

Original article

“PREVAILING KNOWLEDGE ABOUT STROKE SYMPTOMS AND TREATMENT OPTIONS AMONG THE RELATIVES OF NON-STROKE PATIENTS.”

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Abstract:

Background- This study assessed public awareness of warning symptoms, risk factors, and treatment of stroke in Gujarat. In spite of huge burden affecting the people in their prime period of life, resulting large number of death and huge burden of disability, no definite awareness programs are chalked in India.

*This study Purpose—*This study is planned to assess public awareness of warning symptoms, risk factors, and treatment of stroke among the lay persons.

Method : cross sectional survey based study of the relatives of the patients. The relatives to the stroke patients are excluded from the survey to prevent the bias.

The study was carried out at VSGH from March2018 to May 2018.

For this study, trained resident, with good vernacular language command interviewed subjects using structured, predefined, open ended questions.

*Results—*1000 subjects were interviewed during the study period (62.4% men, mean age 40.1 years, age range 15 to 80 years). 32 percent of the subjects did not recognize the brain as the affected organ in stroke. In the multivariate analysis, higher education (P value <0.001 ; odds ratio 3.2; 95% CI 1.3 to 2.8) correlated with a better knowledge of which organ was affected in stroke. 42% of the participants did not know a single warning symptom of stroke. 21% of the subjects could not identify even a single risk factor for stroke. 23% of the study population believed that oil massage would improve stroke victims. A small proportion of subjects believed in “Bhuva” (witchcraft, 3%), faith healing (11%).

12% understood the importance of the “Time” as a prime factor of the outcome. In the multivariate analysis, even higher education (P value<0.001; odds ratio 6.2; 95%, CI 1.3 to 4.8) correlated with a poor knowledge of the timely intervention. 42% understand the importance of CT scan brain in such cases, however of these only 21 % knew , where the facility is available.

Conclusions—This hospital-based survey reveals a very poor awareness of stroke warning signs, risk factors, treatment options. There is extreme poor awareness about importance of time frame among even the highly educated people. Hence, considerable awareness program are needed to increase public awareness about the stroke symptoms, risk factors and modern concepts of stroke treatment.

Introduction :

Because of poor reporting system the exact figure are difficult to delineate, however the prevalence of stroke in India varies in different states and it varies from 40 to 270 per 100 000 population. Approximately 12% of all strokes occur in the population above 40 years of age. This causes a significant morbidity to the earning population of India.

With Increased life expectancy in India, we will face an enormous socio-economic burden to meet the costs of rehabilitation of stroke victims. Despite recent advances in stroke therapy, the public remains uninformed about strokes, and very few stroke patients present to hospital with “CT Capability” in time to receive definite treatment.

In India, many centres have started using recombinant tissue plasminogen activator(r-PTA) for acute ischemic stroke. Even few public sector hospitals are giving it free of cost. The best way for patients to receive the most effective stroke treatment is to approach an emergency department as quickly as possible after they have symptoms.

Very few study from India have investigated public perception of stroke warning symptoms, risk factors, treatment options available and importance of time. The awareness of these symptoms and risk factors are essential for the public to effectively use thrombolytic therapy for acute stroke in a timely manner. This study was undertaken to assess public awareness of warning symptoms, risk factors, and treatment of stroke.

Methods

The Emergency Department, VSGH conducted this cross-sectional hospital-based survey between February 2002 and September tertiary referral center situated in in the heart of a metrocity.

Relatives of patients in the emergency departments of the hospital formed the study subjects. The Institutional Research Committee approved this study. Subjects were selected in a random manner, from an eligible population, from the Emergency department. Individuals 15 years of age, who consented, were interviewed personally. Only the relatives of patients without a past history of stroke participated in the study to avoid the bias. No two respondents were from the same family. Two assigned resident who had undergone a 2-week orientation to the questionnaire conducted the interviews. The questions were asked during a 1-to-1 interview in the local vernacular language (preferably Gujarati). The interviewer

intervened only to clarify a question, if need arose. No attempt was made to prompt the subjects directly or indirectly.

Questionnaire

The survey questionnaire was adapted from previous studies. It had 20 questions, which were modified to suit local sociocultural practices. The first section gathered demographic information, second only about the risk factor and third one about the knowledge about the treatment options. Education was categorized into upto primary schooling (including literates), secondary schooling (upto 10th standard) and higher secondary and above (up to 12th standard)[this categorisation was due to educational class of patients presenting to our setup].

