ORIGINAL ARTICLE

The influence of health education on life quality of patients with hypertension

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ABSTRACT

Aim To investigate the effect of health education regarding cardiovascular risk factors (obesity, high blood pressure, smoking, physical inactivity, high alcohol consumption, and inadequate nutrition) in patients with hypertension

Methods A questionnaire containing data relating to age, sex, body weight and height, blood pressure values, risk factors and self-evaluation of health was used as a research instrument. The same questionnairre was filled out before and after three weeks of conducted education. The subjects were randomly selected as 50 patients with hypertension who were referred to an internal medicine institution for the first time. Descriptive statistic methods were used in the data analysis.

Results The results have shown that 45 (90%) subjects were overweight or obese, and in 25 (50%) subjects blood pressure was higher than 161/101 mmHg. After conducted education, positive changes regarding harmful eating habits were noted, but changes were not found in the smoking habit. The number of subjects who used relaxation methods in relieving stress increased from 24 (48%) to 32 (64%). The education was 100% successful in relation to taking prescribed medications. The number of physically active subjects was increased from six (12%) patients who walked every day before the education to 28 (56%) after the education. After conducted education the subjects changed their harmful habits and their blood pressure was decreased.

Conclusion Arterial hypertension is a serious health issue because of high mortality and morbidity rates. Nurses have an important role in preventing hypertension as well as health related education of patients with hypertension.

Key words: patient, education, high blood preasure

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Original submission:
20 January 2012;
Revised submission:
11 February 2012;
Accepted:
25 February 2012.

SEEHSJ 2012; 2(1):1-7

INTRODUCTION

High blood pressure or hypertension is a major health problem because of the high morbidity and mortality rate (1,2). Conclusively it has been established that arterial blood pressure is closely correlated with the frequency of cardiovascular diseases, especially stroke, heart failure, coronary artery disease, renal insufficiency, aortic aneurysm dissection and subarachnoid hemorrhage (3).

It is believed that worldwide about 26.4% of adult population had hypertension (26.6% of men and 26.1% of women) in 2000 and about 25% of those over 50 have essential hypertension (4,5). About 40% of all deaths in people older than 40 were related to hypertension and its complications. Since approximately 15% of the adult population suffers from some form of arterial hypertension, this represents a significant medical, social and economic problem. Rational treatment generally improves the prognosis of the disease because it reduces the incidence of complications (1,2, 4-6).

The results of research conducted in 2003 by the Croatian Health Survey showed that in Croatia 44.2% of population aged >18years had systolic blood pressure ≥140 mmHg, and diastolic blood pressure ≥90; in old age this figure is even higher. It was estimated that 1.538.926 Croats had high blood pressure (748,072 males and 790,910 females) (7, 8). According to the results of epidemiology of arterial hypertension in Croatia in EH-UH study, the prevalence of arterial hypertension in Croatia was 37.5%, more frequently in females than in males (9, 10).

Arterial hypertension is a multicausal disease and one of the three major risk factors for atherosclerosis (9,11). Hypertension is related to obesity, and in people whose weight is 20% above normal, the disease incidence is 10 times higher (12, 13). Other risk factors include excessive alcohol consumption, smoking, physical inactivity, age, gender, and race (12,14). Framinghem's study found that hypertension occurs 10 times more often in people with 20% higher body mass compared to those people whose body mass is close to ideal one (15). Reducing salt intake, especially below 100 mmol/day leads to a significant reduction in blood pressure, and the effectiveness of antihypertensive drugs is better with salt restriction (16,17). It has also been shown that the higher the daily alcohol intake, the greater the increase in blood pressure (18, 19). Nicotine irritates the vegetative ganglia and leads to the release of catecholamines (adrenaline and noradrenaline) and, through them, causes an increase in heart rate, blood pressure, and increased oxygen consumption (20,21). It is known that the extent of physical inactivity is inversely proportional with arterial blood pressure (22,23).

The treatment of hypertension has three main goals and it is necessary to determine its persistence in each examination (24). Arterial pressure is measured three times in a sitting position after 5 minutes of rest, and the values obtained must be checked at least three times within 14 days (25). Primary prevention consists of controlling weight, controlling daily intake of salt (no more than 5g per day), consuming moderate amounts of alcohol (no more than 30g/day) and stopping smoking (26). Secondary prevention is the detection of those with hypertension, and their adequate treatment (25). Tertiary prevention deals with the consequences and complications of hypertension. Physical therapy, medical therapy, social and professional rehabilitation of patients are important (25).

In the treatment of hypertension, general measures were implemented in all hypertensive patients (25). Pharmacotherapy is required for 60-70% of patients, and invasive procedures are required for 1% of patients (27). Lifestyle changes in the treatment and prevention of hypertension include: maintenance of ideal body weight, aerobic physical activity, eating of plenty of fruit and vegetables, reducing intake of fat, sodium, alcohol, maintaining an adequate intake of calcium and magnesium, and of course, stopping smoking (27, 28).

