ORIGINAL PAPER

Education of the Patients Living with Heart Disease

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ABSTRACT

Introduction: Patient education can be defined as the process of improving knowledge and skills in order to influence the attitudes and behaviour required to maintain or improve health or health style. **Aim:** Education of the patients living with heart disease from ambulatory nurse education for the effectiveness on awareness on life style. **Methods:** A quasi experimental study was conducted in Specialist Cardiology Ambulance D&D in Pristina among 100 patients. A complete clinical and laboratory measurements before and after the process of patient education (at 30, 60 and 90 days) were performed. The clinical outcome was nutrition, body mass index, blood pressure, lipid, diabetic profile and physical activity. The pre-post tested (validity, reliability and pilot testing) structured questionnaire were used for data collection. **Results:** All patients underwent education sessions by an experienced education nurse on 30, 60 and 90 days. At 90 days follow up, the BMI was decreased: Pre-education (29.01±5.46), Post-education (27.72±4.71), t- 5.999 p<0.0001, glycaemic level Pre-education (6.50±2.15) and Post-education (6.02±1.63), t- 4.157, p<0.0001 was decreased, HbA1c in Pre-education (6.23±2.06) and Post-education (5.72±1.44) t- 4.036 p<0.0001 respectively. The lipid profile was also changed at the 90 days follow-up: cholesterol, triglyceride and LDL-C were decreased (p<0.0001 for all), whereas HDL-C was increased (p<0.0001), by educational program at 90 days follow up. Whereas, blood pressure remains unchanged. **Conclusion:** Heart disease management programme where patient's education is an important component, have been shown to be effective in increasing knowledge, self-care and self-management patients living with heart disease.

Keywords: ambulatory nurse education, heart disease, clinical outcome, life-style.

1. BACKGROUND

Cardiac disease specifically heart failure is a major and growing health problem in our country and is the most common Medicare Diagnosis-Related Grouping. Heart Disease (HD) is primarily a condition found in elderly people. The number of deaths associated with HD has been steadily increasing despite advances in care, in part related to our aging population, but also because of better treatment and survival of patients with acute myocardial infraction and heart disease earlier in life (1).

Heart failure (HF) is a clinical syndrome, which is becoming a major public health problem in recent decades, due to its increasing prevalence, especially in the developed countries (2, 3).

The life expectancy is prolonged in HF patients, mainly due to the improved pharmacological and non-pharmacological treatment (4).

More than 2 decades ago, McGinnis and Foege (5) and McGinnis and colleagues (6) suggested that the nation's major health policies should move to emphasize reducing unhealthy lifestyles. A meta-analysis (7) of 15 studies including 531 804 participants from 17 countries with a mean follow-up of 13.24 years suggested that ≈ 60% of premature deaths could be attributed to unhealthy lifestyle factors, including smoking, excessive alcohol consumption, physical inactivity, poor diet, and obesity. A healthy lifestyle was associated with an estimated increase of 7.4 to 17.9 years in life expectancy in Japan, (10) the United Kingdom, (8) Canada, (9) Denmark, (10) Norway, (10) and Germany (10,11,12).

Cardiac disease can cause some complications, could reduce physical and social activities and as the results decreased quality of life [13].

Self-care is a crucial task for controlling the negative consequences of the illness, by which behavioural modifications are targeted includ-

ing, health education knowledge and attitude toward patients affected by HF (14).

Approximately, half of the patients with HF do not follow the treatment recommendations, and this may lead to readmission to the hospitals (15).

Increasing patients' knowledge in improving modifiable factors such as: physical activity, nutrition, monitoring of BMI, glycemia, cholesterol, triglycerides, HDL and LDL are factors that can improve the condition of the patient living with heart disease and increase knowledge of patients that lifestyle change consists of increasing self-care and self-management of the disease both of which improve quality of life, reduce rehospitalizations, and minimize eventual complications. Self-management of heart failure is complex and difficult for the HF patients, because they should be obliged to monitor the symptoms and observe drug regimens, and identify any changes in their health status and evaluate them in order to select the appropriate treatment option and evaluate its effectiveness.

2. AIM

Education of the patients living with heart disease from ambulatory nurse education for the effectiveness on awareness on life style.

