



Assessment of the Role of Education in Changing Lifestyle in Patients with Coronary Heart Diseases

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ABSTRACT

Introduction: The idea which the progression of coronary artery disease is regularly reversible was previously radical concept but today it has become the most common. A number of interventions have been reported to arrest or reverse the progression of coronary atherosclerosis, many of which have been detailed in the time those include comprehensive changes in lifestyle. **Methods:** A total of 100 patients aged less than 65 years were interrogated, 50 patients in case groups and 50 in control groups. All severely ill patients, and patients aged more than 65 years were excluded. We used educational packages for all of our patients, to teach all of them risk factors for coronary heart disease (CHD) and how to change their lifestyle to reduce those risk factors. Data were analyzed by SPSS software. **Results:** Patients in intervention group significantly reduce the intake of saturated fat, sugar, and cholesterol ($p<0.001$), increased their exercises ($p<0.001$), and stopped smoking ($p<0.05$), when compared with the usual case group. **Conclusion:** This study demonstrated that education has a very important role in changing lifestyles of CHD patents and it helped to reduce risk factors of CHD.

Introduction

Coronary heart disease (CHD) is a major public health problem in most of the developed and developing countries.¹ Over the past century, epidemiological research has linked multiple biological as well as behavioral factors, for cardiovascular disease (CVD).² There are four types of risk factors based on responsiveness to intervention and usefulness of modification; category one is factors for which interventions have proved to lower CVD risk. Category two includes factors for which interventions are likely to lowers CVD risks. Category three involves factors

associated with increased CVD risks that if modified, might lower CVD risk. Category four includes factors associated with increased CVD risk factors but cannot be modified.³ Cigarette smoking, LDL cholesterol, hypertension and LVH are contributors of first category. Diabetes, physical inactivity, HDL, TG, small dense LDL, obesity, post-menopausal state are contributors of second category. Lifestyle modification and non-pharmacological therapy can significantly influence most of these risk factors.⁴ Patient education is an essential component of patient care after getting coronary has been found to be cost effective in terms of its potential to

reduce diseases recidivism and the length of hospitalization.⁵ As patients learn by a variety of methods, it is most efficacious to match an individual's learning style with an appropriate teaching technique.⁶ In this study, we want to assess the ability of educational method on modifying the lifestyle.

Materials and methods

The study was carried out in Shahid Madani hospital in CCU ward, cardiology department in Tabriz University of Medical Sciences during 2003-2004. Objective of this study was to assess effectiveness of education on changing lifestyle in coronary heart disease patients. The patients were divided into two groups: 50 patients in intervention group and 50 patients in control group; and assessed by questionnaire prepared for assessment of lifestyle and risk factors of CHD patients as per guidelines laid down by the center for disease. Mean age of cases 50.20 ± 9.35 and controls 52.86 ± 8.24 ; age variable was matched for the cases and controls. The higher number of matched cases and controls were 45-59 years old. In our study, we used educational package (using American Heart Association and American College of Cardiology and WHO guideline for preventing heart attack and death in patients with cardiovascular disease)

including risk intervention and goals for all of modifiable risk factors for changing the behaviors of CHD patients. This randomized controlled trial based on intervention education group. Control group was not taken education package. Each intervention cases were a 30-minute individual consultation. Exclusion criteria include all the severely ill patients, patients aged more than 65 years, and all patients from out of Tabriz. Statically analysis was performed by studies using the student t-test randomized controlled trials with one experimental group and one control group and considering alpha error only.

$$N = \frac{(Z_{\alpha})^2 \times 2 \times (S)^2}{(d)^2}$$

The data were collected through the questionnaire, and investigation entered in the computer before and after education in both intervention and control groups, using SPSS software version for analyses.

Results

We summarized our findings as follow.

