Original Article

Determination of Nursing Activities For Prevention of Heart Attack and Stroke in Hypertension Patients

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Abstract

Background: Hypertension has become a widespread public health problem. It is recommended that the nurses should provide education and counselling to hypertension patients.
Objective: This aim of the present study to determine appropriate nursing activities by means of identifying the knowledge levels of the patients and the matters on which they need education and counselling in terms of prevention of heart attack and stroke in hypertension patients.
Methodology: This descriptive study was carried out in a training hospital. The sample of the study consists of 234 hypertension patients. Data were collected using data collection forms, which consists of questions about knowledge level associated with heart attack and stroke risk factors and symptoms.
Results: It was determined that the hypertension patients consider that they have low risk of having heart attack and stroke and consider themselves moderately adequate in terms of prevention of heart attack and stroke. Education and counselling activities that the patients demand from the nurses were determined as what to do to prevent heart attack and stroke (medication use and lifestyle changes), situations in which they should apply to a hospital and what to do during a heart attack or stroke and education on heart attack and stroke risk factors and symptoms.
Conclusion: It will be possible to prevent diseases such as heart attack and stroke with regular education in relation to lifestyle changes to be provided to the hypertensive individuals by the nurses.

Keywords: Hypertension; Heart Attack; Stroke; Nursing

Introduction

With the contribution of factors such as extended lifetime and insufficient physical activity, unhealthy diet and obesity, hypertension has become a widespread public health problem in the world (World Health Organization, 2003). In 2014, it has been reported that 22% of the 18-year-old and older individuals in the world have high blood pressure (World Health Organization, 2015). Hypertension prevalence among the adults who are 20 and older in the US is 32.6% (Mozaffarian et al, 2015). According to the results of the Turkey Hypertension Prevalence Study, hypertension prevalence among individuals who are 18 and older is 30.3% (Turkish Society Of Hypertension and Renal Diseases, 2012).

Hypertension is a major risk factor for myocardial infarction, ischemic and haemorrhagic stroke, heart failure, chronic kidney disease, cognitive decline and early death (National Institute for Health and Clinical Excellence, 2011). It has been reported that approximately 69% of the individuals who suffered a heart attack for the first time and approximately 77% of the individuals who suffered stroke for the first time had blood pressure over 140/90 mmHg (Mozaffarian et al, 2015). Each 2 mmHg increase in the systolic blood pressure is correlated with 7% increase in

the risk of death due to ischemic heart disease and 10% increase in the risk of death due to stroke (National Institute for Health and Clinical Excellence, 2011). Hypertension is responsible for 45% of the deaths due to heart disease and 51% of the deaths due to stroke (World Health Organization, 2013a). World Health Organization has stated that attempts in relation to blood pressure should be carried out simultaneously with the reducing other risk factors which cause heart attack and stroke such as diabetes and tobacco use (World Health Organization, 2013b) .

Lifestyle changes are recommended with the purpose of preventing cardiovascular diseases and improving disease management (Eckel et al, 2014). In addition to medical treatment, lifestyle changes are necessary in order to reduce heart attack and stroke risks and reach target blood pressure values. Diet, weight, exercise, smoking, alcohol consumption and stress are important lifestyle factors which have impact on blood pressure and cardiovascular health. It is recommended that the nurses should provide education and counselling to hypertension patients on these matters (Registered Nurses' Association of Ontario, 2009). In order that the nurses can fulfil these functions, it is necessary to determine the matters on which the patients lack knowledge. Determining these deficiencies will form a basis for planning and conducting education and counselling activities in relation to the needs of the patients and the areas in which they lack knowledge. This study aims to determine appropriate nursing activities by means of identifying the knowledge levels of the patients and the matters on which they need education and counselling in terms of prevention of heart attack and stroke in hypertension patients.

Methods

This is a descriptive study. The study was carried out in an Inpatient and Outpatient Clinics of Medical Department of a training hospital between November 2012 and April 2013. The sample of the study consists of 234 hypertension patients who have been diagnosed with hypertension in that period and who are conscious, able to communicate and agree to participate in the study.

