Research Article

Awareness of risk factors and early signs of stroke in high-risk population of Surat

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Keywords

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Abstract

Background: Stroke is known as cerebrovascular accident (CVA). It's focused neurological deficit which usually happens due to lack of blood supply towards the brain. Knowledge about risk factors and early signs of stroke helps in early intervention and may lead to a better functional outcome for rehabilitation. This study was conducted to assess awareness about stroke in the high-risk population of Surat.

Methods: A total of 120 samples were recruited and written consent was obtained. Data was collected using a close-ended, self-made questionnaire, in an interview-based format. Collected data was analysed using descriptive statistics.

Results: 40.10% participants were fully aware about stroke. 26.2% participants could not able to identify a single risk factor.75% participants did not have self-risk perception about stroke. Only 4.2% participants identified all the signs and symptoms of stroke correctly. 80.4% participants believed that early management of stroke increases chances of recovery. Only 32.5% participants would call the ambulance on occurrence of stroke.

Conclusions: There is significant lack of awareness about risk factors and early signs of stroke. Public health education seminars should be conducted to increase awareness, especially targeting population at high risk which leads to early management and improve quality of life.

Introduction

Stroke is a major disabling health problem in developing countries like India. Stroke burden in India has been rising in the last few decades, in contrast to developed countries where it has plateaued or decreased. India currently has a higher yearly incidence rate of stroke than western countries, at 145 per 100,000 people.[1] In people under 40, strokes account for about 12% of all stroke cases.[2] Of the nearly 1.2 billion people living in India today, 1.8 million may get a stroke each year, and almost one-third of them may pass away. This means that emerging nations must give the prevention and treatment of stroke considerable consideration.[3] The American Stroke Association has identified the following significant modifiable risk factors for stroke: obesity, hyperlipidaemia, diabetes, atrial fibrillation, valvular heart disease, coronary heart disease, physical inactivity, diet, heavy alcohol use, and excessive cigarette smoking.[4] The National Institute of Stroke has given five stroke warning indicators. The American Stroke Association has identified the following significant modifiable risk factors for stroke: obesity, hyperlipidaemia, diabetes, atrial fibrillation, valvular heart disease, coronary heart disease, physical inactivity, diet, heavy alcohol use, and excessive cigarette smoking.[4] The National Institute of Neurological Disorders and Stroke has established five stroke warning signs: dizziness, trouble walking, loss of balance or coordination, severe headache with no apparent cause, confusion, difficulty speaking or understanding speech, numbness or weakness in the face, arms, or legs (unilateral).[5] In any type of sickness, early intervention and therapy are usually advantageous. Understanding the risk factors for stroke facilitates the early detection of one's own stroke risk and the application of preventive measures.[6] The availability of accurate treatment to prevent bad clinical outcomes in stroke patients is contingent upon early diagnosis of symptoms and timely medical attention. Consequently, in order to prevent stroke and lower the death and morbidity that go along with it, it is critical to determine the degree of public awareness regarding stroke warning signs and risk factors. Research from the USA, Nigeria, Oman, and Croatia, among other nations, revealed a lack of knowledge regarding stroke, its risk factors, and warning indicators. [7–12] Research from India's Gujarat, Karnataka, and West Bengal states that people's knowledge of stroke, its symptoms, and its risk factors is low.[12] Because they are more likely to experience the disease, those in the high-risk category for stroke should receive special attention. Prior to developing educational techniques that are specifically aimed at the target group, it is necessary to ascertain the level of awareness regarding stroke. The primary risk factors for stroke are aging, genetics, high blood pressure, elevated cholesterol, obesity, heavy drinking, and smoking [13, 14]. Although women have a higher death rate from stroke than men do, men are more likely to experience it [14, 15]. The purpose of this study is to find the awareness of risk factors and early signs of stroke in high-risk population of Surat.

Methods

Present study was a cross-sectional survey conducted at various outpatient departmentof Surat. A convenient sampling technique was used inpresent study and sample size was taken as 120. People diagnosed with one or more established risk factors of stroke (hypertension, diabetes, obesity, known cardiovascular disease, hyperlipidaemia, chronic smokers, and chronic alcoholism) were included in the study. People having a history of a previous stroke, Transient Ischemic Attack, Cognitive dysfunctions, health care professionals were excluded from this study.