Table 1. Distribution investigation of CHD patients before and after intervention according to cases and controls

Variable	Before Intervention										After Intervention									
	Case					Control					Case					Control				
	(CI95%)					(CI95%)					(CI95%)					(CI95%)				
	N	Mean	SD	Lower	Upper	N	Mean	SD	Lower	Upper	N	Mean	SD	Lower	Upper	N	Mean	SD	Lower	Upper
BMI	46	27.27	3.6	26.2	28.34	46	27.2	3.79	26.09	28.03	46	26.32	3.5	25.2	27.3	46	26.9	3.67	25.8	27.9
FBS	44	128.1	62.4	109.1	147.07	45	135	43	122	147.8	44	115.8	39.7	103.7	127.8	45	134.7	36.3	124	145.6
Total cholesterol	47	211.9	66.7	189.6	234.1	43	195	36.2	183	208.2	47	188.8	59.6	168.9	208.6	43	194.5	42.5	179	209.5
T.G	49	255.7	178	204.4	306.9	48	227	180	174	278.8	49	177.6	50.7	163.04	208.6	43	194.5	42.5	179	209.5
LDL	48	146	112	141.5	150.4	42	174	216.3	107	241.4	48	134.8	37	120.4	149.1	42	141.8	53.5	125	158.5
HDL	41	37.4	11.1	33.9	40.9	45	41.1	11.04	37.6	44.5	41	38.9	7.44	36.55	41.25	45	41.2	11.04	37.7	44.4

Table 2. Distribution of smoking habit and physical activity in CHD patients before and after intervention according cases and controls

Variable	Before Intervention						After Intervention					
	Case			Control			Case			Control		
	N	%	CI 95%	N	%	CI 95%	N	%	CI 95%	N	%	CI 95%
Smoking												
Yes	15	30	0.18-0.44	27	54	0.43-0.71	5	10	0.01-0.18	15	30	0.18-0.44
No	33	66	0.55-0.81	20	40	0.28-0.56	43	86	0.81-0.98	33	66	0.55-81
Physical activity												
Yes	15	30	0.18-0.45	14	28	0.16-0.42	44	88	0.78-0.97	15	30	0.18-0.45
No	32	64	0.54-0.81	35	70	0.62-0.86	6	12	0.02-0.21	32	64	0.54-0.81

Table 3. Distribution cases and controls according to lifestyle variables before and after intervention in CHD patients.

Variable	Before Intervention						After Intervention					
	Case			Control			Case			Control		
Diet type	N	%	CI 95%	N	%	CI 95%	N	%	CI 95%	N	%	CI 95%
Veg	13	26	0.27-0.64	24	48	0.34-0.61	24	48	0.34-0.61	15	30	0.31-0.71
Non-vegetarian	24	48	0.01-0.27	9	18	0.07-0.28	9	18	0.07-0.28	24	48	0.01-0.27
occasional non-veg	11	22	0.21-0.57	17	34	0.20-0.47	17	34	0.20-0.47	9	18	0.07-0.28
Total	48	96	-	50	100	-	50	100	-	48	96	-
Type of oil												
Saturated	13	26	0.15-0.41	13	26	0.15-0.41	0	0	-	0	0	-
Unsaturated	3	6	0.00-0.13	1	2	0.00-0.13	24	48	0.34-0.61	14	28	0.34-0.61
Both	30	60	0.51-0.78	32	64	0.51-0.78	26	52	0.38-0.65	36	72	0.38-0.65
Fish consumption												
None	21	42	0.29-0.57	11	22	0.16-0.39	1	2	0.01-0.05	5	10	0.00-0.15
Occasional	27	54	0.42-0.70	31	68	0.55-0.84	30	60	0.46-0.73	26	52	0.38-65
Regular	0	0	-	6	12	0.00-0.15	19	38	0.24-0.51	19	38	0.19-45
Minimize salt intake												
Yes	39	78	0.70-0.92	32	64	0.50-0.77	50	100	1-1	37	78	0.70-0.92
No	8	16	0.06-0.27	17	34	0.20-0.47	0	0	-	8	16	0.06-0.27
Fruits & Veg												
Yes	36	72	0.62-0.87	41	82	0.73-0.94	49	98	1-1	40	80	0.72-0.89
No	2	4	0.01-0.09	4	8	0.00-0.15	0	0	-	6	12	0.01-0.06
Eat fiber in diet												
Yes	16	32	0.20-0.47	18	32	0.23-0.51	39	78	0.70-0.92	16	32	0.20-0.47
No	8	16	0.06-0.27	11	22	0.11-0.34	-	-	-	8	16	0.06-0.27
Avoid sugar												
Yes	24	48	0.36-0.65	28	56	0.43-0.70	38	76	0.67-0.90	24	48	0.36-0.65
No	13	26	0.14-0.40	19	38	0.25-0.52	5	10	0.01-0.19	13	26	0.14-0.40

