms lasting for more than 24 hours or leading to death, with no apparent cause other than that of vascular origin"[1]. It's a clinical syndrome with different causes rather than a disease. Ischemic and hemorrhagic are two main types of stroke and understanding its types aids in effective treatment and more chances of prognosis. Eighty-five percent cases of ischemic stroke occur because of obstruction of blood stream in one of the vessels supplying the brain. Rupture of an artery causes hemorrhagic stroke. Stroke is one of the leading causes of morbidity and mortality worldwide. A common cause of death in the established world after heart disease and cancer is stroke ranking third. The tests used for identifying the type of stroke are computed tomography (CT scan) and magnetic resonance imaging (MRI). The studies on epidemiology of stroke are comparatively more limited in developing than developed countries. The incidence of stroke varies in different European countries. It is estimated to be between 100 and 200 new strokes per 100,000 inhabitants per year. This imposes an enormous economic burden[2]. According to the American Heart Association report published in 2019 an estimated 7 million American ≥ 20 years of age self-report having had a stroke, and the overall stroke prevalence given in the report was an estimated 2.5%[3]. Its incidence in Asia, according to a rough estimate, has been increasing recently. Among Asian countries, Pakistan shares a significant burden of this devastating disease contributing towards an exponential expenditure of resources, finances, community manpower, health services and the economy as a whole[4-6]. India is the only country with population-based data. The prevalence of stroke varies in different regions of India and ranges from 40 to 270 per 100,000 rural populations and is much lower from reported prevalence of 400 to 800 per 100,000 in western countries[6]. Ethnic, socio-economic and dietary factors may be responsible for this variance. Retrospective analysis of patients admitted with stroke in two hospitals of the same locality some eight years ago in Karachi, Pakistan showed that out of the 12,454 cases 796 (6.4%) had stroke[3]. There could be many factors/causes of stroke, therefore leading to multifactorial causation. It is important to recognize and implement modifications in such factors to minimize its incidence and provide treatment. It includes medical problems like hypertension, diabetes mellitus, ischemic heart disease, infections, atrial fibrillation, and valvular heart diseases[7-9]. The causes could be even large vessels arteritis or even undetermined in certain number of cases[10, 11]. Many risk factors other than medical conditions

contribute or increase the risk of development of stroke like hypertension, hyperlipidemias[12], smoking, physical inactivity[13], alcohol consumption and various other causes[14]. The purpose of this study was to determine the frequency of risk factors of stroke in patients who were admitted in Peshawar hospitals.

METHODOLOGY:

It was a cross sectional study conducted on admitted patients of stroke. Two hospitals; Lady Reading and Khyber Teaching hospitals were selected for data collection. A total of 300 patients who were admitted in these hospitals with stroke were identified. Data was collected after taking informed consent from the patients. The duration of study was approximately four months. A non-probability sampling technique was used. All the patients admitted in the hospital for treatment and who showed their willingness to participate in the study were included. Structured questionnaire was made having both open and closed ended questions. Draft questionnaire was pretested to check the feasibility and language of each question. Weight and height were also measured of every patient in order to calculate Basal Body Index. Data was collected and analysed using SPSS version 21. Results were presented in form of tables.

RESULTS:

Table 1: Gender Wise Distribution of Study Participants

Gender	N (%)
Male	186 (62%)
Female	114 (38%)
Total	300

Table 2: Age of Respondents

	Male	Female	Total
≤40 years	45 (24%)	24 (21%)	69
≥41 years	141 (76%)	90 (79%)	231
Total	186	114	300

Table 3: Frequency of Different Risk Factors of Stroke

	Number of Cases (n=300)
Hypertension	63%
Diabetes	31%
Cardiovascular Diseases	17%
Smoking	12%
BMI (Obese)	09%
Alcohol	05%
Oral Contraceptive Pills	04%
Physical Inactivity	62%

Table 4: Smoking Patterns Among the Respondents

	Response
Number of Cigarettes	
Less than 7 cigarettes	70%
More than 8 cigarettes	30%
Duration of Smoking	
≤7 years	26%
8-15 years	33%
More than 16 years	41%

Table 5: Physical Inactivity Among Respondents

	Response
No or negligible activity	62%
Moderate activity (3/4 days a week exercise)	23%
Active (6 days a week exercise)	15%

DISCUSSION:

The main purpose of this study was to know the frequency of different risk factors contributing to expansion of stroke in Peshawar. It was understood from out of 300 cases of stroke that 62% males and 38% females reported to hospitals. Similar finding in another study showing incidence of stroke is 1.25 times higher in males as compare to females[15]. Increasing age is clearly the strongest determinant of the number of new cases of stroke each year. In our study more cases of stroke, admitted to hospitals were above 41 years of age. This shows that in middle age and later age groups stroke is more common as compared to younger age groups. Similar findings were shown in another study done in Texas showed that with age, chances of occurrence of stroke is more[16]. The medical risk factors found in our study were hypertension, diabetes and cardiovascular diseases. Hypertension is the most powerful and important modifiable risk factor causing a threefold greater risk of stroke than normotensive individuals[1]. Meta-analysis of different research studies done on stroke showed that hypertension or increase blood pressure could cause stroke[17]. Peer review article showed that medical condition like hypertension, diabetes and cardiac diseases are risk factors of stroke[18]. Cardiovascular disease is common in patients with stroke. Cardiac impairment in conjunction with hypertension further increases the risk of stroke. It increases the estimated relative risk of stroke by 2 to 4 times[1]. The risk of stroke in patients with diabetes mellitus is about four times that found in normal individuals[11]. Hypercholesterolemia and various lipoproteins fractions have been clearly associated with the severity of carotid atherosclerosis; still the serum cholesterol stroke association remains an enigma[11]. Regarding modifiable risk factors in our study, it was found that more common factors are physical inactivity, smoking, obesity, alcohol, and oral contraceptive pills. A study

conducted in China showed that obesity and physical inactivity are risk factors for stroke along with medical risk factors[19]. Meta-analysis of over 14 studies showed strong association of smoking and stroke as compared to non-smoking and stroke[20, 21]. Obesity is also an established risk factor for stroke[22].

CONCLUSION:

We conclude that most of the risk factors can be modified and thus the risk to stroke can be reduced. If we change our lifestyles, increase physical activity and have good planned diet we can easily control weight and increase activity makes our heart healthy. Say NO to smoking which is one of very important established risk factor and by quitting smoking we are reducing the risk of stroke among the passive smokers as well.

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