Data collection instruments

Data were collected using data collection forms developed by the authors by means of literature review. Socio-demographic and medical data of the patients were collected using the "*Socio-demographic and Medical Characteristics of the Patients*" (28 Questions) data collection form. The form included questions such as age, gender, education, occupation, place of residence, income, comorbid disease, treatment, information about the disease, where and how this information was taken, family story, heart attack or stroke story. In addition, with this form the patients were also assessed to determine to what extent the patients see themselves risky in terms of heart attack and stroke or adequate in terms of preventing heart attack and stroke. Data were assessed using 0-10 cm Visual Analogue Scale. Each 1 mm in the scale corresponds to 1%. As the percentile increases, the patients see themselves more risky and more adequate. In addition , the form included questions to determine the matters in which the patients see themselves inadequate in relation to prevention of heart attack and stroke and the education and counselling activities they request from the nurses. "*Knowledge Level on Heart Attack and Stroke Risk Factors Data Collection Form*" (20 items) was used to determine the knowledge level of the patients in relation to heart attack and stroke risk factors; "*Knowledge Level on Heart Attack Symptoms Data Collection Form"* (13 questions) was used to determine the knowledge level of patients on heart attack symptoms and "*Knowledge Level on Stroke Symptoms Data Collection Form"* (11 questions) was used to determine the knowledge level of patients on stroke symptoms. Patients were required to answer Likert type questions in these forms as "Yes", "No" or "I Don't Know". "Yes" was the correct answer for each form and accepted as "1" point in knowledge score calculations, "No" and "I Don't Know" answers were accepted as "0" point. As the score increased, it was evaluated that the knowledge level of the patients also increased.

Ethics

This study conforms to the principles of the Declaration of Helsinki and was approved by the relevant institutional ethics committees. All patients were informed about this study and informed consent forms were obtained from all volunteers who accepted to participate in this study.

Analysis

Data were evaluated and analysed using SPSS for Windows Version 15.00 (SPSS Inc. Chicago, IL, USA) package program. Descriptive statistics were shown as numbers and percentages for numerical variables, and mean±standard deviation for quantitative variables. ANOVA, Independent Samples t-test and Mann-Whitney-U Test are used in comparative analyses. The value $p<0.05$ value was considered to be statistically significant.

Results

The mean age of the patients was 55.58±15.58 years and 44.4% of the patients were 61 years old and older. About half of the patients (58.1%) were female, 78.2% of them were married, 41.5% were primary school graduate, 82.1% were living in the urban area, 71.8% were retired, 56.4% had an income equal to their expenditures and 45.7% was housewives. The mean hypertension diagnosis time of the patients was 116.50±96.77 months and 80.8% of them was on medication. About half of the patients (59.8%) had a chronic disease other than hypertension and 36.0% of them had diabetes. Most of the patients (88.9%) did not suffer heart attack and 93.8% of them did not suffer stroke previously.

When the distribution of hypertension patients according to risk factors were reviewed; while 85.9% were not smoking, 39.7% of them were being exposed to cigarette smoke, 91.0% were not drinking alcohol, 66.7% were not working out regularly and 38.5% of them were in overweight group in BMI (kg/m^2) calculations. Most of the patients (97.2%) were using their medications regularly and 74.8% attends to regular health checks. In total, 41.5% of the patients stated that there was not a certain time period to have their blood pressure checked and 54.3% stated that they were checking their blood pressure themselves. More than half of the patients (67.1%) stated that they have no relative who had heart attack previously and 80% of the patients stated that they have no relative who had stroke previously and 80.0% stated that they did not get information from healthcare professionals about heart attack and stroke.

Patients who participated in the study considered themselves risky in terms of heart attack by average 39.12% and in terms of stroke by average 35.70%. Patients considered themselves adequate in terms of prevention of heart attack by average 54.62% and of stroke by average 53.58%.

