

Knowledge of Stroke among Hypertensive Patients in Dhulikhel

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ABSTRACT

Background

More than 50% of patients with stroke have hypertension, a common modifiable risk factor for stroke. Studies reported that 90% of diagnosed hypertensive patients do not seek for treatment in Nepal and the reason for this remains unexplored. There is a possibility that lack of knowledge of stroke and its potential causes may be the reason.

Objective

To assess the knowledge of stroke in a group of patients with hypertension in suburban Nepal.

Method

Hypertensive patients visiting a tertiary care hospital in Nepal were approached and were included if they were 18 years or older. We used the Nepali version of 'Awareness of Stroke, Risk Factors, and Treatment' questionnaire to assess the knowledge of stroke. Descriptive statistics were used to analyze the results.

Result

A total of 273 patients were included with the mean age of 56 years. Almost half (48%) of the patients were uneducated. We found that only 24% of the patients identified brain as an organ affected by stroke, only 32% were aware about more than one warning signs of stroke, 64% reported that they were unaware of the treatment options for stroke and only 5% reported control of blood pressure as a part of stroke management. The commonest reported identifiable risk factor for hypertension was high blood pressure (44%).

Conclusion

There are significant knowledge gaps regarding stroke in hypertensive patients. Although most patients recognized hypertension as a risk factor for stroke, they were unaware of treatment options. Increasing awareness of hypertension as a risk factor for stroke may help to prevent the stroke burden in Nepal.

KEY WORDS

Awareness, Hypertension, Knowledge, Stroke

INTRODUCTION

Worldwide with the increase in non-communicable diseases (NCDs), Nepal faces two thirds of deaths due to NCDs. Hypertension and cerebro-vascular accidents are the commonest NCD's in Nepal.^{1,2} Hypertension, which is recognized as a modifiable risk factor for stroke accounts for 6.7% of total Disability Adjusted Life Years, making it the second largest risk factor driving death and disability in Nepal.²⁻⁴

Globally, years of healthy life lost due to disability (YLDs) for stroke is 28.3%.⁵ More than 90% of stroke burden is linked to modifiable risk factors like hypertension.⁶ Stroke morbidity and mortality can be significantly reduced if patient gets immediate care after the onset.^{7,8} Immediate care of stroke partially depends on the knowledge of stroke.⁹ Knowledge of stroke's risk factors may prevent 80% of the concurrent stroke.³ Thus we aimed at assessing knowledge of stroke among hypertensive patients in suburban Nepal.

METHODS

A descriptive cross-sectional study using face-to-face interview was conducted among the hypertensive patients visiting Dhulikhel Hospital from May 2019 to September 2019. All patients were selected through non-probability convenient sampling. The ethical approval was obtained from Institutional Review Committee of Kathmandu University School of Medical Sciences, Dhulikhel, Nepal. Written and verbal consent was obtained from all participants prior to data collection.

We screened for the eligibility criteria and included patients who were ≥ 18 years, have a history of hypertension and were able to understand and speak Nepali language fluently. The exclusion criteria were pregnant women (gestational hypertension) and medical professionals. Patients completed a set of questionnaires addressing socio-demographic characteristics. To assess the knowledge of stroke a reliable and valid 'Awareness of Stroke Warning Symptoms, Risk Factors and Treatment' questionnaire was used.¹⁰ It is a 18 item questionnaire which was translated and cross culturally adapted into Nepali language prior to the data collection following the recommended guidelines.^{11,12}

The baseline characteristics of study population and knowledge of stroke were analyzed using descriptive statistics. Descriptive data were presented as mean (standard deviation) if normally distributed and as frequencies if categorical. All the statistical analyses were performed using Statistical Package for Social Sciences (SPSS) version 21 (New York: IBM Corp).

RESULTS

A total of 309 hypertensive patients visiting the cardiac unit

at Dhulikhel Hospital were eligible for the study. Among these, 273 patients met with the inclusion criteria and were included in the study. The patients mean age were 56.34 years (SD 13.2). The patients consisted of 55% (149) male and 45% (124) female with majority (48%) of them unable to read and write (Table 1).

Table 1. Socio-demographic details of the participants

Variables	Number (percentage) or Mean (SD)
Age, mean (SD)	56.34 (13.28)
Age category, n (%)	
15-24 years	2 (0.73)
25-54 years	123 (45.05)
55-64 years	66 (24.17)
≥ 65 years	82 (30.03)
Gender, n (%)	
Male	149 (54.57)
Female	124 (45.42)
Education, n (%)	
Uneducated	131 (47.98)
Informal education	29 (10.62)
1- 8 grade	46 (16.84)
9-12 grade	35 (12.82)
Bachelors or above (> 12)	32 (11.72)
Type of community, n (%)	
Urban	68 (24.90)
Sub-Urban	140 (51.28)
Rural	65 (23.80)

A less (24%) proportion of patients identified the brain as an organ of body where a stroke occurs and majority (40%) of the patients incorrectly identified "whole body" as the organ affected by stroke. The most common warning sign of stroke identified by the patients (16%) was "sudden paralysis of one side of the body". Only 32% of the patients were aware about more than one warning signs of stroke and 11% were not aware about any warning signs of stroke (Table 2). Almost half (44%) of the patients reported high blood pressure as the risk factor for stroke. Some (21%) of the patients identified witch craft/evil spirits as a risk factor for stroke. Very few (19%) patients were aware of more than one risk factor of stroke (Table 3).

