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Stroke awareness in people with hypertension

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Abstract

Having the public be able to recognize stroke symptoms are the most important factor in order to decrease delaying optimal treatment. The aim of this study is to assess stroke aware of hypertensive patients are about strokes. The study group consisted of 350 consecutive hypertensive patients. A self-administered questionnaire that was prepared by two skilled cardiologist was given to the study subjects. The questionnaire was designed to gather data demographics, how they defined what a stroke was, risk factors, symptoms, behavior at the onset of stroke, prevalence of stroke, and knowledge about hypertension-related complications. A total of 336 subjects completed and returned the questionnaire (96% response rate). Their mean age was 53.2±5.2. The majority of subjects were female (206, 61%). The prevalence of stroke history was 3.7% (12 subjects) in the population. Three hundred (89%) subjects were aware of the stroke risks associated of hypertension. Paralysis (255, 76%) and aphasia (232, 69%) were the most widely known symptoms for stroke. While level of awareness did not differ between either genders, it did differ when it came to age and level of education. Hypertensive patients have a high level of awareness about the risk of stroke in association with their disease. But the other risk factors and symptoms were not well known. The attempts for improving educational level can be helpful in order to increase awareness of stroke among hypertension patients.

Keywords: Stroke awareness, hypertension, stroke sign

Introduction

Stroke causes mortality and morbidity and is caused by the cessation of the blood supply to the brain due to by a clot or a blood vessel bursts. Stroke is the second most widespread cause of death worldwide According to data about 5.5 million patients died in a year [1]. As the world's population ages stroke will become leading cause of death and losing healthy life years. Endovascular and thrombolytic therapy are very important in acute stroke treatment. The time interval between symptom on set and the starting stroke treatment is very short ensure survival. This, in turn, means that creating awareness about strokes among the public, alongside the coordination of diagnostic and treatment facilities at stroke centers are all very important [2,3].

There are two type of stroke: ischemic (80%) and haemorrhagic (20%). Ischemic strokes are caused by cessation of brain blood flow due to clot, whereas hemorrhagic strokes are attributed to a rupture in the blood vessels [4].

There are many risk factors for stroke, including hypertension, hyperlipidaemia atherosclerotic diseases, diabetes mellitus, smoking and atrial fibrillation which are all modifiable risk factors, as well as. age and gender are non-modifiable risk factors [5]. Hypertension is the most common and strongest risk factor of stroke followed by age [6]. Hypertension leads to vessel wall hypertrophy and alters the endothelial cell function [7]. The prevalence of hypertension in adults is 30-40% under 60 years of age, 60% in adults over 60 years of age [8].

The time from onset of stroke symptoms to the patient's reaching the stroke center is very important to start effective treatment. On the other hand public awareness about strokes remains insufficient which in turn means that recognition and the need for a rapid response are delayed [9].

In this study we aimed to investigate the stroke awareness in hypertensive patients who are under high risk for stroke.

Material and Methods

The study sample included 336 hypertensive patients who administrated internal medicine and cardiology department. The patient accepted hypertensive if office systolic blood pressure values ≥ 140 mmHg and dystolic blood pressure values ≥ 90 mmHg

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or using antihypertensive treatment [10]. Stroke is the sudden death of brain cells due to lack of oxygen, caused by blockage of blood flow or rupture of an artery to the brain. Sudden loss of speech, weakness, or paralysis of one side of the body can be symptoms. They were given a self-administered questionnaire that was designed to gather data demographics, how they defined what a stroke was, risk factors, symptoms, behaviour at the onset of stroke, prevalence of stroke, and hypertension related complications. Analysis of the data revealed what hypertensive patients knew about the risk factors and symptoms of stroke.

The survey instrument contained knowledge of the warning signs of stroke, demographic details (age, sex education income) and knowledge of stroke risk factors.

The study protocol is in accordance with the Declaration of Helsinki and was approved by local ethics committee. All patients were given written informed consent.

Data Analysis

Distribution of the continuous variables was determined by the Kolmogorov-Smirnov test. Continuous variables were expressed as mean \pm standard deviation (SD), and categorical variables are expressed as percentage. For comparison of categorical variables or percentages we used Fisher's exact and chi-square tests. Differences between numeric variables were tested with Student's t-test or Mann-Whitney-U test. Pearson and Spearman analyses were used to identify correlations between study parameters. Binary logistic with enter method for used regression analyses. For all statistics, a two-sided p value below 0.05 was considered statistically significant. All analyses were performed with SPSS 16.0(IBM Cooperation) for Windows.

Results

A total of 336 subjects completed and returned the questionnaire (96% response rate). Their mean age was 53.2 \pm 5.2. The majority of subjects were female (206, 61% vs. 130, 29%). Majority of the respondents were either high school or university educated (252, 75%). (Table 1).