Knowledge of heart attack and stroke risk factors

Knowledge levels of the patients on heart attack and stroke risk factors and symptoms were given in Table 1. About all of the patients (97.9%) said “Yes” (Correct) to the item stating that stress and depressed life increases the risk of heart attack and stroke, 95.3% said “Yes” to the item stating that smoking and passive smoking increase the risk of heart attack and stroke, and 95.3% said “Yes” to the item stating that overconsumption of alcohol constitutes a risk factor for heart attack and stroke. Some of the patients (39.3%) “I Don’t Know” to the item stating that high blood sugar increases the risk of heart attack and stroke, 32.5% said “I Don’t Know” to the item stating that having a heart attack increases the risk of stroke, and 29.9% said “I Don’t Know” to the item stating that high cholesterol (LDL) constitutes a risk factor for heart attack and stroke. Average score of the patients’ knowledge on heart attack and stroke risk factors and symptoms was 16.35±3.66 (min=0 - max=20).

Knowledge of heart attacks symptoms

Knowledge levels of the patients on heart attack symptoms were given in Table 2. Most of the patients (92.7%) said “Yes” (Correct) to the item stating that pain might occur on the chest during heart attack and 89.3% said “Yes” to the item stating that respiratory problems and cold sweating might occur during heart attack. About half of them (49.1%) said “I Don’t Know” to the item stating that another sublingual medicine is applied 5 minutes after taking the first sublingual medicine during heart attack if the pain is not relieved and aid should be called, 51.7% said “I Don’t Know” to the item stating that chest pain might not occur during heart attack in old individuals, and 41% said “I Don’t Know” to the item stating that the pain might be felt as stomach ache sometimes. Average score of the patients’ knowledge on heart attack symptoms was 9.58±3.06 (min=0 - max=13).

Table 1. Knowledge Levels of Hypertension Patients on Heart Attack and Stroke Risk Factors (n=234)

	Yes n (%)	No n (%)	I Don't Know n (%)
Stress and depressed life increases heart attack and stroke risk.	229 (%97.9)	0 (%0.0)	5 (%2.1)
Smoking and passive smoking increases heart attack and stroke risk.	223 (%95.3)	2 (%0.9)	9 (%3.8)
Alcohol abuse constitutes a risk factor for heart attack and stroke.	223 (%95.3)	2 (%0.9)	9 (%3.8)
It is necessary to work out moderately minimum 5 days a week such as 30-60 minutes of brisk walking in order to prevent heart attack and stroke.	213 (%91.0)	2 (%0.9)	19 (%8.1)
Using vegetable oils instead of solid fats protects from heart attack and stroke.	211 (%90.2)	7 (%3.0)	16 (%6.8)
Heart attack is a disease which occurs as a result of infarction in the blood vessels which feed the heart.	209 (%89.3)	4 (%1.7)	21 (%9.0)
With regular blood pressure check and appropriate treatment of hypertension, heart attack and stroke risk might be reduced.	209 (%89.3)	3 (%1.3)	22 (%9.4)
Stroke is a disease which occurs as a result of infarction in brain blood vessels or bleeding.	207 (%88.5)	1 (%0.4)	26 (%11.1)
Heart attack and stroke risk is lower in normal weighed individuals compared to overweight individuals.	206 (%88.0)	10 (%4.3)	18 (%7.7)
It is necessary to keep blood pressure below 140/90 mmHg to prevent heart attack and stroke.	201 (%85.9)	4 (%1.7)	29 (%12.4)
Leading a physically active life reduces heart attack and stroke possibility.	201 (%85.9)	7 (%3.0)	26 (%11.1)
Hypertension constitutes a risk factor for heart attack and stroke.	196 (%83.8)	3 (%1.3)	35 (%15.0)
If there is an individual in the family who had heart attack and stroke before, heart attack and stroke risk is increased.	182 (%77.8)	21 (%9.0)	31 (%13.2)
In order to prevent heart attack and stroke, daily consumption of salt should be maximum 6 grams (1 tea spoon).	174 (%74.4)	11 (%4.7)	49 (20.9)
Cardiovascular diseases and stroke can be prevented.	167 (%71.4)	23 (%9.8)	44 (%18.8)
Increased abdomen size (more than 94 cm in males and more than 80 cm in females) increases heart attack and stroke risk.	166 (%70.9)	6 (%2.6)	62 (%26.5)
Males have higher risk of heart attack and stroke compared to the females.	161 (%68.8)	11(%4.7)	62 (%26.5)
High cholesterol (LDL) constitutes a risk factor for heart attack and stroke.	159 (%67.9)	5 (%2.1)	70 (%29.9)
Having a heart attack increases stroke risk.	151 (%64.5)	7 (%3.0)	76 (%32.5)
High blood sugar increases heart attack and stroke risk.	135 (%57.7)	7 (%3.0)	92 (%39.3)
Knowledge score average (average ± SD)	**16.35±3.66**		