Procedure: The Institutional Ethics committee approved this study. Informed written consent was obtained from the participants who were willing to participate. A cross-sectional survey-based study was carried out using a self-made, structured, close ended questionnaire was used. The questionnaire was used for pilot study. Questionnaire includes demographic data of the participants including age, gender, education, residence, occupation and diagnosis. Also 10 close ended questions about awareness of the term stroke, risk factors, self-risk perception, early

signs, response to stroke symptoms, prevention and recurrence and source of information. Data was collected in an interview-based format. Any doubts or queries had been addressed and resolved and explanation was provided for the same. No attempts were made to prompt the participants by suggesting answers directly. Once the interview was completed and the questionnaire was submitted, the participants were educated about the warning signs & risk factors of stroke along with primary stroke prevention and the importance of calling the ambulance immediately was also explained to them. The responses were recorded and data analysis was carried out.

Data analysis: Descriptive statistics was used to summarize data on demographic variables and awareness about stroke. SPSS 20 was created using the data recorded and the results were converted into percentile. The results were depicted using tables and charts.

Results

A total of 120 participants were included in this study with 70 (58.33) male participants and 50 (33.33%) female participants. The mean age of the participants was 54.92 years with a SD of 11.39. Out of 120 participants, 40.10%were fully aware about the term stroke, 35.9% were somewhat aware and 25.8% were not at all aware about the term stroke. Hence, only 67(55.83) participants had heard about the term 'stroke'. 71.66% participants are coming from urban areas while 28.33% are from rural areas.

- **Risk factors for stroke:** The most common risk factors for stroke identified by participants were hypertension 24.57%, Hyperlipidaemia 22.50% and diabetes 20%. Obesity is also one of the important factors to have stroke 9.17% people identified it for the risk factor of stroke. The least commonly identified risk factors were chronic alcoholism 7.50%, chronic cigarette smoking 6.67% and heart disease 5.83% Here 26.2% participants couldn't identify a single risk factor. 42.8% of

the participants mentioned at least one risk factor, while less than half of the participants, 28.9% could identify at least 3 risk factors. Only 1.8% participants could identify all the risk factors correctly. When the participants were asked about their perceived risk for stroke, 60.5% of participants believed that they are not at risk for stroke, 18.5% of participants did not know if they are at risk for stroke and only 21 % participants believed that they are at increased risk for stroke.

- **Early signs and symptoms of stroke**. The most commonly identified early sign of stroke by the participants was weakness or paralysis of one side of the body 71.6 %. The correct early signs of stroke that were least recognized by the participants 26.8% were blurred vision/sudden difficulty in seeing and sudden severe headache. 26.2 % participants couldn't identify a single symptom of stroke. Only 4.2% participants identified all the signs and symptoms of stroke correctly. 85.3% participants who were partly aware, mentioned incorrect symptoms of stroke. When the respondents were asked whether they would be able to understand the early signs and symptoms on occurrence of an acute attack of stroke, majority of the participants would not be able to correctly identify it (56%).

- **Stroke prevention**: A majority of the participants, 90 (74.1%) believed that stroke is preventable. Only 25 (22.4 %) participants believed that stroke is not preventable whereas 5(3.2%) participants didn't know.

- **Response to stroke symptoms:** Only 39 (32.5%) participants would call the ambulance immediately. Majority of the participants, 58 (48.33%) would consult their physician/primary care doctor in case they suffer from stroke symptoms. Only a small number of participants would consider other options like asking family members/relatives, 9(7.5%), take rest, 4 (3.3%), home remedies, 4(3.5%) and wait and see if symptoms resolve on their own 6 (5%).

- **Stroke recurrence**: Less than half of the participants, 40.8% believed that stroke is recurrent (can occur more than once). 34.3% participants believed that stroke is not recurrent and 24.8% participants did not know whether or not stroke is recurrent.

- **Early treatment of stroke**: A large number of participants, 80.4% believed that early treatment of stroke increases chances of recovery. Only a minority of participants 14.9%believed that early treatment of stroke did not improve chances of recovery and 5.7% participants did not know whether or not early treatment of stroke improved chances of recovery.

- **Source of information:** A majority of the participants received information about stroke from community resources like Friends/relatives, (40.3%), person with stroke, (22%), newspapers/ articles, (13.4%), social media/internet, (6.7%), television/radio, (5.8%), other, (3.9%), books/ brochures, (5.7%). Only a small proportion of participants, (2.6 %) received knowledge about stroke from medical professionals.

