Paper

Stroke awareness in a Sri Lankan community

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Abstract

Objective: Knowledge regarding stroke is likely to influence treatment seeking and preventive behaviour. We sought to assess stroke awareness in a Sri Lankan community.

Methods: Adults and schoolchildren in 750 households in the Kelaniya Medical Officer of Health area selected by cluster sampling formed the study population. Knowledge about stroke was assessed using a pre-tested, structured, interviewer administered questionnaire. Level of knowledge was categorised into five groups using a composite score.

Results: 711 adults and 155 schoolchildren were studied. Only 36.8% recognised the brain as the organ involved in a stroke. Main presenting symptoms identified were unilateral weakness (93.9%) or sensory symptoms (88%), and speech difficulty (88%). Stroke was considered a cause of sudden death by 58.4%. Many recognised hypertension (74.3%) as a risk factor, but awareness was inadequate regarding diabetes (60.5%), heart disease (60.9%), hypercholesterolaemia (62.5%) and smoking (61.3%). Of the respondents, 60.1% considered stroke was preventable, 74% were aware that stroke could recur, 91.3% believed early treatment would improve outcome and 88.8% considered stroke an emergency.

Level of knowledge was considered 'good' in 43.3%, and 'very good' in only 0.7%. Majority were graded as average (46.8%), 'poor' (5.9%) or 'very poor' (3.4%). There was no significant difference in knowledge between adults and schoolchildren. Having a friend or a relative with a stroke was the commonest source of knowledge (61.5%). Doctors (32.2%) and other health workers (9.1%) were poor sources of information.

Conclusions: Knowledge about stroke is deficient in many aspects. Health professionals need to play a greater role in improving awareness.

Key words: stroke, knowledge, awareness, developing country, Sri Lanka

Introduction

Stroke is a major global health problem. It causes significant mortality, being the second leading cause of death worldwide,[1] and the fourth leading cause of in-hospital deaths in Sri Lanka.[2] The main impact of stroke on society, however, is largely due to the residual disability and dependency it creates, with half of the survivors being dependent on others at one year after a stroke.[3]

Available community data suggest that Sri Lanka has one of the highest prevalence rates of stroke in the world.[4,5] Furthermore, Sri Lanka has a rapidly ageing population,[6] and vascular risk factors such as hypertension, diabetes and smoking are on the increase.[7] The burden of stroke is likely to increase dramatically as a result, and the available health care systems are ill equipped to meet this challenge. A previous audit has shown significant deficiencies in acute in-hospital stroke management in Sri Lanka.[8] There is very little organised structure for acute stroke care, and multidisciplinary stroke rehabilitation services for disabled survivors are virtually non-existent in the community.[9]

Stroke prevention is the most cost effective way of minimising the burden of stroke in a resource-limited country such as Sri Lanka. Promotion of good preventive practices would require a high level of stroke awareness in the community. Knowledge regarding stroke positively influences treatment seeking behaviour and stroke risk reduction behaviour.[10,11] Previous studies have consistently highlighted deficiencies of knowledge of stroke in different communities worldwide. Data on stroke awareness

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from developing countries are scarce, and there are no published data from Sri Lanka. The objective of the present study was to assess stroke awareness in a Sri Lankan community.

Methods

This study was part of a community survey on stroke conducted in the Kelaniya Medical Officer of Health area in 2001/2002.[4] Adults and schoolchildren over grade 6 in 750 households in the Kelaniya Medical Officer of Health area, selected by a 2-stage cluster sampling technique, formed the study sample.

Knowledge about stroke was assessed using a 40-item, structured, interviewer administered questionnaire. The questionnaire was pre-tested in a pilot study of 50 households. Knowledge was assessed regarding pathogenesis, symptoms, important modifiable risk factors, preventive behaviour and treatment options. Level of knowledge was converted to a score out of 100, and categorised into 5 groups as follows: 81-100 – Very good; 61-80 – Good; 41-60 – Average; 21-40 – Poor and 0-20 – Very poor. Sources of any previous information received were recorded.