The aim of health education is to improve health education and preservation of health. It is also important to control habits that contribute to the development of the disease. The Croatian Ministry of Health adopted the National Program for Prevention of Cardiovascular Disease in 2001. Under this program, nurses have their place in the team. Patients suffering from hypertension should be informed, educated and encouraged to make appropriate life style changes that contribute to the prevention of cardiovascular disease and adop-

tion of health-beneficial habits (28, 29).

The aim of this study was to examine the effect of patient education in order to change life style.

The results of this study will help in the planning and conducting training of people with hypertension.

PATIENTS AND METHODS

The randomized study was conducted in a private internal medicine clinic in Belišće, Croatia. All patients who reported first to a private internal medicine clinic for hypertension in the period from October 2007 to February 2008 were included in the study (a total of 50). There were 25 males and 25 females. The age range was from 35 to 76, in groups as follows: at the age of 35-44 years of age there were six (12%) patients, at the age of 45-54 there were 14 (28%) patients, 55-64 years 17 (34%) subjects, and 13 (26%) subjects older than 65 years of age.

As a research instrument the questionnaire contained the data relating to age, sex, body weight and height, and calculated body mass index kg/m^2 (obesity was defined as body mass index of 30 or higher), blood pressure, as well as twenty-closed-type questions about level of knowledge, attitudes and behaviors (food and fluid intake, smoking, alcohol consumption, stress medication, control of blood pressure, physical activity) and self-assessment of health status on a scale of 1-4 where 1 indicated very poor and 4 very good.

The results obtained after the completion of the questionnaire were the basis for the development of the training content. All participants were educated in groups of 8 to 10. They received all materials in writing consisted of health education regarding cardiovascular risk factors (obesity, high blood pressure, smoking, physical inactivity, high alcohol consumption and inadequate nutrition).

Three months after the training the same questionnaire was repeated.

The data obtained from the questionnaires were presented in absolute and relative frequencies. The difference observed between the groups were tested by chi-square tests and Fisher's exact test (significance level was set at 0.05).

Institutional approval for the study was obtained from the owner of the clinic prior to the initiation of the study. All subjects read and signed informed consents about the purpose of the study (participation was voluntary and anonymous). The study was conducted in accordance with ethical principles and human rights in biomedical research.

RESULTS

The study included 50 patients aged 35-≥65 years suffering from hypertension, which was first reported to the private internal medicine clinic.

With respect to body mass index, the highest number of respondents had increased body weight, 18 (32%), desirable body weight was noted in five (10%), level I obesity in 16 (32%), and level II obesity in 11 (22%) patients. Three weeks after the training, there was no change in weight. Blood pressure of all subjects was measured before and after the training. Blood pressure of 140/90 was noted in only seven (14 %) subjects before, and in 22 (44%) subjects three weeks after the training (Figure 1).

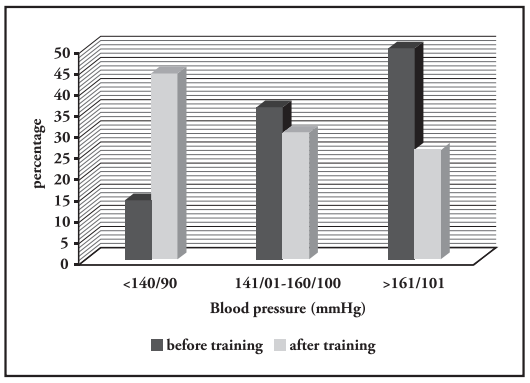

Figure 1. Blood pressure of subjects before and after the training

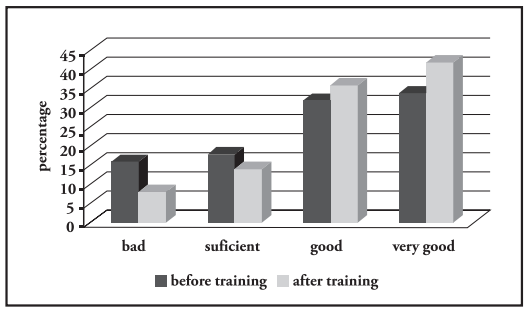

Figure 2. Self-assessment of health status

A higher number of respondents consumed cooked food after the training, 38 (76%) compared to 18 (36%) respondents in the period before the training, and the number of respondents who stopped to consume cured meat products also

