



Awareness of Stroke in the Population Presenting to Outpatient Clinics at a Tertiary Health Institution

Üçüncü Basamak Sağlık Kuruluşu Polikliniklerine Başvuran Popülasyonda İnme Farkındalığı

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Abstract

Objective: Stroke is one of the major causes of morbidity and mortality worldwide. In recent years, the importance of the awareness of this disease has increased by the use of time-based emergency treatments such as intravenous thrombolysis and thrombectomy. In order for patients to benefit from these treatments, society needs to have enough awareness of stroke.

Materials and Methods: In our study, we aimed to determine the awareness of stroke by using a questionnaire on a population presenting to a university hospital.

Results: Two hundred participants were included. The average of age was 34.9 ± 14.3 (range, 18-78) years. The participants knew the word paralysis (*felç*) more (82.5%) than stroke (*inme*) (50%). The most known symptom/sign of stroke was weakness and loss of sensation on one side of arm and leg; the least known sign of stroke was visual loss. Only 5 out of 200 participants were aware of all stroke symptoms.

Conclusion: Society needs to be informed more about stroke in order for patients to benefit from these emergency treatments.

Keywords: Stroke awareness, thrombolysis, thrombectomy, emergency stroke treatment

Öz

Amaç: İnme, dünya çapında ciddi mortalite ve morbidite sebeplerinden biridir. Son yıllarda intravenöz trombolitik, trombektomi gibi zamana dayalı acil tedavilerin kullanıma girmesiyle; hastalığın, belirtilerinin, tedavisinin farkındalığının önemi artmıştır. Hastaların bu tedavilerden yararlanabilmesi için toplumun inme hakkında yeterli farkındalığının olması gereklidir.

Gereç ve Yöntem: Çalışmamızda üniversite hastanesine başvuran hastalara bir anket yaparak inme farkındalığını saptamayı amaçladık.

Bulgular: İki yüz katılımcı dahil edildi. Yaş ortalaması $34,9 \pm 14,3$ (18-78) idi. Katılımcılar, "inme" den (%50) daha çok "felç" kelimesini (%82,5) biliyorlardı. İnmenin en çok bilinen semptom/bulgusu tek taraf kol ve bacakta duyu kaybı ve kuvvetsizlik; en az bilineni görme kaybı idi. İki yüz katılımcının sadece beşi tüm inme semptomlarını biliyordu.

Sonuç: Hastaların bu acil tedavilerden yararlanmaları için toplumun inme hakkında daha fazla bilgilendirilmesi gerekir.

Anahtar Kelimeler: İnme farkındalığı, tromboliz, trombektomi, acil strok tedavisi

Introduction

Stroke is one of the most common causes of death worldwide and can lead to serious disability. It has been reported as the third most common cause of death in the United States of America and 795.000 people have strokes each year (1). In our country, according to the 2014 Turkish Statistical Institute data, stroke is the second most common cause of death in causes of circulatory system death (2). In addition, stroke is the most

disabling disease with serious physical, economic, emotional, and social burden. Therefore, prevention and emergency treatment of stroke are important. Stroke can be prevented by aggressive control of risk factors and ischemic stroke symptoms can be reversed by thrombolysis and thrombectomy (3,4,5). In particular, because the efficacy of intravenous recombinant tissue plasminogen activator and thrombectomy for survival and clinical outcome has been proven, it is necessary for society to know what stroke is, what its symptoms are, and

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that emergency treatment is possible in order for patients to benefit from these time-based emergency treatments. We used a questionnaire to determine stroke awareness in our region because there are small number of studies on stroke awareness in Turkey.

Materials and Methods

Our questionnaire was called the “Stroke Awareness Questionnaire” and was administered in April 2018 to June 2018 to individuals aged over 18 years who presented to any outpatient clinics of our hospital other than neurology outpatient clinics. Other inclusion criteria were being literate and accepting to complete the questionnaire. Permission from our hospital’s local Ethics Committee was obtained for the study.

The stroke awareness questionnaire contained general information about stroke, contact with a patient with stroke as a relative, which organ was affected, awareness of stroke symptoms and urgency about the stroke symptoms. Stroke (*inme*) and paralysis (*felç*) are used with the same meaning in our population. We tested which of these two was best known by the population. Although “pouring water over the patient” is a traditional behavior, and not scientific, we questioned it in the questionnaire. The questionnaire details are given in Table 1.

Individuals who were randomly selected and accepted to participate in the questionnaire were asked to respond to our questions.

Statistical Analysis

All statistical analyses were performed using SPSS version 20 program (SPSS Inc., Chicago, IL, USA). Descriptive analyses were based on frequencies and percentages for categorical variables and mean ± standard deviation or median for continuous variables.

Results

Two hundred participants were included, comprising 98 (49%) women and 102 (51%) men. The average age was 34.9±14.3 (range, 18-78) years. Their demographic characteristics are given in Table 2.