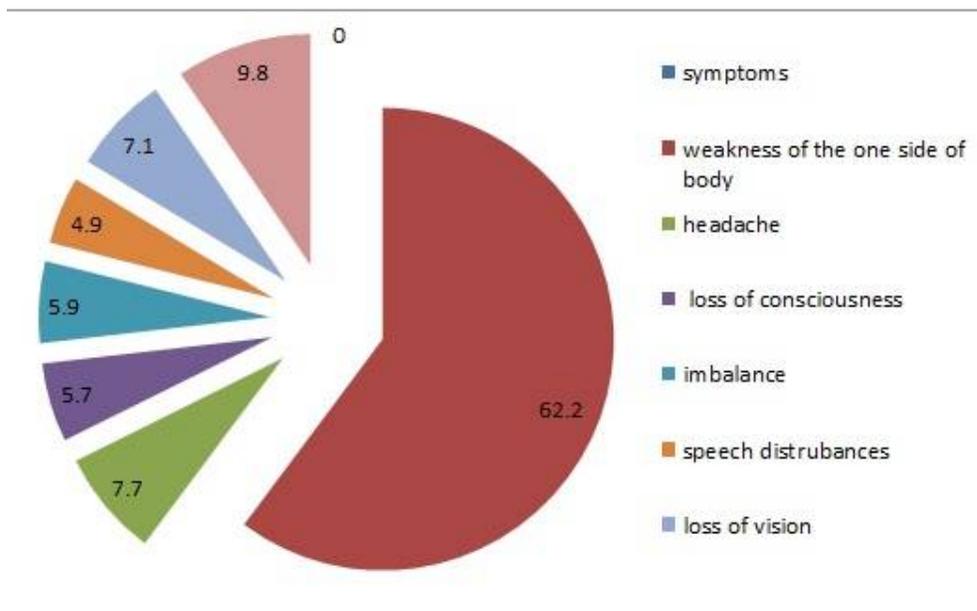
Changes were made in the questionnaire to various terms that are used for “stroke” in the local languages preferably Gujarati.

Statistical Analysis

All statistical analysis was performed using EpiInfo 2K and StataMP 13. Different tests were used to assess the univariate relationship between components of stroke knowledge, warning signs, risk factors, and demographic variables. Multivariate logistic regression was used to assess the predictors of knowing a single correct response to various questions.

Results:

Graph 1 : knowledge about the symptoms of stroke among the respondents



groups	categories	Organ affected		Symptoms(at least one)		Risk factors(al least one)		Management options known(at least one)	
		aware	not aware	aware	not aware	aware	not aware	aware	not aware
Age	<40 years	34	18	68	32	43.2	68.2	43.2	68.2
	>40 years	34	14	74	26	54	46	54	46
Sex	men	62.4	38.6	76	24	68	32	68	32
	women	38.6	62.4	34	66	32	38	32	38
Education	upto 6 th standard	18.2	81.8	32.2	67.8	34.8	65.2	34.8	65.2
	6 to 10 th standard	24.4	75.6	43.8	56.2	64.2	35.8	64.2	35.8
	above 10th standard	68.4	31.6	75.2	24.8	88.1	11.9	88.1	11.9

table1: showing demographic profile, basic knowledge about organ affected, symptoms, risk factor and managemnet option among categories patients

table 2. knowledge about immediate action to be taken and treatment options available for the patients

Action	
call 108 (free govt ambulane services)	66%
Take him to hospital	72%
Call a family physician and equivalent	28%
show specialist	23%
Buy medicine from a shop	12%
Take him to hospital with CT scan available	32%
knew where the CT facility is availble	21%
Treatment of stroke*	
Oil massage	23.00%
Blood thinning agents	8%
Aspirin	6%
Surgery	34%
Faith healing	11%
Witchcraft	3%
control of BP	24%
importance of time in definate treatment	12%

Results:

A total of 1211 individuals were screened and 1000 subjects consented to participate in the study. We excluded 211 subjects who did not consent or had seen some close relative with a stroke to avoid “recall bias”.