Table 1. Food and fluid intake before and after training

Food and fluid intake		Before training (n=50)	After training (n=50)	p
Number of meals	Less than three meals a day	12 (24%)	7 (14%)	0.125
	Three meals a day	19 (38%)	29 (58%)	
	More than three meals a day	19 (38%)	14 (28%)	
Food intake according to the method of preparing	Cooked	18 (36%)	38 (76%)	<0.001*
	Roast	32 (64%)	12 (24%)	
Fat intake	Vegetable fat	21 (42%)	31 (62%)	0.035*
	Lard	29 (58%)	19 (38%)	
Intake of meat products	takes	34 (68%)	18 (36%)	0.001*
	does not take	16 (32%)	32 (64%)	
Intake of fish per week	takes	18 (36%)	28 (56%)	0.044*
	does not take	32 (64%)	22 (44%)	
Salt intake	Always subsequent foods	11 (22%)	6 (12%)	0.366
	Tasting foods and subsequent salt foods	31 (62%)	33 (66%)	
	No salt foods subsequent	8 (16%)	11 (22%)	
Fruit intake	Each day	16 (32%)	26 (52%)	0.112
	Twice a week	28 (56%)	21 (42%)	
	Do not eat fruits	6 (12%)	3 (6%)	
Fluid intake	More than 5 cups per day	35 (70%)	31 (62%)	0.105
	Less than 5 cups per day	7 (14%)	3 (6%)	
	About 2 liters a day	8 (16%)	16 (32%)	

*statistically significant difference

increased after the training, 32 (64%) (p <0.001) (Table 1).

Regarding physical activity before and after the training, the results have shown that the number of respondents who began taking every day walks increased from six (12%) to 28 (56%), respectively (p<0.001) (Table 2). The smoking habits remained the same for all respondents: 15 (30%) respondents were smokers, 26 (52%) were nonsmokers, and nine (18%) were former smokers. Before the training only 18 (36%) patients controlled blood pressure daily, whereas after training 39 (78%) (p<0.001).

Table 2. Physical activity before and after training

Physical activity		Before training (n=50)	After training (n=50)	p
Walking	Every day	6 (12%)	28 (56%)	<0.001*
	Occasionally	35 (70%)	17 (34%)	
	Rarely	9 (18%)	5 (10%)	
Cycling	Every day	8 (16%)	14 (28%)	0.274
	Occasionally	31 (62%)	29 (58%	
	Rarely	11 (22%)	7 (14%)	
Watching TV	Less than 3 hours	27 (54%)	33 (66%)	0.221
	More than 3 hours	23 (46%)	17 (34%)	
Walking the stairs	Without symptoms	28 (56%)	38 (76%)	0.034*
	He cannot walk the stairs	22 (44%)	12 (24%)	

*statistically significant difference

A significant difference was also obtained with regards to taking of medication: following the training, all respondents regularly took prescribed therapy as compared to 29 (58%) before training (p <0.001) (Table 3).

Table 3. Risk factors before and after training

Risk factors		Before training (n=50)	After training (n=50)	p
Consumption of alcohol	Each day	9 (18%)	9 (18%)	0,628
	Do not consume alcohol	13 (26%)	8 (16%)	
	Twice a week	28 (56%)	28 (56%)	
Smoking	Smokers	15 (30%)	15 (30%)	0,999
	Non-smokers	26 (52%)	26 (52%)	
	Ex-smokers	9 (18%)	9 (18%)	
Exposure to stress	every day	21 (42%)	21 (42%)	0,075
	occasionally	24 (48%)	16 (32%)	
	Stress successfully dealt with	5 (10%)	13 (26%)	
The cause of stress	family	21 (42%)	21 (42%)	0,998
	work	29 (58%)	29 (58%)	
Relaxation methods	used by	24 (48%)	32 (64%)	0,158
	does not use	26 (52%)	18 (36%)	
Taking medications as recommended by your doctor	regularly	29 (58%)	50 (100%)	<0,001*
	occasionally	21 (42%)	0	
Control RR	regular	18 (36%)	39 (78%)	<0,001*
	irregular	32 (64%)	11 (22%)	

*statistically significant difference

DISCUSSION

Hypertension is one of the most widespread modern diseases and one of the leading risk factors for cardiovascular diseases, particularly cerebrovascular stroke and coronary heart disease (3). Timely and proper treatment of hypertension can extend life expectancy and significantly contribute to the success of primary and secondary prevention of cardiovascular disease, and contribute to a better quality of life (26, 25).

Education of patients and their families about the need to change harmful habits is an integral part of the treatment of hypertension (6). The nurse, as an equal member of the team, has her place in the treatment of hypertension, especially in non-pharmacological area (25, 28, 29). Many international studies indicate the need for bad habit changes in favor of healthy habits, and it has a major impact on quality of life (13-16, 20, 22, 23).