Table 2. Knowledge Levels of Hypertension Patients on Heart Attack Symptoms (n=234)

	Yes n (%)	No n (%)	I Don't Know n (%)
Chest pain might be felt during heart attack.	217 (%92.7)	0 (%0.0)	17 (%7.3)
Respiratory problems might occur during heart attack.	209 (%89.3)	2 (%0.9)	23 (%9.8)
Cold sweating might occur during heart attack.	209 (%89.3)	1 (%0.4)	24 (%10.3)
Tachycardia might occur during heart attack.	206 (%88.0)	0 (%0.0)	28 (%12.0)
Pain might occur during resting or moving, sleeping or awake.	200 (%85.5)	2 (%0.9)	32 (%13.7)
Pain might be felt on shoulder, chin, back or left (or both) arm(s).	196 (%83.8)	5 (%2.1)	33 (%14.1)
Anxiety and fear might be felt during heart attack.	193 (%82.5)	3 (%1.3)	38 (%16.2)
Nausea might be felt during heart attack.	177 (%75.6)	3 (%1.3)	54 (%23.1)
The individual might perceive that he/she is having a heart attack.	152 (%65.0)	44 (%18.8)	38 (%16.2)
Pain is not relieved with resting, position change or despite sublingual medication.	130 (%55.6)	10 (%4.3)	94 (%40.2)
Pain sometimes might be felt as stomach ache.	128 (%54.7)	10 (%4.3)	96 (%41.0)
Another sublingual medicine is applied 5 minutes after taking the first sublingual medicine during heart attack if the pain is not relieved and aid is called.	108 (%46.2)	11 (%4.7)	115 (%49.1)
Chest pain might not be observed in old individuals during heart attack.	103 (%44.0)	10 (%4.3)	121 (%51.7)
Knowledge score average (average ± SD)	**9.58±3.06**		

Table 3. Knowledge Levels of Hypertension Patients on Stroke Symptoms (n=234)

	Yes n (%)	No n (%)	I Don't Know n (%)
Sagging/dislocation/numbness might occur on one side of the face during stroke.	220 (%94.0)	0 (%0.0)	14 (%6.0)
Sudden weakness or numbness might occur on one part of the body (face, arms or legs) during stroke.	217 (%92.7)	1 (%0.4)	16 (%6.8)
Sudden speech disorder/inability to speak might occur during stroke.	205 (%87.6)	0 (%0.0)	29 (%12.4)
Difficulty in moving and walking might occur during stroke.	205 (%87.6)	0 (%0.0)	29 (%12.4)
Sudden unconsciousness might occur during stroke.	198 (%84.6)	1 (%0.4)	35 (%15.0)
Visual problems might occur during stroke.	178 (%76.1)	4 (%1.7)	52 (%22.2)
The person having stroke might not be able to hold his/her urine or stool.	177 (%75.6)	2 (%0.9)	55 (%23.5)
Difficulty in swallowing might occur during stroke.	172 (%73.5)	1 (%0.4)	61 (%26.1)
Sudden and severe headache might occur during stroke.	171 (%73.1)	5 (%2.1)	58 (%24.8)
First 3 hours after the first symptom is very important for the treatment of stroke.	162 (%69.2)	1 (%0.4)	71 (%30.3)
The individual might perceive that he/she is having a stroke.	154 (%65.8)	38 (%16.2)	42 (%17.9)
Knowledge score average (average ± SD)	**8.79±2.96**		