Table 1: Demographic data of selected participants (n=120).

Age (years)	Mean+_SD
21-40	13.9
41-60	60.5
61-80	23.4
81-90	2.2
Mean+SD	54.92 +_11.39
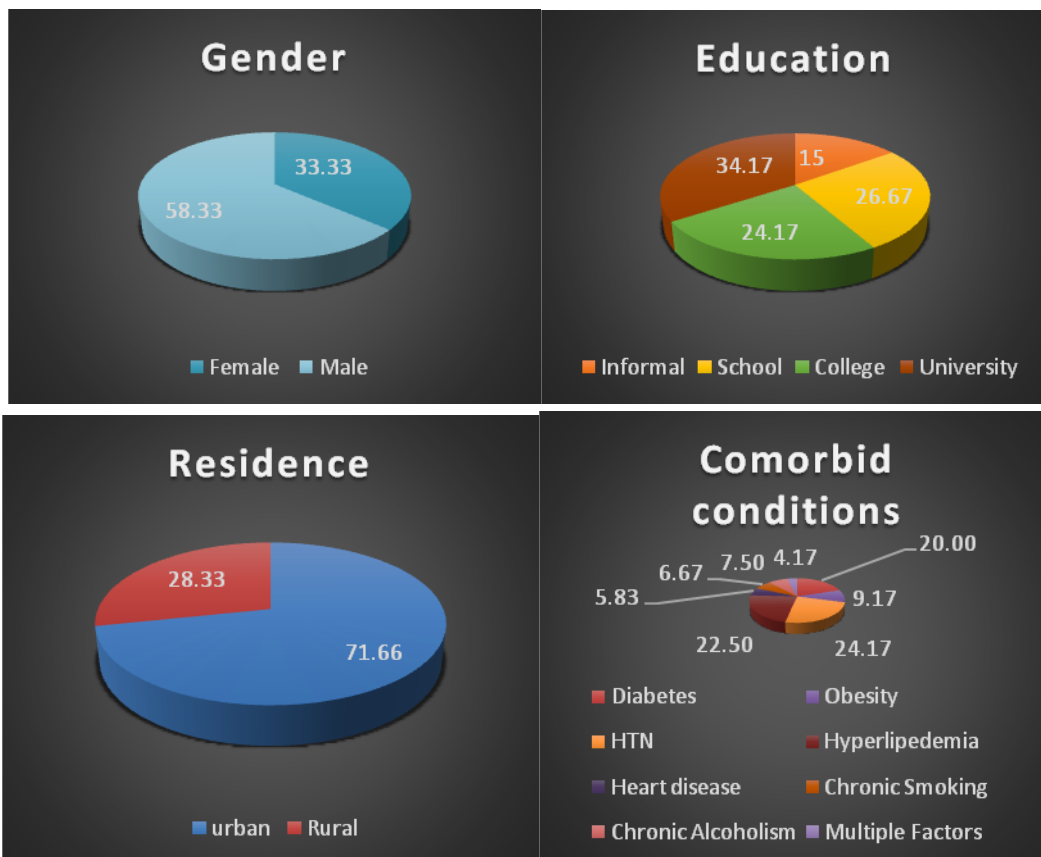
Table 2: Participant's awareness about stroke risk factors
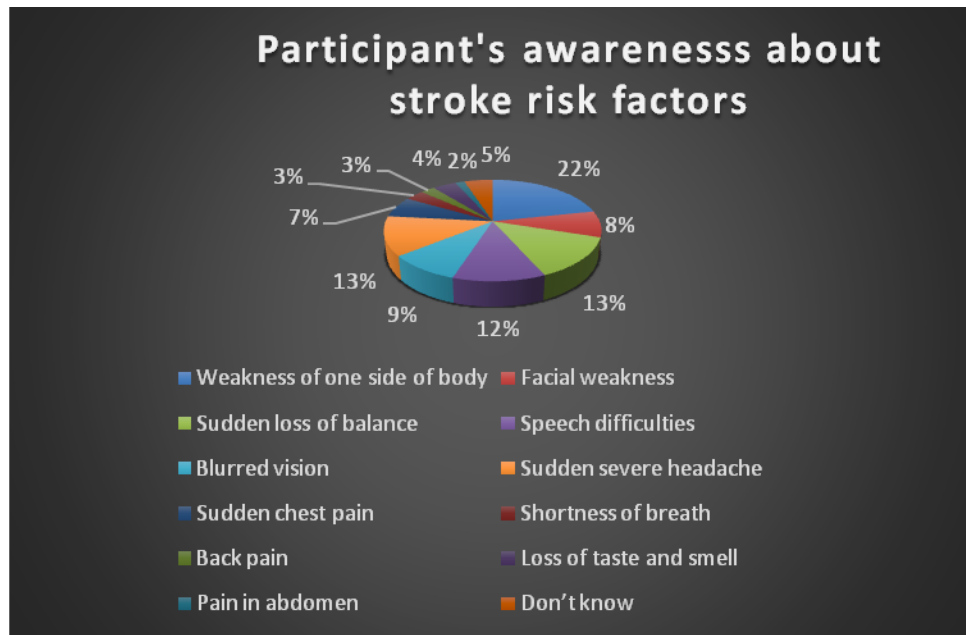
Discussion