3. METHODS

Study population

The population in the study refers to all the treated patients in Speciality Ordinance of the Cardiac Disease D&D in the Pristina. The sample was 100 patients who consented to the study with heart disease with median age 60.98 (< 65) years old, 52% were male. A complete clinical and laboratory measurements before and after education process took place (at 30, 60 and 90 days) were performed between October to December 2019.

Patients that had clinical evidence for other non-cardiac disease, which may cause deterioration of physical activity (e.g., rheumatic disease, limited physical activity, chronic obstructive pulmonary disease, anaemia, recent stroke and advanced chronic renal failure) were excluded from the study. The study was approved by the local Ethics Committee and patients gave written informed consent to participate.

Data collection

Detailed history and clinical assessment were obtained in all study patients. The primary outcomes of the study were: change in nutrition, lifestyle living with heart disease, physical activity, body mass index (BMI), blood pressure (BP), lipid and diabetic profile by education program. The session education was focused mainly in the assessment of patients' knowledge of lifestyle, self-management and self-care of risk factors such as, arterial hypertension, smoking, diabetes mellitus, dyslipidaemia and physical activity.

The process of patient education

The process of patients can be described in four steps. The first step includes and assessment of the patient's previous and current knowledge, misconceptions, learning abilities, learning styles, attitudes and motivation.

Educational sessions were developed and were provided to nurses on a medical telemetry unit. Educational methods were Face-to-Face education sessions, printed materials and pictures, which were provided to the participants.

Continuous evaluation of patient's needs and goals provides the basis for further education. In addition to the individual evaluation, a more structured evaluation of the effects of patient education provides valuable information's about the quality of life and lifestyle in living with heart disease.

Follow-up and outcomes

The patient's education was performed at 30, 60 and 90 days. The primary outcomes were nutrition, lifestyle, physical activity, BMI, BP, lipid and diabetic profile, after the process of patient education.

Statistical analysis

Values are expressed as mean ± SD for continuous variables and percentage for dichotomous data. Continuous data was compared with two-tailed Student t- test and discrete data with Chi-square test. Quantitative data were analysed through the SPSS statistical program.

4. RESULTS

Demographics data of study patients are presented in (Table 1). Most of respondents were 52% Male, 59% were > 65 years old, 87% married, 61% were with under diploma, most of them lived in the urban area 90%, and according Job status 36% were houswife.

All patients underwent educational sessions (100), all of

	Variable	Frequency	Frequency percent	Mean
Sex	Female	48	48	1.52
	Male	52	52	
Age-group	25-35 years old	2	2	60.98
	36-45 years old	13	13	
	46-55 years old	12	12	
	56-65 years old	14	14	
	> 65 years old	59	59	
Marital status	Single	5	5	2.07
	Married	87	87	
	Separated	4	4	
	Widow	4	4	
Education level	Illiterate	16	16	2.07
	Under diploma	61	61	
	University	23	23	
Living location	Urban	90	90	1.1
	Rural	10	10	
Job status	Agriculture	10	10	3.33
	Enterprise	23	23	
	Office work	27	27	
	Unemployed	4	4	
	Housewife	36	36	

Table 1. Demographic characteristics of the sample

Data:	Pre-education Mean, SD	Post-education Mean, SD	t-test	P-value
BMI (kg/m²)	29.01±5.46	27.72±4.71	5.999	< 0.0001
SBP (mmHg)	130.50±16.61	131.00±14.89	-0.466	0.642
DBP (mmHg)	82.45±8.86	82.10±7.69	0.579	0.564
Glucose (mmol/L)	6.50±2.15	6.02±1.63	4.157	< 0.0001
HbA1c (mmol/L)	6.23±2.06	5.72±1.44	4.036	< 0.0001
Cholesterol (mmol/L)	5.37±1.61	4.58±0.96	6.404	< 0.0001
HDL (mmol/L)	1.89±0.96	1.49±0.65	6.142	< 0.0001
LDL (mmol/L)	3.27±1.01	2.73±0.72	8.03	< 0.0001
Triglyceride (mmol/L)	2.08±1.13	1.66±0.73	3.658	< 0.0001

Table 2. Clinical measurement data between patients pre-educational and post educational. BMI: body mass index; SBP: systolic blood pressure; DBP: diastolic blood pressure. HbA1c: Glycated haemoglobin:

whom were diagnosed with cardiovascular disease. 37% of them were with Cardiomyopathy, 10% were with State after PCI-CABG, 7% with Valvular heart disease, 4% with atrial fibrillation, most of them from 40% were more than two cardiovascular disease, and 2% were heart failure, (Figure 1).