Table 4. Distribution of the Matters in which Hypertension Patients Consider Themselves Inadequate and Demand Education and Counselling Activities (n*)

	n**	%
Matters in which Patients Consider Themselves Inadequate		
Correct and adequate work out.	150	64.1
Controlling stress.	135	57.7
Correct and healthy diet.	89	38.0
Knowing the heart attack and stroke symptoms and the situation in which they should apply to a hospital.	70	29.9
Quitting/cutting down smoking and alcohol.	30	12.8
Correct use of medication.	18	7.7
Education and Counselling Activities the Patients Demand from Nurses		
Education on what to do to prevent heart attack and stroke (medication use and lifestyle changes).	71	56.8
Education on situations in which they should apply to a hospital and what to do during a heart attack or stroke.	25	20
Education on heart attack and stroke risk factors and symptoms.	16	12.8
Nurses should be fully informed about heart attack and stroke.	3	2.4
Distributing brochures about heart attack and stroke.	6	4.8
Determining the education needs of the patient and planning the education accordingly.	2	1.6
Education on physiologic parameters.	2	1.6

* n is multiplied as one patient provided multiple answers. ** Number of patients who answered.

Knowledge of stroke symptoms

Knowledge levels of the patients on stroke symptoms were given in Table 3. Most of the patients (94%) of the patients said "Yes" (Correct) to the item stating that sagging/dislocation/numbness might occur on one side of the face during stroke, 92.7% said "Yes" to the item stating that sudden weakness or numbness might occur on one part of the body (face, arms or legs) during stroke, and 87.6% said "Yes" to the item stating that sudden speech disorder/inability to speak and difficulty in moving and walking might occur during stroke. About one third of patients (30.3%) said "I Don't Know" to the item stating that the first three hours after the first symptom is very important for the treatment of stroke, 26.1% said "I Don't Know" to the item stating that there might be difficulty in swallowing during stroke, and 24.8% said "I Don't Know" to the item stating that sudden and severe headache might occur during stroke. Average score of the patients' knowledge on stroke symptoms was **8.79±2.96** (min=0 - max=11).

The Matters on which They Demand Education and Counselling

More than half of the patients (64.1%) stated that they consider themselves inadequate in terms of correct and adequate working out, 57.7% in terms of controlling stress and 38% in terms of correct and healthy diet. Among the counselling activities they demand from the nurses, education on what to do to prevent heart attack and stroke (use of medication and lifestyle changes) was in the first place (56.8%). Some of the patients (20%) stated that they demand education on situations in which they should apply to a hospital and what to do during a heart attack or

stroke and 12.8% stated that they demand education on heart attack and stroke risk factors and symptoms (Table 4).

Although it was not shown in the table, knowledge levels of the patients on heart attack and stroke risk factors were compared to some socio-demographic features. It was seen that the lowest average of risk factor knowledge score belongs to the patients living in the rural areas (13.80±4.96), in the 18-30 age group (13.69±3.25), who are illiterate (15.36±5.57) and low education level (14.62±4.10), housewives (15.91±4.01), and self-employed patients (15.15±3.83). Statistically significant difference was found between the average score of knowledge on risk factors in terms of the specified variables ($p<0.05$).