Table 1. Basal demographic properties of study population

Age, mean \pm SD (year)	53.2 \pm 5.2
Gender, n (%)	
Female	206 (61%)
Male	130 (29%)
Completed level of education	
Primary and middle school	84 (25%)
High School	185 (55%)
University	67 (20)
Income (Turkish Lira)	
<6000	196 (58%)
6000-10000	86 (25%)
>10000	54 (17%)
Hypertension	350 (100%)
Diabetes mellitus	128 (36%)
Atherosclerotic vascular disease	44 (12.5%)
Previous stroke	12 (3.7%)

Three hundred (300, 89%) subjects were aware of the risks for stroke associated with hypertension. Thirty six (36, 11%) hypertensive respondents were not choice hypertension as a risk factor. Second most common risk factors for stroke was smoking. The smallest proportion of the respondents listed dysrhythmia (atrial fibrillation) as a risk factor for stroke. The prevalence of stroke history was 3.7% (12 subjects) among the participants, although most did not cite this as being a risk factor at all (Table 2). Paralysis (255, 76%) and aphasia (speech disturbance) (232, 69%) were the best known symptoms for stroke among the respondents, whereas sided numbness and alter on mental status were among the least-known symptoms (Table 3).

Table 2. Risk factors for stroke

Item	Correct answer No. (%)
Age	42 (12 %)
Hypercholesterolemia	47 (14%)
Hypertension	300 (89%)
Smoking	156 (45%)
Dysrhythmia (atrial fibrillation)	4 (1%)
Obesity	86 (26%)
Stress	78 (23%)
Diabetes Mellitus	24 (7%)
Previous stroke	12 (3%)
Sedentary life still	64 (19%)
Family history	6 (12%)

Table 3 Warning signs for stroke

Signs and symptoms for stroke	N (%)
Sided numbness	76 (22%)
Paralysis	255 (75%)
Weakness	102 (30%)
Speech disturbance	232 (69%)
Headache	164 (48%)
Alter in mental status	76 (22%)
Loss of vision	108 (32%)
Syncope and dizziness	126 (37%)

While level of awareness about stroke and its risk factors did not differ between either gender, it did differ when it came to age and level of education. In the logistic regression model higher educational level and older age were significant predictors of awareness of stroke symptoms. There were no significant interaction between awareness of stroke and gender, having chronic diseases and smoking (Table 4).

Table 4. Univariate analyses to determinate the significant predictors of knowing at least one or more risk factor and signs of stroke

Factor	P
One or more symptoms for stroke (correct answer)	0.06
One or more knowledge about risk factor for stroke (correct answer)	0.03
Age	0.02
Completed level of education	0.038
Hypertension	0.042
Diabetes mellitus	0.9
Atherosclerotic vascular disease	0.039
Previous stroke	0.76
Income	0.04

Table 5. Regression analysis showing significant predictors of knowing at least one or more risk factor and signs of stroke

Factor	OR	%95 CI	p
Warning sign and risk factor (one or more correct answers)			
Age	1.49	1.20-2.03	0.004
Education	1.36	1.02-1.44	0.02

Discussion

Hypertension is a common chronic disorder leads stroke and atherosclerotic vascular diseases. Our study showed that hypertensive patients were aware of their disease can cause stroke. On the other hand symptoms and other risk factors were not well known. Age and level of education were important to recognize stroke symptoms and risk factors.

Stroke is an important and one of the common causes of mortality in developed countries. The mortality rate caused by strokes is high in lower and middle-income countries [10]. Moreover, it can lead to neurologic impairment, which in turn means a loss of quality of life as well as increased health costs. This is coupled with insufficient awareness about stroke among both the public and patients alike, which in turn means a delay in critical treatment. Only 40% of the stroke patients were aware of the fact they were having a stroke [11]. Many studies shows the awareness of stroke (i.e.warning signs and risk factors) in population was poor [12].

Our survey, too, revealed that awareness warning sign of stroke among patients was low [13,14]. More than half of the respondents felt that paralysis and aphasia were constituted the only two warning signs for stroke. This outcome is troubling given that these patients frequently visit the cardiology department.

Those suffering from hypertension are 3 to 4 times more likely to have stroke, this followed by those who smoke and/or who are obese just as our study concluded. This findings similar with other studies [15]. It is worrying that individuals with hypertension disease are not well informed other risk factors for stroke. Fast and appropriate steps need to be taken in order to raise awareness public awareness of this issue. Media campaigns to improve public awareness of stroke signs and symptoms have been found effective so we must use this tools in our country [16].

In our study when parameters analysed in logistic regression model we found that age and educational level were associated with knowledge of stroke risk factors. This was constituted with other studies [15].

Conclusion

Our study set out to investigate how much people living with hypertension knew about the risk factors for and warning sign of stroke. Two warnings signs were known for stroke by more than half of the responders. Even this was a specialized population who were under risk of stroke, patient's awareness about stroke was poor. For this reason, stroke recognition and prevention programs should be done which are rational, uncomplicated and understandable by all education level people.

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Conflict of interest

The authors declare that there are no conflicts of interest.

Financial Disclosure

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Ethical approval

The study protocol has approved from local ethic committee

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