The aim of the present study was to find out the awareness of risk factors and early signs among people at high risk for stroke in region Surat. Our study showed that awareness seems to be higher among urban areas of Surat, compared to rural areas,out of 120 participants, only 67 (55.83) participants had heard about the term 'stroke'. Out of the 120 participants 25.8% participants unaware about the term 'stroke', majority of the participants, belonged to rural population. Pandian et al. [16]performed study on high-risk population of stroke and he found (56.8%) correctly identified the "Brain" as an affected organ in stroke, whereas in previous study the knowledge of involved organ was poor (45%). One study done by Ammar Khalifa in Saudi Arabia and he found that Most participants had good knowledge regarding risk factors and prevention of cardiovascular diseases, the majority of participants had poor knowledge regarding the clinical characteristics of cardiovascular diseases.

Most common factors found for the having a stroke by respondents are Hypertension, Diabetes and hyperlipidaemia. One study by Boehme et al in 2017 reported that hypertension, smoking, diet, and physical inactivity are some of the more frequently reported modifiable risk factors for ischemic and haemorrhagic stroke, age, sex, and race/ethnicity are no modifiable risk factors.[17]The most common warning symptoms identified by subjects in this study was weakness of one side of body (77%), which was comparable with other studies from Mosca L et al. [18] (66.4%), Sung S. Kim et al. (70%) and Kothari et al (50%). One hundred and one (20.2%) participants who did not know even a single warning symptoms was also comparable with other studies [19-21] Here in our study 22% responded that limb weakness can lead to stroke.13% responded that loss of balance and severe headache can lead to stroke.9% participants believed that facial weakness is an important symptom which leads to stroke. Another study conducted in Pakistan 2015 [22] which showed that the majority of respondents knew about these symptoms and this difference might be because of their research was conducted among university students.

Conclusion

This cross-sectional survey-based study there was a significant lack of awareness about risk factors and early signs of stroke. Free health checkups to assess risk factors for stroke can be organized in rural areas with support from the government.

Programs aimed at raising public health awareness should be carried out to educate the high-risk population about stroke risk factors and early warning indicators. Even the significance of early medical management should be explained to the public. Various health care providers can use a multidirectional approach to raise awareness and teach emergency scenario management skills in order to lower the death and disability rates. Free health checkups to assess risk factors for stroke can be organized in rural areas with support from the government. A comprehensive strategy using social media and mass media can be employed to raise public awareness because, in the event of a stroke, the person who is with a high-risk patient also has to be aware of the warning signals in order to recognize the condition early and take appropriate action. These steps will lessen the severity of the condition and the handicap experienced by stroke patients while also helping to prevent strokes from occurring.

Recommendations: Stroke prevention can be aided by taking the proper steps to raise awareness among patients who are at risk. Given the target population's lack of awareness regarding stroke, this study will aid in the formulation of a plan. Additionally, it will lessen the burden of stroke in India and the severity of the stroke patient's illness.
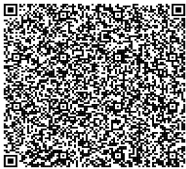
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References