General Information About Stroke: When asked “Do you know what stroke (*inme*) is?”, 100/200 (50%) participants said “yes”, when asked “Do you know what paralysis (*felç*) is?”, 165/200 (82.5%) participants said “yes”. As can be seen from the answers, the word “*felç*” is more known by society. The answers given by participants about “*felç*” and “*inme*” are indicated in Table 3.

When asked “Have you had any contact with stroke patient?”, 47% answered “yes”. Ten percent of the participants had already looked after a patient with stroke; 17.5% of first-degree relatives and 19% of second or third-degree relatives of the participants

Table 1. Stroke awareness questionnaire

Age, sex

I- Level of education

- a) Primary school b) Secondary-high school c) University

II- Where do you live?

- a) Village b) Town c) City

III- Do you know what stroke (*inme*) is?

- a) Yes b) No c) No idea

IV- Do you know what paralysis (*felç*) is?

- a) Yes b) No c) No idea

V- Are stroke (*inme*) and paralysis (*felç*) the same disease?

- a) Yes b) No c) No idea

VI- Have you had any contact with a stroke patient?

- a) Yes, my first-degree relatives had stroke b) Yes, my second-degree relatives had stroke c) I looked after a stroke patient d) No contact with any stroke patient

VII- Which organ is related to stroke?

- a) Lung b) Brain c) Liver d) Kidney

VIII- Awareness of stroke symptoms: Which of the followings are signs of stroke?

- a) Disturbances of speaking and understanding b) One-sided weakness c) Loss of sensation on the one side d) Any vision disturbances e) Vertigo/imbalance f) Facial weakness on the one side g) Severe headache

IX- Awareness that stroke treatment is urgent: Where a patient with a stroke should be taken?

- a) Emergency service b) Neurology outpatient clinics c) Neurosurgery outpatient clinics d) Family physician e) Internal medicine outpatient clinics

X- What would you do if you encounter a stroke patient?

- a) Pour a bucket of cold water over the patient b) Call the ambulance/take the patient to hospital c) Wait a little because the patient might heal d) I have no idea

XI - Awareness of stroke risk factors: What are the risk factors for stroke?

- a) High blood pressure b) Diabetes Mellitus c) High blood cholesterol d) Cardiac disease e) Smoking f) Excessive alcohol

had had a stroke in the past. However, more than half of the participants (53%) had no contact with patients with stroke.

When asked “Which organ is related to stroke”, most of the part of participants 176 (88%) gave the correct answer as brain. Eleven (5.5%) participants had no idea. The answers of the participants were liver, lung, kidney. Their ratios were 3%, 2%, 1.5%, respectively.

Awareness of stroke symptoms: The answers given to the questions about stroke symptoms are summarized in Table 4. The most known sign of stroke was loss of strength on one side of the body; the least known sign of stroke was visual loss. Only 5 out of 200 participants were aware of all stroke symptoms.

Awareness that stroke treatment is urgent: When asked “Where should a patient having a stroke present to?”, 107 (53.5%) participants’ answers were the emergency room, 54 (27%) outpatient clinic, 33 (16.5%) neurosurgery outpatient clinic, three (1.5%) family practice outpatient clinic, and three (1.5%) the internal medicine outpatient clinic.

For the answers given to the question “What would you do if you encounter a patient with stroke?”, 143 (71.5%) participants thought about calling an ambulance and take the patient to the emergency service/hospital, whereas the remaining participants thought to pour a bucket of cold water on the patient and wait for them to recover.

Awareness of stroke risk factors: The answers to the question asked about the risk factors for stroke are summarized in Table 5. Thirteen out of 200 participants (6.5%) knew all stroke risk factors. The most known risk factor was high blood pressure.

Table 2. Demographic characteristics of the participants

		Number of cases (n)	Percentage of cases (%)
Gender	Female	98	49
	Male	102	51
Education	Elementary	46	23
	Secondary	62	31
	High	92	46
Residence	Village	33	16.5
	Town	30	15
	City	137	68.5

Table 3. The answers given by participants about stroke/paralysis

		Number of cases (n)	Percentage of cases (%)
Do you know what stroke (<i>inme</i>) is?	Yes	100	50
	No	66	33
	No idea	34	17
Do you know what paralysis (<i>felç</i>) is?	Yes	165	82.5
	No	19	9.5
	No idea	16	8
Is stroke (<i>inme</i>) and paralysis (<i>felç</i>) the same?	Yes	67	33.5
	No	51	25.5
	No idea	82	41

Discussion

In recent years, development of emergency stroke treatment such as thrombolysis and thrombectomy have raised the importance of awareness of stroke symptoms. Unfortunately, our study shows that the awareness about stroke symptoms is very low, especially speech and vision disturbances, facial palsy, and balance disorders. The most well-known stroke symptom was paresis, especially hemiparesis. Only 5 of the 200 participants knew all of the stroke symptoms; therefore, stroke may not be recognized earlier and patients may miss their chance to benefit from thrombolytic or thrombectomy treatment.