Prior ethical approval for the study was obtained from the Ethical Review Committee of the Sri Lanka Medical Association, and administrative approval was obtained from the Provincial Director of Health, Western Province.

Results

We interviewed all adults and eligible schoolchildren present at the time of the household visit. A total of 866 individuals (711 adults and 155 school children) responded to the questionnaire. The mean age of the study population was 38.2 years (adults 44.2 years, schoolchildren 14.8 years).

Only 36.8% correctly identified the brain as the organ involved in a stroke, while 12.5% thought the heart was primarily involved, and 40.5% did not know. Lack of blood supply to the brain was identified as a possible mechanism of stroke by 32.8%, and bleeding into the brain by 26%. Knowledge regarding presenting symptoms and risk factors showed variable results. Main symptoms identified were unilateral weakness (93.9%), unilateral sensory symptoms (88%) and difficulty in speech (88%). Many recognised hypertension (74.3%) as a risk factor, but awareness was inadequate regarding heart disease (60.9%), diabetes (60.5%), high cholesterol levels (62.5%) and smoking (61.3%) (Table 1). Knowledge regarding strategies for prevention was better (Table 2).

Stroke was considered a cause of sudden death by 58.4%. Only 60.1% thought stroke was preventable, and 74% were aware that stroke could recur. Majority (91.3%) believed early treatment would improve outcome, 88.8% considered stroke an emergency, but only 67.7% felt that Western (allopathic) treatment was beneficial.

Level of knowledge was considered 'Very good' in only 0.7%, and 'Good' in 43.3%. More than half the study population (56%) were rated to have 'Average', 'Poor' or 'Very poor' knowledge (Table 3). There was no significant difference in knowledge between adults and schoolchildren ($p = 0.38$), or between those <60 years and ≥60 years of age ($p = 0.06$).

A total of 643 individuals (74.3%) had received some information about stroke previously (542 adults – 76.2%, 101 school children – 65.2%). Having a friend or a relative with a stroke was the commonest source of knowledge (61.6%). Media, doctors and other health workers were poor sources of information (Table 4).

Table 1. Awareness of modifiable risk factors for stroke

Risk factors	*Adults*		*School children*		*Total*	
	no.	%	no.	%	no.	%
Hypertension	544	76.5	99	63.9	643	74.3
Heart disease	431	60.6	96	61.9	527	60.9
Diabetes	437	61.5	87	56.1	524	60.5
High cholesterol	457	64.2	84	54.2	541	62.5
Smoking	436	61.3	95	61.3	531	61.3
Alcohol excess	480	67.5	104	67.1	584	67.4
Obesity	393	55.3	62	40.0	455	52.5

Table 2. Knowledge regarding preventive behaviour

Stroke can be prevented by	*Adults*		*School children*		*Total*	
	no.	%	no.	%	no.	%
treating hypertension	590	83.0	128	82.5	718	82.9
treating diabetes	556	78.2	120	77.4	676	78.1
stopping smoking	503	70.3	110	71.0	613	70.8
limiting alcohol	520	73.1	120	77.4	640	73.9
exercise	536	75.4	114	73.5	650	75.1
low salt diet	472	66.4	98	63.2	570	65.8
low fat diet	464	65.2	113	72.9	577	66.6

Table 3. Levels of knowledge

Level of knowledge	*Adults*		*School children*		*Total*	
	no.	%	no.	%	no.	%
Very good (81-100)	4	0.6	2	1.3	6	0.7
Good (61-80)	309	43.5	66	42.6	375	43.3
Average (41-60)	328	46.2	77	49.6	405	46.8
Poor (21-40)	43	6.1	8	5.2	51	5.9
Very poor (0-20)	27	3.8	2	1.3	29	3.3