1. Kaul S, Bandaru VC, Suvarna A, Boddu DB, Stroke burden and risk factors in developing countries with special reference to India. J Indian Med Assoc 2009;107:358, 367-70.
2. Anand K, Chowdhury D, Singh KB, Pandav CS, Kapoor SK. Estimation of mortality and morbidity due to strokes in India. Neuroepidemiology 2001;20:208-11.
3. Dalal PM, Bhattacharjee M. Stroke epidemic in India: Hypertension stroke control programme is urgently needed. J Assoc Physicians India 2007;55:689-91.
4. Pandian JD, Jaison A, Deepak SS, Kalra G, Shamsher S, Lincoln DJ, et al. Public awareness of warning symptoms, risk factors, and treatment of stroke in northwest India. Stroke. 2005;36(3):644-8.
5. Goldstein LB, Bushnell CD, Adams RJ, Appel LJ, Braun LT, Chaturvedi S, et al. Guidelines for the primary prevention of stroke: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. Stroke. 2011;42(2):517-84.
6. Moser DK, Kimble LP, Alberts MJ, Alonzo A, Croft JB, Dracup K, et al. Reducing delay in seeking treatment by patients with acute coronary syndrome and stroke: A scientific statement from the American Heart Association Council on cardiovascular nursing and stroke council. Circulation 2006;114:168-82.
7. Willey JZ, Williams O, Boden-Albala B. Stroke literacy in Central Harlem: a high-risk stroke population. Neurology. 2009;73(23):1950-6.
8. Al-Shafaee MA, Ganguly SS, Al Asmi AR. Perception of stroke and knowledge of potential risk factors among Omani patients at increased risk for stroke. BMC Neurol. 2006;6(1):1-6. 12.
9. Pancioli AM, Broderick J, Kothari R, Brott T, Tuchfarber A, Miller R et al. Public perception of stroke warning signs and knowledge of potential risk factors. JAMA. 1998;279(16):1288-92.
10. Sadighi A, Groody A, Wasko L, Hornak J, Zand R. Recognition of stroke warning signs and risk factors among rural population in Central Pennsylvania. J VascIntervent Neurol. 2018;10(2):4
11. Kanisek S, Prlić N, Barać I. Perceptions of stroke among patients with an increased risk of stroke. South East Eur Health Sci J. 2012;2:75-80.
12. Das K, Mondal GP, Dutta AK, Mukherjee B, Mukherjee BB. Awareness of warning symptoms and risk factors of stroke in the general population and in survivors stroke. J Clin Neurosci. 2007;14(1):12-6.

13. Khan NI, Naz L, Mushtaq S, Rukh L, Ali S, Hussain Z. (2009). Ischemic stroke: prevalence of modifiable risk factors in male and female patients in Pakistan. Pakistan J Pharm Sci. 2009;22(1).

14. Donahue RP, Abbott RD, Reed DM, Yano K. Alcohol and hemorrhagic stroke: the Honolulu Heart Program. Jama.1986;255(17):2311-2314

15. Neaton JD et al., Risk factors for death from different types of stroke. 1993;3(5): 493-499.

16. Jeyaraj D. Pandian, Ashish Jaison, Sukhbinder S. Deepak et al. Public Awareness of Warning Symptoms, Risk Factors, and Treatment of Stroke: in Northwest India. Stroke 2005;36:644-648

17. Boehme AK, Esenwa C, Elkind MS. Stroke risk factors, genetics, and prevention. Circ Res. 2017;120(3):472–495. doi:10.1161/CIRCRESAHA.116.308398

18. Razdan S, Koul RL, Motta A, Kaul S. Cerebrovascular disease in rural Kashmir, India. Stroke. 1989;20:1691–1693.

19. Pancioli AM, Broderick J, Kothari R, Brott J, Tuchfarber A, Miller R, Khoury J, Jauch E. Public perception of stroke warning signs and knowledge of potential risk factors. JAMA. 1998;279:1288 –1292.

20. Sug Yoon S, Heller RF, Levi C, Wiggers J, Fitzgerald PE. Knowledge of stroke risk factors, warning symptoms and treatment among an Australian urban population. Stroke. 2001; 32:1926 –1930.

21. Reeves MJ, Hogan JG, Rafferty AP. Knowledge of stroke risk factors and warning signs among Michigan adults. Neurology. 2002; 59:1547–1552

22. Mustaqeem M, Sadullah S, Farooq MZ, Waqar W, Fraz TR. Knowledge awareness and behavior of non-medical students about cardiovascular disease. J Ayub Med Coll Abbottabad. 2015;27(4):894–9.