Sex between BMI of the sample was presented at Figure 2. Analysing the gender of the patients and BMI the level of obesity rate dominates the female gender with 21 (43.8%), as opposed to the male gender with 12 (23.1%) of them were obese.

All patients underwent education sessions by an experienced education nurse on 30, 60 and 90 days. At follow up 90 days, the BMI was decreased Pre-education (29.01±5.46), Post-education (27.72±4.71), t- 5.999 p<0.0001, glycaemic level Pre-education (6.50±2.15) and Post-education (6.02±1.63), t- 4.157, p<0.0001 was decreased, HbA1c in Pre-education (6.23±2.06) and Post-education (5.72±1.44) t- 4.036 p<0.0001 respectively. The lipid profile was also changed at the 90 days follow-up: cholesterol, triglyceride and LDL-C were decreased (p<0.0001 for all), whereas HDL-C was increased (p<0.0001), by educational program at 90 days follow up. Whereas, blood pressure remain unchanged (Table 2).

The Clinical measurement data between patients pre-educational and post educational comparing according level: Educating patients to live with heart disease is essential. Increasing patients' knowledge of lifestyle with special emphasis on the role of food, physical activity are direct factors that affect the quality of life in living with diseases. After analysing the obtained data of clinical measurements, we gained a low significance during the Pre-education measurements analysed with those After the educational sessions: food and nutrition are potential factors in improving the health condition as in: Pre-education patient health status (N−29) and Post-education (N−42) were

Variable		Pre-educational (n = 100)	Post educational (n= 100)	P value
Health condition	Without symptoms	29	42	0.00
	With symptoms	71	58	
Classification of clinic blood pressure levels in adults. Systolic/Diastolic mmHg	Optimal <120/80mmHg	34	37	0.00
	Normal 120-129/80-84 mmHg	22	20	
	High-normal 130-139/80-89 mmHg	14	22	
	Grade 1 (mild) hypertension 140-159/90-99 mmHg	24	13	
	Grade 2 (moderate) hypertension 160-179/100-109 mmHg	6	8	
Fasting blood sugar in the morning	Normal <6.1	62	71	0.02
	Pre-diabetic 6.1-6.9	13	8	
	Diabetic >7	25	21	
HbA1c	Normal <5.7%	61	70	0.04
	Pre-diabetic >5.7%	15	8	
	Diabetis mellitus >6.5%	24	22	
Cholesterol: Classification of total levels mmol/L	Desirable < 5.2	61	77	0.00
	Borderline high 5.2- 6.1	14	13	
	High ≥ 6.2	25	10	
LDL Cholesterol mmol/L	Optimal <2.6	14	19	0.00
	Desirable 2.6-3.3	46	62	
	Borderline high 3.4- 4.0	19	7	
	High 4.1-4.8	12	11	
	Very high >4.5	9	1	
HDL Cholesterol mmol/L	Low <1.0	7	22	0.00
	Desirable 1.0-1.5	47	59	
	Optimal >1.6	8	3	
	High >1.7	38	16	
Triglyceride	Optimal < 1.7	23	34	0.00
	Desirable 1.7-2.2	51	55	
	High 2.3- 4.4	21	10	
	Very high ≥ 4.5	5	1	

Table 3. Clinical measurement data between patients pre-educational and post educational comparing according level. P Chi square values based on level for each measurement.

without symptoms (P <0.00), SBP, DBP, Glycemia, HbA1C, Cholesterol, HDL, LDL, Triglycerides were improved after educational sessions (Table 3).