In Nigeria, a survey of 200 questions was performed by Vincent Onabajo et al. (6) on the awareness of stroke and stroke symptoms in 200 patients diagnosed with hypertension and diabetes. Around one-quarter (26.5%) of the participants did not know any stroke symptoms, only two participants knew all stroke symptoms, the most well-known stroke symptom was headache. They found that people with a patient with stroke in their family knew the signs of acute stroke better. Çelik et al. (7) studied the stroke ALARM symptoms and awareness of risk factors in teachers aged over 40 years in Aydın city center. Although 49.9% of the participants had an acquaintance with a stroke history, they found that 30.3% of them did not know the affected organ in stroke and 70% did not know why the organ was affected. The participants reported that the best-known symptoms of stroke were numbness and weakness in the arms and legs. The researchers found that nearly

Table 4. Number of participants who knew stroke/paralysis symptoms

	Number of cases (n)	Percentage of cases (%)
Loss of strength on one side of the body	104	29.1
Numbness, loss of sensation on one side of the body	87	24.3
Impaired speech and/or perception	70	19.6
Deformation on face	40	11.2
Vertigo/imbalance	23	6.4
Severe headache	22	6.1
Loss of vision in any way	11	3.1

Table 5. Number of answers to the questions about risk factors for stroke/paralysis

	Number of cases (n)	Percentage of cases (%)
High blood pressure	130	35.3
Heart disease	68	18.5
Diabetes	53	14.4
Smoking	46	12.5
High cholesterol	42	11.4
Excessive alcohol	29	7.9

half of the participants gave answers that were not related to the American Heart Association/American Stroke Association-defined stroke ALARM symptoms (e.g. stress, fatigue, faint). In a study conducted by Kim et al. (8) in order to determine the awareness of stroke in Korea, the authors interviewed 3960 people, and 1000 of them agreed to complete the questionnaires (25.3%). The most commonly known symptom of stroke was paresis (44%), and the most commonly known risk factor was hypertension (31%). Only 31% of the participants had information about thrombolysis and 33% said that they would call the emergency services.

In a study performed by Travis et al. (9) in Arizona, the authors sent questionnaires by mail to 1086 people with hospital records and received a 36% return; 67% of participants knew stroke risk factors well, and hypertension was the best known risk factor. Paralysis and speech disorder were the best known stroke symptoms. Only 42% of the participants said that they would call 911 and 40% said that there was no treatment for stroke.

In our study, the mean age of the participants was 34.9 years and substantially, it was performed to subjects with higher education (46%). The reason was that older people and low-educated people refused to participate in the questionnaire. Therefore, the findings obtained from our questionnaire may be better in relation to our real society. However, when we asked what "stroke" is, only 50% of the patients said that they knew "inme". When asked what "felç" is, the number of those who knew it was 82.5%. This shows that the word "felç" is better known than the word "inme". The use of "felç" may be more effective for informing society in reaching people and attracting their attention.

One of the factors that prevents patients with stroke from benefiting from emergency treatment is that they do not know this disease is urgent, and it has an emergency treatment. There are also participants who do not know that stroke is a neurologic disease and that they thought to go to brain surgery, family medicine, internal medicine outpatient clinics.

Prevention of stroke may be more important than awareness of stroke symptoms. Similar to other studies, in our study, the most well-known risk factor was hypertension, but other risk factors are not well known. Only 13 (6.5%) of the 200 participants knew all the risk factors in our study.

The limitation of our study was that the questionnaire was conducted in the population that presented to the hospital, it may not adequately reflect the general population, and the results were probably better than among the general population because people with advanced age and low levels of education refused to participate in the questionnaire.

Conclusion

In our study, one-sided weakness and sensation disturbances were the best-known symptoms. The majority of our study population were not aware of speech disorders, facial weakness,

balance disturbances, and visual deficits as stroke symptoms. "Felç" is better known than "inme" as stroke in our population. Unfortunately, stroke awareness in our society is inadequate. If we can increase stroke awareness in the community, patients will quickly present to emergency departments and benefit from treatment.

Ethics

Ethics Committee Approval: Approved by the Ethics Committee of Kahramanmaraş Sutcu Imam University Faculty of Medicine (protocol number: 99).

Informed Consent: Consent form was filled out by all participants.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: M.G., B.T.Y., Design: M.G., B.T.Y., H.Ş., Data Collection or Processing: M.G., B.T.Y., H.Ş., Analysis or Interpretation: M.G., B.T.Y., Literature Search: M.G., B.T.Y., H.Ş., Writing: B.T.Y., M.G.

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