

## Study of Awareness of Stroke Symptoms and Risk Factors: A Field Based Study

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### Abstract

**Background:** Stroke is a major public health problem resulting in permanent disability among the adults. The outcome is often determined by the awareness of the patients, their relatives and general public. This study was mainly taken up to assess the awareness of the general public regarding awareness and the outcome among the general public regarding stroke. **Materials and Methods:** A community based cross sectional study was undertaken in the field practice areas of department of community medicine, Basaveshwara Medical College and Hospital, Chitradurga. About 520 participants were randomly chosen and administered with the predesigned proforma. **Results:** The awareness was higher in males, those aged between 41–60 years, Hindus and from urban areas had the awareness regarding organ affected during the time of stroke. Most of the males, aged between 41–60 years, Hindus and equal from rural and urban areas had awareness regarding symptoms of stroke. The awareness regarding risk factors of stroke were present in males, subjects aged between 41–60 years, Hindus and study subjects from the rural areas. About 66.9% of the study subjects opined that the patient should be taken to the hospital immediately after the event. About 68.1% of the study subjects didn't know about the treatment of stroke. The critical hour for admitting the patient to hospital was more than 2 hours in 68.5% of the study subjects. **Conclusion:** The awareness regarding the symptoms and risk factors of stroke was lower in the study group which requires increase in intensity of health education programs.

**Keywords:** Stroke; Symptoms; Risk factors; Awareness; Treatment of stroke

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### Introduction

Stroke is an important public health problem in adults and is one of the most frequent cause of death.<sup>1</sup> The increase in stroke burden in Indian can be attributed to the change in lifestyle.<sup>2</sup> The exact prevalence of the stroke in India is lacking due to bias, small and variable sample sizes and inconsistent criteria. The age adjusted prevalence rate for stroke is estimated between 84 to 262/100,000 in rural and

334–424 /100,000 in urban areas.<sup>3</sup> A study identified that 7% of the medical and 45% of the neurological admissions were stroke with a fatality rate of 9% at hospital discharge and 20% at 28 days.<sup>4</sup>

The studies available shows that the knowledge of stroke among patients and their relatives is lacking especially about warning signs of stroke, risk factors, organ involvement. The self recognition of stroke was not present among the elderly stroke survivors. Educated and young



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stroke survivors had better knowledge of stroke and its complications.<sup>5</sup>

The knowledge of acute management of stroke is lacking among the general public which results in delay in initiation of treatment.<sup>6</sup> The delay in treatment even the era of effective thrombolytic resulting in death and severe disability due to lack of awareness. The approved time window for the management of stroke symptoms ranges from 3.0 h to 4.5 hours in various countries. However, the reported delay in seeking treatment ranges from 38 min to 4 hours.<sup>7</sup>

In a study by Falavigna et al., lower income and lower educational levels were independent factors associated to inability to recognize that stroke affects the brain. Lower and being under 50 years old were independent risk factors to lack of knowledge concerning stroke risk factors. Lower educational level was the unique risk factor for insufficient knowledge about stroke warning signs.<sup>8</sup>

The literature regarding the awareness of stroke symptoms and risk factors are scant in this part of the country. Hence, this study was undertaken to study the awareness of the general public regarding stroke risk factors and symptoms.

## Materials and Methods

A community based cross sectional study was undertaken in the field practice areas of the department of community medicine of Basaveshwara Medical College and Hospital by the staff of Department of Emergency Medicine for three months. A total of 520 respondents who are willing to participate in the study were included as study sample by door to door survey. Clearance from institution ethics committee was taken before the study was started. An informed consent was obtained from all the participants. The subjects aged more than 15 years were included in the study. The subjects not giving consent to participate in the study were excluded from the study. A predesigned, pre tested and self administered proforma was used to collect the awareness regarding symptoms, risk factors and critical hour to take the stroke patients to the hospital. The data thus obtained was compiled and analyzed using Statistical Package for Social Services (vs 20).

## Results

**Table 1:** Distribution of the study subjects according to awareness regarding organ affected and demographic characteristics.

Demographic characteristics		Organ affected		Total N (%)
		Aware N (%)	Not aware N (%)	
Sex	Male	92 (56.4)	210 (58.8)	302 (58.1)
	Female	71 (43.6)	147 (41.2)	218 (41.9)
Age	15-40 years	73 (44.8)	121 (33.9)	194 (37.3)
	41-60 years	70 (42.9)	186 (52.1)	256 (49.2)
	More than 60 years	21 (12.3)	50 (14.0)	70 (13.5)
Religion	Hindu	110 (66.3)	256 (71.9)	366 (70.4)
	Muslim	50 (30.7)	88 (24.7)	137 (26.3)
	Others	5 (3.1)	12 (3.4)	17 (3.3)
Locality	Rural	81 (49.7)	182 (51.0)	263 (50.6)
	Urban	82 (50.3)	175 (49.0)	257 (49.4)

Table 1 shows the distribution of the study subjects according to the knowledge regarding the organ affected and the demographic characteristics. More than half of the study subjects in this study were males aged between 40 - 60 years. Majority were Hindus by religion and were from rural areas. Majority of the males, aged between 41 - 60 years, Hindus and from urban areas had the awareness regarding organ affected during the time of stroke.

**Table 2:** Distribution of the study subjects according to knowledge of stroke symptoms and demographic characteristics.

