

Identifying High-Risk Populations for Stroke in South Gujarat: A Cross Sectional Analysis of Risk Factors and Implications

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Abstract: ***Background:** Stroke has become the third leading cause of mortality and disability in India. South Gujarat being the industrial area with many chemical factories and textile industries has got tremendous increase in new stroke cases over a decade. **Purpose:** To identify the high risk population early and provide appropriate measures to reduce number of new stroke cases in South Gujarat. **Method:** A cross-sectional investigation was conducted in hospitals. Patient records were collected from various multi-specialty hospitals in south Gujarat between December 6, 2022, and March 6, 2023. Records from 200 patients' files that met the inclusion criteria of having either diabetes, hypertension, obesity, smoking, and CVD were gathered with age 40 to 85 years, male and female. **Results:** Total 200 patients were enrolled in the study among which 55.5% were males and 44.5 percent were females. About 48% were hypertensive among which 58.5% were already on antihypertensive drug, only 10% of them were on controlled hypertension. 30% of patients had diabetes and 35.5% patients were smokers. Patient having CVD were 9.5% and 22.5% had suffered 1st episode of stroke among which 5.5% were having history of TIA. Total TIAs were 9%. **Conclusion:** The three main risk factors that should be managed to prevent stroke, are smoking, obesity, and hypertension.*

Keywords: Risk factors, Hypertension, Smoking, Obesity, Stroke, Disability

1. Introduction

The World Health Organization (WHO) definition of stroke is: "rapidly developing clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin"[1]). There are many different risk factors, disease processes, and mechanisms that can lead to a stroke[4]. There are two types of risk factors for stroke: modifiable and non-modifiable. Age, sex, and race/ethnicity are risk factors for both ischemic and hemorrhagic stroke that cannot be changed, but modifiable risk factors like hypertension, smoking, nutrition, and physical inactivity are more frequently documented. Stroke risk factors and initiators that have been more recently identified include inflammatory conditions, infections, pollutants, and cardiac atrial conditions unrelated to atrial fibrillation.[5]. Due to environmental and genetic risk factors such as atrial fibrillation, smoking, diabetes, dyslipidemia, hypertension, and low socioeconomic position and education, the South Asian population is more susceptible to stroke([6]. stroke has a significant recurrence probability among non-fatal cases as a result of incredibly low treatment rates and subpar adherence to secondary preventative medications. Thus, it is crucial to implement prophylactic measures to lower the incidence of stroke.[8] Hence, this study was conducted to determine South Gujarat patients' stroke risk and to lower the risk of stroke.

2. Methods

First the permission was taken from the respective hospitals, to collect the data from the hospital record files. The patients that were admitted in the hospital from time period of 6 December 2022 to 6 March 2023, their record files were collected. Files that fitted the inclusion criteria were 200 in number. The demographic data and data like blood pressure,

weight, addiction, diabetes, stroke, TIA and CVD were collected from the record files, which are the risk factors for stroke.

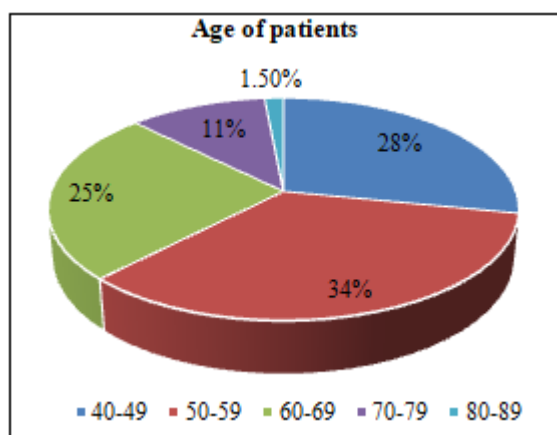
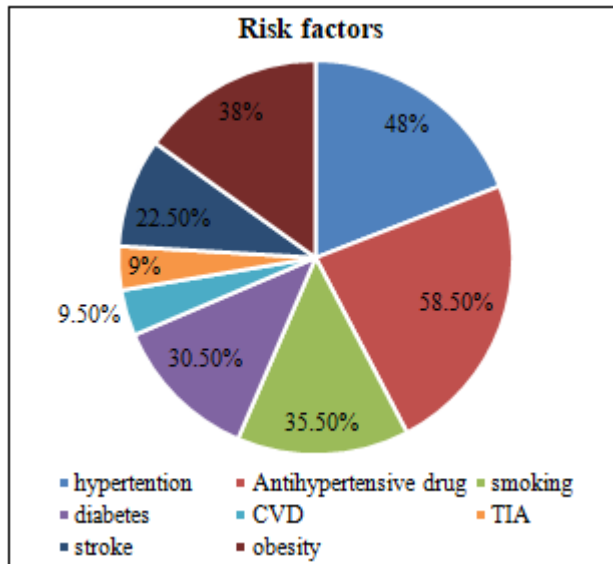
With the help of Excel the frequency and percentage of risk factors in patients without the first episode of stroke were calculated

Data Analysis

Data analysis was done in excel to rule out the frequencies and percentage of data.

3. Results

Total 200 patients were enrolled in the study among which 55.5% were males and 44.5 percent were females. About 48% were hypertensive among which 58.5% were already on antihypertensive drug, only 10% of them were on controlled hypertension. 30% of patients had diabetes and 35.5% patients were smokers. Patient having CVD were 9.5% and 22.5% had suffered 1st episode of stroke among which 5.5% were having history of TIA. Total TIAs were 9%.



4. Discussion

The most effective method of lowering the incidence of stroke is recognizing the clinical patterns and risk factors, intervening to control or alter them. Age, gender, color, ethnicity, and inheritance are some risk factors for stroke that cannot be changed. As a result, they must be taken into account when evaluating patients [9]. Due to the high incidence of stroke, in the current study we looked at the prevalence of stroke and stroke related risk factors.

The analyzed data shows Hypertension, Obesity, Smoking and Diabetes were the major risk factors found in the hospital record file of the 200 patients. Among them 45 patients record file states history of stroke. Also they are at greater risk of having stroke in future. As Smoking, Obesity and Hypertension were the major risk factors found in them. Which increases the prevalence of stroke.

Now, the risk of stroke in future can be reduced in this patients by not only advising them to cease the addictive's rather health organization should plan a protocol for them as a treatment. The consultant should look after for the patients at risk, they should ask the patients to visit rehabilitation centers for conditional therapy which will help them to get rid of addictive.

For the patients with hypertension, diabetes and obesity should be deal with good diet plan. For which hospital authority should advise for the dietitian. If not, they should hire the one.

Exercise and diet will go hand in hand for the patients who are obese. Physiotherapy will be the good step taken by the consultant. Hence, stroke can be reduced by such analysis, that to be conducted in the hospital to rule out the risk of stroke in future, not only in stroke patients but also in the patients who will be at verge of incidence of stroke.

5. Limitation

First, the study was done at the tertiary care center in Bharuch and Ankleshwar (South Gujarat, patients from all nearby district and localities) and the results cannot be extrapolated to the community and could just represent the patients with the referral bias. Second, the study shows the presence of admission bias, as only sick patients requiring urgent admission and medical attention were admitted. Third, inadequate data were present for rest other patients and thus were excluded.

6. Conclusion

The stroke ratio for Male were higher than that of Female. Out of total, 22.50% suffered from stroke, the risk factors like smoking, obesity and hypertension showed higher prevalence of stroke in them. These are the major risk factors or causative factors of stroke.

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