Table 4. Sources of knowledge

Sources of knowledge	*Adults*		*School children*		*Total*	
	no.	%	no.	%	no.	%
TV	364	51.2	72	46.5	436	50.3
Newspapers	295	41.5	49	31.6	344	39.7
Radio	287	40.4	49	31.6	336	38.8
Friend/relative with stroke	488	68.6	45	29.0	533	61.5
School	134	18.9	69	44.5	203	23.4
Doctors	248	34.9	31	20.0	279	32.2
Other health professional	68	9.6	11	7.1	79	9.1

Discussion

Stroke awareness is a key determinant of health promoting behaviour. Life style modification and risk factor control are the cornerstones of stroke prevention, and these are dependent on awareness of modifiable risk factors and healthy life style changes. Awareness of warning symptoms and the need for early treatment are important for early symptom recognition and early hospital admission.[10,11]

Studies on stroke awareness have been conducted in many parts of the world, but only a few reports are available from South Asia, in spite of its

disproportionately high burden of stroke.[12-15] We present data on stroke awareness in a Sri Lankan community. To our knowledge, this is the first report on stroke awareness from Sri Lanka.

This study has highlighted many areas of deficient knowledge on stroke in this community setting. Studies of stroke awareness conducted elsewhere have produced broadly similar results. Many respondents (50-74%) in different parts of the world have failed to recognise that stroke primarily affects the brain,[12,15-17,20-22] and a number of patients (16%) have thought that stroke was due to an injury to the heart.[10]

Previous studies have highlighted deficiencies in knowledge regarding early stroke symptoms. Unilateral weakness, perhaps the best known of all stroke symptoms, was recognised as a stroke symptom by only a few respondents (6-15%) in some studies.[22,23] Many patients (30-66%) were unable to recognise at least one of the common stroke warning symptoms.[10,13,16,17,20,22,24,27,28] Knowledge regarding stroke risk factor recognition too is reported to be poor. Hypertension (23-74%) and smoking (27-50%) are the main risk factors identified in previous studies.[10,12,13,15,21,22,25-29] Recognition of early stroke symptoms and awareness of stroke risk factors in our study appeared to be better than in most studies. Previous studies have noted poor knowledge in older age groups,[13,16, 17,19, 20, 22,26,30] but we did not find a significant difference in knowledge with age.

The main sources of knowledge in our study were life experiences such as stroke victims in the family or the neighbourhood, or friends and relatives. Similar findings were noted in some previous studies.[10,15,17] In contrast, other studies have noted media, especially television, to be the main source of knowledge.[16,22] Interestingly, the contribution of the health care professionals to stroke awareness has been rather limited in many of these studies.[10,16,19,22]

This study has several limitations that need to be acknowledged. We did not assess knowledge according to level of education or socioeconomic status. Other studies have noted poor knowledge with low educational and socioeconomic status.[12,13,16,19,20,26,27,29,31] The questionnaire did not test free recall, and a list of options was given for each question. Previous studies, however, have observed that assessment of knowledge was poor with free recall, and improvements in results were noted when a list of options was provided.[19,32] Even with a series of optional responses being available, the knowledge on stroke in our study was rather modest at best.

Several strengths in our study are worth highlighting. Many previous studies have been conducted among patients with stroke in hospital settings.[13,14,17,21,28,30,33,34-37] Our study focussed on individuals in the community, and included school-children, a group which to our knowledge has not been tested previously. Knowledge of stroke symptoms and risk factors in the community are more likely to be important in determining health seeking patterns and preventive behaviour. We categorised stroke awareness according to a composite score, enabling quantification of knowledge, and comparisons between different groups.

In conclusion, stroke awareness in our community remains deficient in many aspects, although our respondents fared better in some areas compared to studies conducted in other countries. There is a clear need to develop community based public educational programmes to improve knowledge of stroke, and to promote healthy life styles, risk reduction behaviour and appropriate treatment seeking behaviour.

It is possible that the current level of stroke awareness in this community would be different, compared to the time of the study. With the recent advances in stroke care and the increasing availability of health messages via different media, an improved level of awareness would be expected. More research is needed to compare these findings with the current state of awareness at community level, as well as among stroke victims and those at high risk of stroke.

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Conflicts of interests

None

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