Demographic characteristics		Symptoms		Total N (%)
		Aware N (%)	Not aware N (%)	
Sex	Male	110 (66.3)	192 (54.2)	302 (58.1)
	Female	56 (33.7)	162 (45.8)	218 (41.9)
Age	15-40 years	65 (39.2)	129 (36.4)	194 (37.3)
	41-60 years	85 (51.2)	171 (48.3)	256 (49.2)
	More than 60 years	16 (9.6)	54 (15.3)	70 (13.5)
Religion	Hindu	111 (66.9)	255 (72.0)	366 (70.4)
	Muslim	49 (29.5)	88 (24.9)	137 (26.3)
	Others	6 (3.6)	11 (3.1)	17 (3.3)
Locality	Rural	83 (50.0)	180 (50.8)	263 (50.6)
	Urban	83 (50.0)	174 (49.2)	257 (49.4)

The awareness regarding the symptoms of stroke had shown that, males had higher awareness than females, aged between 41-60 years, Hindus and equal from rural and urban areas.

**Table 3:** Distribution of the study subjects according to knowledge of stroke symptoms and demographic characteristics.

Demographic characteristics		Risk factors		Total N (%)
		Aware	Not aware	
		N (%)	N (%)	
Sex	Male	77 (53.5)	225 (59.8)	302 (58.1)
	Female	67 (46.5)	151 (40.2)	218 (41.9)
Age	15–40 years	52 (36.1)	142 (37.8)	194 (37.3)
	41–60 years	68 (47.2)	188 (50.0)	256 (49.2)
	More than 60 years	24 (16.7)	46 (12.2)	70 (13.5)
Religion	Hindu	108 (75.0)	258 (68.6)	366 (70.4)
	Muslim	27 (18.8)	110 (29.3)	137 (26.3)
	Others	9 (6.2)	8 (2.1)	17 (3.3)
Locality	Rural	90 (62.5)	173 (46.0)	263 (50.6)
	Urban	54 (37.5)	203 (54.0)	257 (49.4)

About 53.5% of the males, 47.2% of the study subjects aged between 41–60 years, Hindus and 62.5% of the study subjects from the rural areas had awareness regarding the risk factors of stroke.

		Frequency	Percent
Reaction to stroke symptom	Don't know	59	11.3
	Buy medicine from a shop	17	3.3
	Call a allopathic doctor	33	6.3
	Don't do anything	18	3.5
	Show to an AYUSH practitioner	12	2.3
	Show to a neurologist	33	6.3
	Take him to hospital	348	66.9
Treatment of stroke	Don't know	354	68.1
	Aspirin	26	5.0
	Ayurvedic treatment	8	1.5
	Control BP	72	13.8
	Homeopathic treatment	3	0.6
	Oil massage	32	6.2
	Other type of treatment	25	4.8
Critical hour	Less than 2 hours	164	31.5
	More than 2 hours	356	68.5

About 66.9% of the study subjects opined that the patient should be taken to the hospital immediately after the event. About 11.3% of the study subjects didn't knew anything after the event. About 68.1% of the study subjects didn't knew about the treatment of stroke. Almost 13.8% of the study subjects opined that the blood pressure should be controlled. The critical hour for admitting the patient to hospital was more than 2 hours in 68.5% of the study subjects.

## Discussion

This study was mainly undertaken to study the awareness of stroke symptoms and risk factors in the field practice area. Stroke is an important public health problem where it needs awareness among the general public. It helps in transferring the patients to hospital within the critical hour which can improve the prognosis and outcome of stroke.

More than half of the study subjects in this study were males aged between 40–60 years. Majority were Hindus by religion and were from rural areas. A study by Pandian et al. had reported that, the mean age of the participants was 40.1 years and most of them were males.<sup>9</sup>

The correct awareness that occlusion of the vessel results in stroke was given by males, those aged between 41–60 years, Hindus and from urban areas had the awareness regarding organ affected during the time of stroke. A study by Pandian et al. had noted that, occlusion of a vessel was given by 30.8% of the study subjects. Univariate analysis had shown higher awareness for males, Hindus, with higher income and higher income category.<sup>9</sup> While a study from Ireland had shown that, 60.3% of the study population expressed that, stroke occurred as a result of blood clot in the brain.<sup>10</sup>

Most of the males, aged between 41–60 years, Hindus and equal from rural and urban areas had awareness regarding symptoms of stroke. In a study by Pandian et al., paralysis of one side of the body was the common warning symptom. In a multivariate analysis, none of the demographic variables were shown to be statistically significant.<sup>9</sup> Studies in United States and Korea had shown that, percentage of respondents were aware that one side paralysis was the warning symptom of stroke.<sup>11,12</sup>

About 53.5% of the males, 47.2% of the study subjects aged between 41–60 years, Hindus and 62.5% of the study subjects from the rural areas had awareness regarding the risk factors of stroke. In a study by Pandian et al., none of the risk factors were statistically significant with the awareness on risk factors.<sup>9</sup> The lower responses about the diabetes, smoking and high cholesterol as risk factors was also comparable with the other studies. Even some studies in the developed countries have reported lack of awareness among the general public regarding stroke.<sup>11,14</sup>

About 66.9% of the study subjects opined that the patient should be taken to the hospital immediately after the event. About 11.3% of the study subjects didn't knew anything after the event. About

68.1% of the study subjects didn't know about the treatment of stroke. Almost 13.8% of the study subjects opined that the blood pressure should be controlled. The critical hour for admitting the patient to hospital was more than 2 hours in 68.5% of the study subjects. A study by Pandian et al., noted that, seventy percent of the study subjects reported that they would visit hospital emergency department in case of stroke and only seven percent reported that, aspirin should be used dissolve the clot. Only few study subjects have reported that, indigenous treatments can be used for the treatment of stroke.<sup>9</sup> Similar results were also obtained by the studies done abroad.<sup>12,14</sup>

### Conclusion

This study had shown that, the awareness was lower in the general public with respect to the symptoms and risk factors of stroke. Hence, there is an urgent need for health education with respect to the stroke.

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