The study included 50 participants and it has shown that a large number of respondents was overweight or obese before the training as well as three months after. To check the success of education, in order to reduce weight a long-term monitoring will be necessary (14, 28). In the treatment of hypertension, a good diet is important, which, besides the reduction of body weight includes: reduction in salt intake (5.8 grams of salt per day), moderate alcohol consumption (about 30 grams per day), increasing intake of fruits, vegetables and fish, and less saturated fat (26-28). Based on the results obtained in this research patients should be frequently reminded of the importance of reducing the salt intake, moderate alcohol consumption and increasing the intake of fruits, vegetables and fish.

In a good diet a regular daily schedule of meals is essential. Daily meals should be provided in three to five servings (14, 25). Since 90% of respondents in this study were overweight or obese, during the education the number of meals was limited to three daily meals. From all answers to questions about habits related to diet, it was evident that the participants after the training began to accept recommendations that were given during the training, and visible changes of bad habits in favor of healthy ones could be seen. Research carried out in America (the DASH study) showed that combined diet rich in fruits and vegetables, fish and vegetable fat with a reduced intake of salt and saturated fat lowers systolic blood pressure by 11.4 mmHg and diastolic pressure by 5.5 mmHg (16). Only two weeks after the implementation of the combined diet program blood pressure decreased and after eight weeks 70% of respondents had normal blood pressure (≤ 140/90 mmHg) (16).

Cessation of smoking leads to a reduction in complications of disease progression and further damage the blood vessels (25, 30, 31). Stopping smoking is one of the most important measures to prevent and treat hypertension (25, 30, 31). Since the disease includes smoking as an addiction, a special treatment program is often necessary in order to quit (25, 30, 31). For the successful treatment of hypertension, it is necessary to keep a general measure, and regularly use prescribed therapy (25, 28, 29). The regular controls of blood pressure in hypertension treatment are necessary, and if possible have a personal pressure gauge and join a hypertensive support group (25, 28, 29).

Looking at the answers to questions related to the assessment of physical activity visible progress of the respondents in favor of physical activity can be seen. They need to continue to promote the implementation of aerobic exercise. Research on the impact of aerobic exercise on blood pressure indicates that moderate aerobic physical activity lowers blood pressure and maintains it all day (23). In conclusion, education of patients can effectively change bad habits in favor of good habits that contribute to health and good quality of life of patients with hypertension.

ACKNOWLEDGEMENT

Authors would like to thank Dinko Burić, MD, internal medicine specialist for his permission doing the research in his clinic in Belišće.

FUNDING

No specific funding was received for this study

TRANSPARENCY DECLARATIONS

Competing interests: none to declare.

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Utjecaj edukacije na kvalitetu života bolesnika oboljelih od hipertenzije

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SAŽETAK

Cilj Ispitati učinak edukacije o kardiovaskularnim rizicima (pretilost, visoki krvni tlak, pušenje, tjelesna neaktivnost, konzumacija alkohola, nepravilna prehrana) na bolesnike s hipertenzijom.

Metode Kao instrument istraživanja korišten je anketni list koji je sadržavao pitanja o dobi, spolu, tjelesnoj težini i visini, vrijednostima krvnoga tlaka, o čimbenicima rizika, te samoprocjeni zdravlja. Tri tjedna nakon edukacije, ispitivanje je ponovljeno primjenom istog anketnog upitnika. U istraživanju je sudjelovalo 50 bolesnika s hipertenzijom koji su se prvi put javili u internističku ordinaciju zbog hipertenzije. Analiza dobivenih podataka provedena je postupcima deskriptivne statistike.

Rezultati Istraživanje je pokazalo da 45 (90%) ispitanika ima prekomjernu tjelesnu težinu ili je pretilo, a 25 (50%) ispitanika ima krvni tlak veći od 161/101 mmHg. Nakon edukacije uočeni su pozitivni pomaci u vezi loših prehrambenih navika, dok na naviku pušenja edukacija nije imala utjecaja. Broj ispitanika koji koriste metode opuštanja u rješavanju stresa povećao se s 24 (48%) na 32 (64%). U redovitom uzimanju propisane terapije edukacija je imala stopostotni učinak. Odgovori na pitanja vezana za tjelesnu aktivnost ukazuju na povećanje broja tjelesno aktivnih ispitanika, odnosno prije edukacije šest (12%) ispitanika je svakodnevno šetalo, a nakon edukacije 28 (56%). Nakon što su svoje loše navike promijenili u zdravstveno prihvatljive, ispitanici su svoje zdravlje ocijenili boljom ocjenom, a i izmjerene vrijednosti krvnog tlaka bile su niže.

Zaključak Arterijska hipertenzija je veliki zdravstveni problem zbog visoke stope mortaliteta i morbiditeta. Medicinske sestre imaju veliku ulogu u prevenciji i nefarmakološkom liječenju hipertenzije koje provode zdravstvenim odgojem bolesnika.

Ključne riječi: pacijent, edukacija, visoki krvni tlak