The total of 60% of the patients reported that they were not informed about any risk factors of stroke by the consulting doctor. Only 5% of the patients reported that blood pressure control was a treatment for stroke and 64% were unaware about any treatments for stroke (Table 4).

Majority (73%) of the patients responded that stroke is preventable and 96% of the patients took their medications regularly. Approximately one-third (35%) of the patients visited hospital for their regular follow-up every month and 15% of the total patients visited hospital only when the

Table 2. Knowledge about organ affected by stroke and warning signs

Variables	N (%)
Organ affected by stroke (n=273)	
Whole Body	100 (36.63)
Brain	66 (24.17)
Heart	57 (20.87)
Chest	10 (3.66)
Stomach	2 (0.73)
Don't Know	15 (5.49)
Multiple answers	17 (6.22)
Other organs	6 (2.19)
Warning signs of stroke (n=273)	
Sudden paralysis of one side of the body	45 (16.48)
Slurred speech	29 (10.62)
Sudden numbness	26 (9.52)
Sudden dizziness	8 (2.93)
Sudden tingling sensation	5 (1.83)
Sudden difficulty in speaking	3 (1.09)
Sudden loss of vision in one eye	2 (0.73)
Sudden headache	2 (0.73)
Don't know	31(11.35)
Multiple answers	88 (32.23)
Other answers (added by the participants)	34 (12.45)

Table 3. Knowledge about brain pathology and risks factors

Variables	N (%)
Brain pathology during stroke (n=79)	
Blood vessels/ arteries in the brain become blocked (BV block)	40 (50.63)
Blood vessels/ arteries in the brain rupture (BV rupture)	8 (10.12)
Swelling	2 (2.53)
Brain fever	1 (1.26)
Collection of fluid	1 (1.26)
Don't know	7 (8.86)
Multiple answers	20 (25.31)
Risk factors of stroke (n=273)	
High blood pressure	120 (43.95)
Witch crafts/evil spirits	58 (21.24)
Old age	18 (6.59)
Heart disease	6 (2.19)
Smoking	5 (1.83)
High cholesterol	4 (1.46)
Heredity	3 (1.09)
Stress	2 (0.73)
Diabetes	2 (0.73)
Obesity	2 (0.73)
Multiple answers (more than 1 risk factors)	
2 risk factors	40 (14.65)
3 risk factors	10 (3.66)
4 risk factors	3 (1.09)

Table 4. Knowledge about being at risk, immediate response and treatment of stroke

Variables (N=273)	N (%)
Informed by a consulting doctor about risk factors of stroke	
High blood pressure	85 (31.13)
Diabetes Mellitus	16 (5.86)
Heart disease	1 (0.36)
High cholesterol	7 (2.56)
Not informed	164 (60.07)
Treatments for stroke	
Blood pressure control	14 (5.12)
Blood thinning agents	1 (0.36)
Surgery	1 (0.36)
Don't know	175 (64.10)
Other answers	82 (30.03)
Immediate response to stroke signs	
Take the person to the hospital	234 (85.71)
Faith healers	10 (3.66)
Don't know	29 (10.62)

Table 5. Participant's response to follow up duration concerning high blood pressure, medicine intake and stroke prevention

Variables (N=273)	N (%)
Follow up to the doctor concerning high blood pressure	
Once a month	96 (35.16)
Once in 2 months	44 (16.11)
Once in 3 months	34 (12.45)
2 times a month	25 (9.15)
Once in 6 months	29 (10.62)
Once a year	5 (1.83)
Once when symptoms aggravate	40 (14.65)
Do you take medications for high blood pressure regularly?	
Yes	259 (95.92)
No	5 (1.83)
Not under medications	9 (3.29)
Do you think stroke is preventable?	
Yes	199 (72.89)
No	8 (2.93)
Don't know	66 (24.17)

symptoms aggravated (Table 5). Most (95%) of the patients do not add salt to cooked food, do not smoke (81%) and do not consume alcohol (71%). Almost half (45%) of the patients reported that relatives and friends were the most common source of information regarding stroke and only 5% patients were informed about stroke by the doctors (Table 6). Majority (85%) of patients wanted to know more about stroke and desired the municipality and hospital to conduct more awareness programs about stroke targeting the hypertensive population.