In the final analysis only 1000 subjects were included. There were 624 (62.4%) men and 376 (37.6%) women. The mean age was 40.1 years and SD was 12.9 (range 15 to 80 years). The demographic details are shown in Table 1.

68% of subjects could name the brain as the affected organ in victims of stroke (table 1). 32 % of them thought that stroke involved various other. Occlusion of a vessel as the cause of stroke was correctly stated by 408(40.8%) of the respondents. 147 (14.7%) participants mentioned that rupture of a vessel could lead to stroke. In the univariate analysis, a higher knowledge about the organ involved in stroke correlated with men (P0.001), and persons belonging to a higher educational bracket (P0.001) (P0.001; Table 2). the multivariate analysis, higher secondary (P value<0.001; odds ratio 3.2; 95%, CI 1.3 to 2.8) correlated with a better knowledge of which organ was affected in stroke.

Warning Symptoms of Stroke : The most common warning symptom in a stroke, as described by respondents, was paralysis of 1 side of the body, 622 (62.2%). The other symptoms reports by the participants were headache, 77 (7.7%); loss of consciousness 57 (5.7%); imbalance 59 (5.9%); speech disturbance 49 (4.9%); loss of vision, 71 (7.1%); and tingling sensation on 1 side 98 (9.8%)(graph 1). Two hundred and twelve subjects (21.2%) did not know a single warning symptom or sign of stroke. Five hundred and nineteen (51.9%) respondents correctly identified 1 symptom, 153 (15.3%) individuals identified 2 symptoms, and only 58 (5.8%) knew 3 or more symptoms.

Risk Factors for Stroke : Risk factors identified by subjects included hypertension, 451 (45.1%); stress, 409 (40.9%); diabetes, 107 (10.7%); high cholesterol, 67 (6.7%); heredity, 38 (3.8); obesity, 32 (3.2%); heart disease, 20 (2%); lack of exercise, 22(2.2%); smoking, 45 (45%); and black magic, 5 (0.5%).

One hundred and ninety-five (19.5%) participants did not know a single risk factor. Only 482 (48.2%) individuals could name 1 risk factor correctly, 185 (18.5%) subjects knew 2 risk factors, and only 97 (9.7%) of them could name 3 or more risk factors. Higher education (P0.05) was significantly associated with knowing a single risk factor in univariate analysis (Table 1). In multivariate logistic regression analysis, none of the variables attained statistical significance.

Self-Reported Risk Factors . In the multivariate logistic regression analysis, higher education (P0.001; OR 2.6; 95% CI, 1.8 to 3.8) correlated with a better knowledge about the organ affected in stroke.

Knowledge of Stroke Treatment :

320(32%) respondents knew CT is required to diagnosis such cases. However, only 21% knew where the facility of CT scan brain is available in their nearby vicinity.

Only 12% respondents knew about the time frame. However, none of them exactly knew something like r-TPA or 3 hours of “time-window”.

Only 140(14%) of respondents knew “blood thinner” like aspirin is as an appropriate therapy for the treatment of stroke (Table 2).

231 respondents (23.1%) believed that an oil massage would help stroke victims. The number of subjects who believed in indigenous treatments included faith healing treatment 11%, witchcraft 3%. However, the numbers in these categories were quite low in higher education category.

Men (P0.02; OR 1.3; 95% CI, 1.0 to 1.8) and younger age (P0.02; OR 0.7; 95% CI, 0.5 to 0.9) and higher education (P0.04; OR 1.8; 95% CI, 1.1 to 1.4) correlated with better knowledge about stroke treatment.

Discussion

Layman considers Stroke as Heart Attack by about 70% of people because of limited awareness programs India¹.

Stroke Patients may not speak out and they are disabled suddenly with paralysis, lack of speech, confusion, giddiness, convulsion, blindness and are depressed and frustrated. Hence knowledge of symptoms among the relatives is vitally for correct and timely treatment^{1,2}.

This survey was conducted among relatives of patients presenting to ED who are not having stroke as a presentation and who have no close relative with history of stroke in past. This is to prevent recall bias.

A population-based survey is not readily feasible in India^{2,3,4}, owing to the lack of insight, finances and other logistic issues. The demographic profiles in this study are may not be representative of the population of India and Gujarat (urban more than rural), who present to public hospital.