		Optimal <120/80 mmHg	Normal 120-129/ 80-84 mmHg	High- normal 130-139/ 80-89 mmHg	Grade 1 (mild) hypertension 140-159/ 90-99 mmHg	Grade 2 (moderate) hypertensio 160-179/ 100-109 mmHg	Total	P Value
Sex	Female N (%)	9 (18.8)	8 (16.7)	8 (16.7)	17 (35.4)	6 (12.5)	48 (100)	
	Male N (%)	25 (48.1)	14 (26.9)	6 (11.5)	7 (13.5)	-	52 (100)	0.001
Total		34 (34)	22 (22)	14 (14)	24 (24)	6 (6)	100 (100)	

Table 4. Clinical measurement data between sex and blood pressure (sistolic/diastolic)

Do you have knowledge about the impact of nutrition on Heart Disease?	Yes	No	P value
Pre-education N (%)	17 (17)	83 (83)	0.00
Post-education N (%)	100	-	
Of the 17 people who said yes, the sources from which they received information on the impact of nutrition on heart disease were analysed?	Medical Staff	TV information media, social media	P value
Pre-education N (%)	4 (23.5)	13 (76.5)	0.00
Gender and type of fats consumed. Pre-education?	Vegetable fat products	Animal fat products	P value
Female N (%)	8 (16.7)	40 (83.3)	0.099
Male N (%)	16 (30.8)	36 (69.2)	
What type of fat do you consume every day?	Vegetable fat products	Animal fat products	P value
Pre-education N (%)	24	76	0.00
Post-education N (%)	100	-	
Education and type of fats consumed?	Vegetable fat products	Animal fat products	P value
Illiterate N (%)	2 (12.5)	14 (87.5)	0.501
Under diploma N (%)	16 (26.2)	45 (73.8)	
University N (%)	6 (26.1)	17 (73.9)	

Table 5. Knowledge about the Nutrition between patients pre educational and post educational

Figure 1. Diagnostics of the patients with Heart Disease

Total Cholesterol						
Gender and cholesterol level		Desirable < 5.2	**Borderline high 5.2- 6.1**	High ≥ 6.2	Total	P Value
Sex	Female N (%)	26 (54.2)	7 (14.6)	15 (31.3)	48 (100)	
	Male N (%)	35 (67.3)	7 (13.5)	10 (19.2)	52 (100)	0.338
	Total	61 (61)	14 (14)	25 (25)	100 (100)	

Table 6. Sex and level cholesterol

Comparing Gender and Blood Pressure after data analysis, in female patients most of them were with Grade 1 (mild) hypertension 140-159 / 90-99 mmHg, N-17 (35.4%) compared to males with only N- 7 (13.5%) P <0.001 (Table 4).

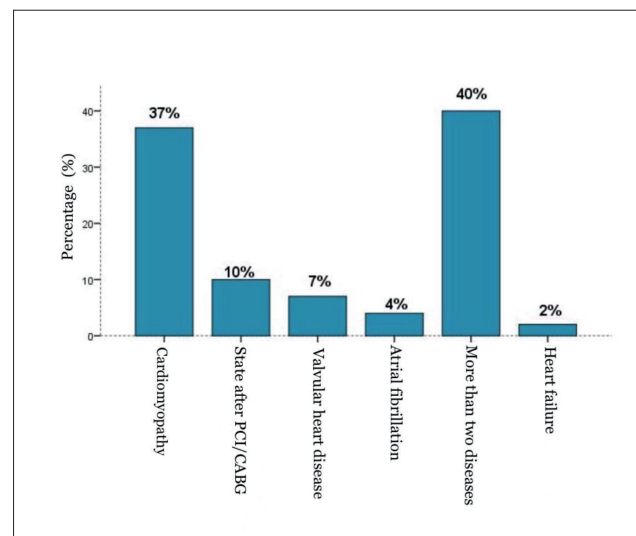Knowledge about the Nutrition between patients pre educational and post educational: 100 patients who have been held educational sessions related to lifestyle in living with diseases, there is an increase in their knowledge in the second measurement (Post-education) with slight significance, patients emphasize the role of nutrition, the type of fats that they use every day, physical activity that with the improvement of these increases the quality of their life and minimizes rehospitalizations, increases self-care and confidence in self-care and self-management of the disease. (Self-care and self-management for the disease are two essential components that the nurse manages to implement in patients only through educational sessions) (Table 5).

5. DISCUSSION

In this study we evaluate changes of metabolic profile by educational program in patients with cardiovascular disease. The main findings of our study were: a) BMI was decreased after patients education; b) The control of diabetes and lipid profile were improved after patients education; and c) Improved blood pressure of patients after educational sessions, d) Patients' knowledge about the importance of nutrition in living with heart disease increased, e)100% of patients after their three-month education began to consume vegetable fat products, moving away from animal fat products.