Demographic and medical features of the patients were compared to their knowledge on the heart attack and stroke symptoms. It was seen that the knowledge score averages of the patients in the 18-30 age group (8.00±2.24), who did not suffer heart attack before (9.44±3.08), and single/widowed (8.01±3.36) were lower. Statistically significant difference was found between the average score of knowledge on risk factors in terms of the specified variables ($p<0.05$).

Discussion

The major causes of cardiovascular diseases are tobacco use, physical inactivity, unhealthy diet and alcohol abuse (World Health Organization, 2017). In this study, the patients considered that they had lower risks in terms of heart attack (39.12%) and stroke (35.07%) despite the fact that they have risk factors such as being exposed to cigarette smoke, not working out regularly and being overweight. Similarly, in the study by Kim et al. (2011) 31.1% of the older individuals stated that they have the possibility to have heart attack and 32.4% stated that they have the possibility to have stroke. In the study by Ratner et al. (2008), almost half of the individuals consider that they have lower risk in terms of perceived heart attack risk while one third consider that they have moderate risk. In addition, in the current study, individuals considered themselves moderately adequate in terms of prevention of heart attack and stroke. Women who participated in the study of Muhamad et al. (2012) have positive attitude towards cardiovascular diseases in many aspects; however, they stated that the applications regarding healthy lifestyle are weak. In our study, the fact that the risk perception of the patients is low and that they consider themselves moderately adequate in terms of prevention make us think that they do not have adequate knowledge on the management of risk. In this study, the matters in which the patients consider themselves inadequate and the education and counselling activities they demand from the nurses are similar. It is observed that the patients need knowledge on the management of risk factors and prevention of heart attack and stroke as well as what to do in case of these diseases. As members of the healthcare team, nurses should have significant roles in the care and training of the hypertensive patient.

In the current study, the item regarding heart attack and stroke risk factors which is answered correctly with the highest ratio was “stress and depressed life increases heart attack and stroke risk”. Similarly, it was stated in the literature that the knowledge of the individuals is high regarding the fact that stress constitutes a risk factor for the cardiovascular diseases (Kim et al, 2011; Muhamad et al, 2012; Arikan et al, 2009; Galvin et al, 2012). It was indicated in the studies that most of the individuals know that smoking constitutes a risk factor for cardiovascular diseases in line with our study (Muhamad et al, 2012; Arikan et al, 2009; Galvin et al, 2012; Awad and Al-Nafisi, 2014). In this study, it was determined that the knowledge levels of the patients regarding the fact that high blood sugar increases the heart attack and stroke risk are low. In some studies in the literature, the rate of knowing that diabetes constitutes a risk factor for stroke is similar to our study (Sloma et al, 2010; Sundseth et al, 2014; Itzhaki and Koton; 2014). As a different result, Winham and Jones (2011) have found that the knowledge levels of the individuals regarding the fact that diabetes constitutes a risk factor for heart diseases are high. Given that the diabetes contribute in the occurrence of the hypertension and therefore increases heart attack and stroke risk, the low levels of knowledge of the individuals who participated in our study on the fact that diabetes is a risk factor indicate that the need education on this matter. In addition, the fact that one third of the patients who participated in the study have diabetes and that the patients have inadequate knowledge regarding that important risk factors such as high cholesterol and abdominal obesity increase heart attack and stroke risk reveal that these matters should be intensely discussed in

nursing education activities in relation to prevention of these diseases.

Chest pain which is not relieved despite resting, position change or nitrate administration is a distinctive feature of heart attack (Bucher and Castellucci, 2011). In the current study, most of the patients have knowledge about the fact that chest pain might occur during heart attack. Similarly, there are studies supporting the view that the individuals participated in some studies know that chest pain or discomfort might occur during heart attack (Kim et al, 2011; Ratner et al, 2008; Lutfiyya et al, 2008; Poomsrikaew et al, 2010; Quah et al, 2014; Mata et al, 2012). In the study of Vaidya et al. (2013) it was revealed that fewer individuals know that chest pain is a symptom of heart attack on the contrary. Pain might not be observed during heart attack in patients who are old, have diabetes and are female (Bucher and Castellucci, 2011). Half of the patients in this study do not know that chest pain might not be seen in old individuals. Given that the hypertensive individuals in this study are mostly 61 years old or older, it is deemed necessary that old patients should be informed about the characteristics of the pain. In this study, it was revealed that half of the patients did not know that another sublingual medicine should be applied 5 minutes after taking the first sublingual medicine during heart attack if the pain is not relieved and aid should be called. As a different result from current study, in the study of Galvin et al. (2012) most of the individuals stated that it is important to call 911 within five minutes during heart attack. Considering that such information is lifesaving in case of heart attack, it is deemed necessary to provide this education to all individuals whether they are under risk or not.

