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 testings) 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 (6.21±1.65), 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 infarction 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, (8) the United Kingdom, (9) Canada, (10) Denmark, (10,11) 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 housewife.

All patients underwent educational sessions (100), all of

| Variable       | Frequency | Frequency percent |
|----------------|-----------|-------------------|
| Sex            |           |                   |
| Female         | 48        | 48                |
| Male           | 52        | 52                |
| Age-group      |           |                   |
| 25-35 years old| 2         | 2                 |
| 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                 |
| Married        | 87        | 87                |
| Separated      | 4         | 4                 |
| Widow          | 4         | 4                 |
| Education level|           |                   |
| Illiterate     | 16        | 16                |
| Under diploma  | 61        | 61                |
| University     | 23        | 23                |
| Living location|           |                   |
| Urban          | 90        | 90                |
| Rural          | 10        | 10                |
| Job status     |           |                   |
| Agriculture    | 10        | 10                |
| Enterprise     | 23        | 23                |
| Office work    | 27        | 27                |
| Unemployed     | 4         | 4                 |
| Housewife      | 36        | 36                |

Table 1. Demographic characteristics of the sample
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 without symptoms (P <0.00), SBP, DBP, Glycemia, HbA1C, Cholesterol, HDL, LDL, Triglycerides were improved after educational sessions (Table 3).
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.

(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,
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 result 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.

REFERENCES

1. Hunt SA, Abraham WT, Chin MH, Feldman AM, Francis GS, Ganiats TG. et al. (2005). ACC/AHA 2005 guideline update for the diagnosis and management of chronic heart failure in the adult. American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Available at: http://www.acc.org/clinical/guidelines/failure/index. pdf. [Context Link]
2. Roger VL. Epidemiology of heart failure. Circ Res. 2013; 113 :646-59.
3. Bui AL, Horwich TB, Fonarow GC. Epidemiology and risk profile of heart failure. Nat Rev Cardiol. 2011; 8: 50–41.
4. Loh J, Creaser J, Rourke DA, Livingston N, Harrison TK, Vandenbogaart E, et al. Temporal trends in treatment and outcomes for advanced heart failure with reduced ejection fraction. Circ Cardiovasc Qual Outcomes 2012; 5: 837–44.