Our finding regarding the role of nursing education in line with previous studies, the role of nursing education,
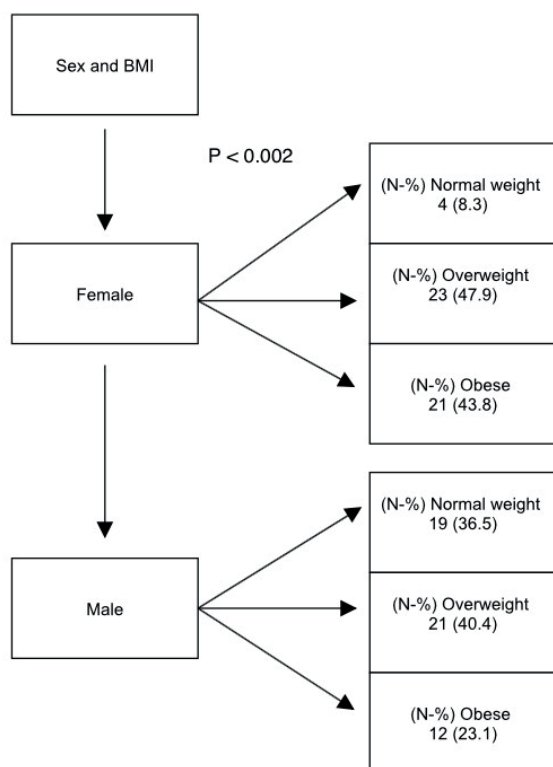
Figure 2. Sex between BMI of the sample

for example: Some studies (16, 17) have revealed the value of nursing practice in secondary prevention and disease management. Cardiac rehabilitation programs including nursing education exert a beneficial effect on patients' quality of life, exercise capacity, lipid profile, body mass index, body weight, blood pressure, resting heart rate, survival rate, mortality rate and decreased myocardial infarction risk factors. The results of my research are consistent with the results of research by Zhao et al., (18): The results of this study showed the effectiveness of the program by showing that such programs help patients maintain a healthy lifestyle and thus control the factors of risk.

International scientific medical societies consider education programs as an effective measure for lifestyle modifications in patients with CHD (19, 20). Brown et al., in a meta-analysis, did not find and hard evidence for a reduction in cardiovascular end points as a result of education programs for patients, but they did find evidence for an effective improvement in quality of life and cost reduction (21). In this paper, we analysed the general knowledge of patients living with heart disease, with a special emphasis on the way of nutrition, with a special emphasis on the use of fat, the type of fat they consume every day. These our findings are similar with previous studies, which suggested that poor quality diets are high in refined and added sugars, unhealthy fats and animal-source foods: and low in whole grains, fruits, vegetables, legumes, fish and nuts. They are often high in processed food products- typically packaged and often ready to consume – and light on whole foods and freshly-prepared dishes (22, 23, 24).

Both the American College of Cardiology/American Heart Association and the European Society of Cardiology recognise education as an important component of comprehensive cardiac rehabilitation programmes and give a Class I recommendation that patients with non-ST-elevation acute coronary syndromes (ACS) and individuals with very high cardiovascular disease risk, should be educated about appropriate cholesterol management, blood pressure, smoking cessation, and lifestyle management (25, 26, 27). Whilst these reviews have considered trials that have included education as a co-intervention, this review update specifically focuses on the impact of the educational component of cardiac rehabilitation for patients with HD.

6. CONCLUSION

The study found that the role of nursing education was crucial and that nursing education sessions results in increased knowledge of self-care of the disease and convincing patients to adhere to lifestyle modifications while achieving modification of modifiable factors that may be threatening in living with heart disease. Patients education is an important component in heart disease care and should be provided through effective and well-evaluated strategies. Otherwise, the education can be a waste of time, both for the patients and the health care professionals, since received education does not automatically mean that information is absorbed or retained and implementation in practice during the life. Patients with heart disease need education in order to adapt to their chronic condition and perform self-care and self-management behaviour. Patients with heart failure need education in order to adapt to their chronic condition and perform self-care behaviour.

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