Stroke is the sudden loss of neurologic functions (Burke et al, 2011). Various functions of the body might be affected or some clinic symptoms might occur due to stroke (Zomorodi, 2011). Almost all of the patients participated in this study know that sagging/dislocation/numbness might occur on one side of the face during stroke and sudden weakness or numbness might occur on one part of the body (face, arms or legs) during stroke. There are other studies supporting the same result in the literature (Kim et al, 2011; Lutfiyya et al, 2008; Swanoski et al, 2012; Quah et al; 2014; Baldereschi et al; 2015; Yang et al, 2014; Madsen et al, 2015). In some studies, few individuals know that sudden numbness and weakness in one part of the body as a symptom of stroke (Itzhaki and Koton, 2014; Gill and Chow, 2010. Approximately half of the women who participated in the study of Mochari-Greenberger et al. (2014) stated that unilateral sudden weakness or numbness on the face of extremities is a symptom of stroke. In order that the medical treatment becomes effective on the patients who had stroke, it should be applied within 3 hours after the first symptom (Burke et al, 2011; Zomorodi, 2011). In the study of Lambert et al. (2013) the ratio of knowing that patients who have stroke symptoms should be treated within 3 hours was found to be low. The knowledge of the patients regarding stroke symptoms is generally good in this study, however the fact that almost one third of the patients did not know that the 3 hours after the first symptoms are important was considered to be a significant result. In relation to this, it can be said that individuals' being able to recognize stroke symptoms and perceive the importance of time should be included in the nursing education and counselling activities.

Knowledge levels of the hypertension patients in 18-30 age group who participated in this study on risk factors and heart attack symptoms was found low. It might be considered that this result is due to the fact that young population consider themselves less risky compared to the old population and the fact that their awareness levels are low. Starting from this point, it is necessary that the nurses should focus on counselling activities to enhance the knowledge and raise awareness of the young hypertensive population on risk factors and heart attack symptoms.

Limitations

There are some limitations in this study. Primarily, the results of the study is limited by the sample, so it can not be generalized. Second, this study results represented one point in time, that's why respondents' knowledge about heart attack and stroke risk factors and symptoms may change in time. However, hypertension patients' demands associated with education and counselling from the nurses may change in course of time.

Conclusions

As a result of this study, it was determined that the hypertension patients consider that they have low risk of having heart attack and stroke and consider themselves moderately adequate in

terms of prevention of heart attack and stroke. It was determined that the hypertension patients consider themselves inadequate in terms of correct and adequate work out, controlling stress and correct and healthy diet in relation to prevention of heart attack and stroke. Education and counselling activities that the patients demand from the nurses were determined as what to do to prevent heart attack and stroke (medication use and lifestyle changes), situations in which they should apply to a hospital and what to do during a heart attack or stroke and education on heart attack and stroke risk factors and symptoms. Starting from these results, it is primarily recommended that patients' lack of knowledge on heart attack and stroke symptoms and risk factors should be determined when planning nursing education and counselling activities. Nurses should cooperate with other members of the healthcare team and determine the needs of the patients and education and counselling activities should be planned and implemented in this direction. It will be possible to prevent diseases such as heart attack and stroke with regular education in relation to lifestyle changes to be provided to the individuals by the nurses.

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