68% identified the brain as the affected organ in stroke, and ignorance of the warning symptoms and risk factors for stroke was common³. However, there is lack of awareness about stroke among the public even in developed countries like the United State^{5,6} and Australia.

The most common warning symptom identified by family members in our study was weakness of 1 side (62.2%). The percentage of respondents who mentioned weakness of one half the body as a symptom of stroke was comparable with other studies from the United States⁶ and Korea⁸.

Even though our respondents were aware of paralysis of 1 side as a symptom of stroke, 8% were able to identify other warning symptoms of stroke. The number of respondents who did not know even a single warning symptom suggest gross neglect about the major health hazard.

The awareness of stroke risk factors among even in higher education categories was poor in our study. That clearly states that future educational efforts need to focus on the population as a whole.

In this study, the knowledge about the organ involved, risk factors and treatment options of stroke was better among men, which is strongly suggest Indian cultural practices, educational

status, opportunities, and income among both the genders. These is changing gradually, but this should be paced fast for the healthy society.

A majority of the respondents (72%) preferred to take a person to the hospital when they or someone close to them had experienced symptoms of stroke. However, 66% of the participants said, they will call “108”, that shows immense faith of “108” ambulance services among the population of Gujarat. This is because of acclaimed timely and effective services catered by them here. Comparable responses were seen in other studies⁶ except in Korean subjects^{6,7} where only 46% of them mentioned that they would visit a hospital.

28% would contact an family physician or equivalent doctor in our study. Hence, physicians and family doctors need to be educated about referring patients to stroke centers within the window period of intervention. This is true for developing countries, where the number of neurologists available to any population is proportionately much less than that in developed countries.

The majority did not know about the appropriate treatment for stroke (56.1%). Approximately 10.7% of them believed in indigenous treatment modalities, including, oil massage, faith healing, and magic. This could be an underestimation, because the majority of study subjects were from urban areas (74%). The sample size of the rural respondents was too small for any significant comparisons. Native systems of medicine are deeply rooted in Indian culture, more so among the village dwellers. These may also hinder in timely treatment interventions.

32% knew about the required CT scan (Brain) for the definite treatment and 21% knew where the facility is available nearby. This indicates patients may land in place without CT availability and lose valued time and available stroke thrombolysis treatment option.

Now, intravenous thrombolysis treatment modality is available at various public and private hospitals in India. But if public is not aware about such facility and importance of timely interventions, facilities cannot be utilized optimally. Hence this study strongly suggests, there is need for public awareness program, may be in form of pamphlets, lectures, road shows etc to percolate the knowledge about the sings/symptoms of stroke and treatment

Conclusion and Summary

Hence, this study among the general public reveals a gross lack of awareness of stroke warning signs, risk factors and treatment options.

India is a vast country with diverse social and cultural practices. The findings from this study are limited in generalizability to the entire Indian population. Future studies are needed which focus on community surveys including both rural and urban populations. This shows efforts should be made to educate the public about stroke presentation, modern concepts of stroke treatment, so that people make more rational and beneficial health care decisions.

Reference :

1. Anand K, Chowdhury D, Singh KB, Pandav CS, Kapoor SK. Estimation of mortality and morbidity due to strokes in India. *Neuroepidemiology*. 2001;20:208–211
2. Dhamija RK, Dhamija SB. Prevalence of stroke in rural community: an overview of Indian experience. *J Assoc Physicians India*. 1998;46:351–354.
3. Banerjee TK, Mukerjee CS, Sarkhel A. Stroke in the urban population of Calcutta—an epidemiological study. *Neuroepidemiology*. 2001;20: 201–207.
4. Razdan S, Koul RL, Motta A, Kaul S. Cerebrovascular disease in rural Kashmir, India. *Stroke*. 1989;20:1691–1693.
5. Dalal PM. Stroke in India: issues in primary and secondary prevention. *Neurol India*. 2002;50:S2–S7.
6. Parahoo K, Thompson K, Cooper M, Stringer M, Ennis E, McCollam P. Stroke: awareness of the signs, symptoms and risk factors: a population-based survey. *Cerebrovasc Dis*. 2003;16:134–140.
7. Reeves MJ, Hogan JG, Rafferty AP. Knowledge of stroke risk factors and warning signs among Michigan adults. *Neurology*. 2002;59:1547–1552
8. 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