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
fraction from 1993-2010: findings from a university referral center. Circ Heart Fail. 2015; 6: 411-419.
5. McGinnis JM, Foege WH. Actual causes of death in the United States. JAMA. 1993; 270: 2207-2212.
6. McGinnis JM, Williams-Russo P, Knickman JR. The case for more active policy attention to health promotion. Health Aff (Millwood). 2002; 21: 78-95. doi: 10.1377/hlthaff.21.2.78.
7. Loef M, Walach H. The combined effects of healthy lifestyle behaviors on all cause mortality: a systematic review and meta-analysis. Prev Med. 2012; 55: 163-170. doi: 10.1016/j.ypmed.2012.06.017.
8. Tamakoshi A, Tamakoshi K, Lin Y, Yagy u, Kikuchi S; JACC Study Group. Healthy lifestyle and preventable death: findings from the Japan Collaborative Cohort (JACC) Study. Prev Med. 2009; 48: 486-492. doi: 10.1016/j.ypmed.2009.02.017.
9. Khaw KT, Wareham N, Bingham S, Welch A, Luben R, Day N. Combined impact of health behaviours and mortality in men and women: the EPIC-Norfolk prospective population study. PLoS Med. 2008; 5: e12. doi: 10.1371/journal.pmed.0050012.
10. Manuel DG, Perez R, Sanmartin C, Taljaard M, Hennessy D, Wilson K, Tanuseputro P, Manson H, Bennett C, Tuna M, Fisher S, Rosella LC. Measuring burden of unhealthy behaviours using a multivariable predictive approach: life expectancy lost in Canada attributable to smoking, alcohol, physical inactivity, and Diet. PLoS Med. 2016; 13(e1002082). doi: 10.1371/journal.pmed.1002082.
11. O’Doherty MG, Cairns K, O’Neill V, Lamrock F, Jørgensen T, Brenner H, Schöttker B, Wilsgaard T, Siganos G, Kuulasmaa K, Boffetta P, Trichopoulou A, Kee F. Effect of major lifestyle risk factors, independent and jointly, on life expectancy with and without cardiovascular disease: results from the Consortium on Health and Ageing Network of Cohorts in Europe and the United States (CHANCES). Eur J Epidemiol. 2016; 31: 455-468. doi: 10.1007/s10654-015-0112-8.
12. Li K, Hüsing A, Kaaks R. Lifestyle risk factors and residual life expectancy at age 40: a German cohort study. BMJ Med. 2014; 12: 59. doi: 10.1186/1741-7015-12-59.
13. Heo S, Lennie TA, Okoli C, Moser DK. Quality of life in patients with heart failure: ask the patients. J Clin Nurs. 2009; 18(17): 2444-2455.
14. Fihn SD, Gardin JM, Abrams J, et al. 2012 ACCF/AHA/ACP/AATS/PCNA/SCAI/STS guideline for diagnosis and management of patients with stable ischemic heart disease. Circulation. 2012; 126: e354-e471.
15. Perk J, De Backer G, Gohlke H, et al. European guidelines on cardiovascular disease prevention in clinical practice (version 2012) Eur Heart J. 2012; 33: 1655-1701.
16. Brown JPR, Clark AM, Dalal H, Welch K, Taylor RS. Patient education in the management of coronary heart disease. Cochrane Database of Systematic Reviews. 2011; 12 CD008895.
17. Zhao Y, Wong FK. Effects of a postdischarge transitional care programme for patients with coronary heart disease in China: a randomised controlled trial. J Clin Nurs. 2009; 18(17): 2444-2455.
18. McGinnis JM, Foege WH. Actual causes of death in the United States. JAMA. 1993; 270: 2207-2212.
19. Loef M, Walach H. The combined effects of healthy lifestyle behaviors on all cause mortality: a systematic review and meta-analysis. Prev Med. 2012; 55: 163-170. doi: 10.1016/j.ypmed.2012.06.017.
20. Eshah NF, Bond AE. Cardiac rehabilitation programme for coronary heart disease patients: an integrative literature review. Int J Nurs Pract. 2009; 15(5): 131-139.
21. Brown JPR, Clark AM, Dalal H, Welch K, Taylor RS. Patient education in the management of coronary heart disease. Cochrane Database of Systematic Reviews. 2011; 12 CD008895.
22. Fihn SD, Gardin JM, Abrams J, et al. 2012 ACCF/AHA/ACP/AATS/PCNA/SCAI/STS guideline for diagnosis and management of patients with stable ischemic heart disease. Circulation. 2012; 126: e354-e471.
23. Perk J, De Backer G, Gohlke H, et al. European guidelines on cardiovascular disease prevention in clinical practice (version 2012) Eur Heart J. 2012; 33: 1655-1701.
24. Brown JPR, Clark AM, Dalal H, Welch K, Taylor RS. Patient education in the management of coronary heart disease. Cochrane Database of Systematic Reviews. 2011; 12 CD008895.
25. World Health Organization. Global status report on noncommunicable diseases 2010. Geneva, Switzerland: World Health Organization; 2010.
26. Popkin BM, Adair LS, Ng SW. Global nutrition transition and the pandemic of obesity in developing countries. Nutr Rev. 2012; 70: 3-21.
27. McGinnis JM, Williams-Russo P, Knickman JR. The case for more active policy attention to health promotion. Health Aff (Millwood). 2002; 21: 78-95. doi: 10.1377/hlthaff.21.2.78.
28. Loef M, Walach H. The combined effects of healthy lifestyle behaviors on all cause mortality: a systematic review and meta-analysis. Prev Med. 2012; 55: 163-170. doi: 10.1016/j.ypmed.2012.06.017.
29. Eshah NF, Bond AE. Cardiac rehabilitation programme for coronary heart disease patients: an integrative literature review. Int J Nurs Pract. 2009; 15(5): 131-139.
30. Zhao Y, Wong FK. Effects of a postdischarge transitional care programme for patients with coronary heart disease in China: a randomised controlled trial. J Clin Nurs. 2009; 18(17): 2444-2455.
31. Perk J, De Backer G, Gohlke H, et al. European guidelines on cardiovascular disease prevention in clinical practice (version 2012) Eur Heart J. 2012; 33: 1655-1701.
32. Brown JPR, Clark AM, Dalal H, Welch K, Taylor RS. Patient education in the management of coronary heart disease. Cochrane Database of Systematic Reviews. 2011; 12 CD008895.
33. Fihn SD, Gardin JM, Abrams J, et al. 2012 ACCF/AHA/ACP/AATS/PCNA/SCAI/STS guideline for diagnosis and management of patients with stable ischemic heart disease. Circulation. 2012; 126: e354-e471.
34. Perk J, De Backer G, Gohlke H, et al. European guidelines on cardiovascular disease prevention in clinical practice (version 2012) Eur Heart J. 2012; 33: 1655-1701.
35. Brown JPR, Clark AM, Dalal H, Welch K, Taylor RS. Patient education in the management of coronary heart disease. Cochrane Database of Systematic Reviews. 2011; 12 CD008895.