DISCUSSION

Our research aimed at exploring the knowledge of stroke among the hypertensive population in Nepal. We found that Nepalese hypertensive individuals have inadequate knowledge about stroke. Majority of the participants didn't know about the organs affected by stroke and pathology behind stroke. More than half of the respondents were aware about only one risk factor for stroke and about one fourth participants still believing witch crafts/evil spirits as a risk for stroke.

We found that only few (24%) participants were able to identify 'brain' as the organ affected by stroke which contradicts with the findings from the previous studies in, Pakistan, Africa and Nigeria, where more than 50% of the participants correctly identified 'brain' as the organ affected by stroke (50.8%, 72.2% and 87.4% respectively).¹³⁻¹⁵ The difference in our findings could be due to difference in education level as majority of our patients were either uneducated or had received informal education. Studies have reported an association between educational level and knowledge of stroke where individual with low education level reported to have low knowledge of stroke.¹⁵⁻¹⁸

Our findings that majority of the patients reported high blood pressure as a risk factor for stroke is similar to the findings from Pakistan and Africa.^{13,14} Stress was also considered as one of the risk factors in our study similar to other studies, although there is no independent established relationship between stress and stroke.^{13-15,19,20} The second most common risk factor identified in our study was witch craft/evil spirits (21.61%) which is concurrent with the findings from study in Pakistan (27.3%, ancestral sins). This might be because Nepal and Pakistan are Asian countries where superstition majorly rules over the decision making about treatment approach in the community people.^{21,22}

Most of the patients in our study answered 'sudden weakness of one side of the body' as signs observed in stroke patients followed by 'difficulty in speaking' and 'sudden numbness of the body'. This finding is similar to the studies from Pakistan, Africa, Nigeria, Oman and Australia.^{13-15,17,19} However, more than half (68%) of the patients were not aware about multiple warning signs of stroke among which 11% were not aware about any warning signs of stroke in our study. These inability to recognize and respond to stroke warning signs is alarming in Nepalese context where distance from the hospital is an added geographical barrier to the accessibility of immediate medical care and highlights the importance of dissemination of public educational awareness via all the possible channels like newspaper, radio, television and internet.

In our study, most of the patients responded that any person with warning signs of stroke would be taken to the hospital immediately and similar responses were recorded

in the previous studies as well.^{13,14} The other response 'take the person for spiritual/ faith healers help' coincides with previous study which showed that the belief in faith healers for serious illness is a global issue.²³ This highlights the need of public awareness stroke campaigns and health promotion activities to counsel their audience to immediately seek medical based interventions. This will not only avoid the delay in time-sensitive stroke management but also promotes early stroke treatment and reduction of future disability.²⁴

It is noteworthy that most (64%) of the patients in our study did not know about treatment options for stroke. It was a surprising finding that only 5% of our participant reported that blood pressure control as a treatment for stroke. This is in contrast from the findings of the study in Nigeria where 93.7% of study participants responded blood pressure control as a strategy in preventing and managing stroke.¹⁵ The same study established educational qualification as an important predictor of good knowledge of stroke prevention and management which justifies the results of our study where majority of the participants were uneducated or had informal education. However, 73% of the patients in our study reported stroke as a preventable condition which contradicts the findings in Australia where majority of their participants thought it is not preventable.¹⁹ With majority of our study patients being uneducated, identifying stroke as a preventable condition is a good sign for stakeholders to commence the targeted strategies for stroke prevention.

The most common source of stroke information reported by our participants were friends and relatives rather than health professionals similar to the study in Australia.¹⁹ Only 5% of the patients came to know about stroke from their doctors. Although the shortage of medical professionals and skilled health workers is obvious in many developing countries including Nepal, it becomes important that medical professionals should take time to educate all the high risk individuals about their stroke risk factors, prevention strategies, drug compliance, exercise, diet and lifestyle modifications.^{25,26} Wahab et al. suggests all the hospitals to have a functional health education units to educate the patients about their risks, dissemination of information through religious centers as well as conducting public health education programs during market days as a community approach in improving knowledge of stroke.²⁷ We anticipate that proper delivery of health education by medical practitioners and skilled health care workers could be a milestone in preventing stroke in Nepal. There is also urgency for deeper understanding of hypertension as a modifiable risk factor of stroke among Nepalese hypertensive individuals.

CONCLUSION

We found that overall knowledge of stroke among hypertensive patients in Nepal is inadequate with more than half of participants not aware of multiple warning signs. Though majority of the participants responded that stroke is preventable, only handful of the participants reported that blood pressure control as a preventive measure for stroke. These findings suggest that education and empowerment could be a step forward strategy for all the stakeholders for preventing the rising burden of stroke in low-middle-income countries like Nepal.

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