According to Table 1, the results showed that the association of reducing mean weight of patients in case group before and after education compared with control group was statistically significant ($p < 0.05$). After six month intervention (modification of lifestyle of patients) the average of FBS (Fasting Blood Sugar) in case group compared with controls was decreased, and it was statistically significant ($p < 0.05$). There were not significant differences between before and after education in cholesterol, HDL, LDL levels but these differences in mean of TG in case group was found to be statistically significant. Table 2 tabulated that association

of non-smoking cases before and after education was statistically significant.

Association of physical activity in CHD patients before and after education was also found to be statistically significant.

Table 3 shows that there was significant association between before and after education in patient in using vegetarian diet in their regimen, consuming unsaturated oil at cooking, eating more fish, minimizing salt intake, consuming of fruits and vegetables, avoid adding sugar to their food.

Discussion

In this study, we adopted individualized teaching in order to assist patients to understand the causes of MI and identify risk factors of coronary heart disease present in their lifestyles and suggest possible modification or the removal factors identified. We provided information about risk factors of CHD in structured educational packages in easily understandable way, to encourage patients to adopt behavior that will result in improved health status. The factors associated with development and progressions of atherosclerosis are complex and multifactor.

Various lifestyle factors such as smoking, lack of exercise and inadequate diet are risk factors for CHD.² In our study, education about these risk factors and ways of modifying lifestyle, was lead to changing lifestyle in our patients and more important finding was that education and modification of lifestyle of patients with intervention package were independently associated with behavioral risk factors for cardio vascular disease and reducing of blood pressure; smoking; lack of regular exercise, and obesity. Shahanfar and their assistants came to this conclusion about cardiovascular diseases, too. Finding of this study showed that a brief advice to foe e.g. stop smoking have a significant influence on smoking cessation in patients with coronary heart disease.⁷ These finding is similar to the result of Shea *et al.* and another result was the number of non-smoker after educational program was significantly higher in the interventional group.⁸ This finding coincides with the result that intervention in the form of individually planned consecutive teaching sessions achieved a reduction in cigarette consumption with a previous study by Scalzi *et al.*⁹ Many randomized controlled studies on lifestyle interventions aimed at reduction of serum cholesterol in coronary patients were studied. A study carried out by Ornish *et al.* about effect evaluation of dietary changes in combination with stress was a significant difference between experimental group and control group in reduction of total serum cholesterol and reduction of TG but also reduction of HDL cholesterol.¹⁰ Clinical trials (e.g. campbell *et al.* in Scotland) and observational studies (e.g. Baillargeon *et al.* in Canada) have shown that a nurse led health education program have an impact on cardiac risk factor reduction in patients with CHD.^{11,12}

The program of lifestyle modification in patients, in our study, includes reduction of risk factors, quit of smoking, reduction of weight, meat consumption and lipid, control of blood glucose and stress reduction.

Conclusion

The results of our study showed that after health education in patients and modification of their lifestyle most of CHD risk factors reduced and this reduction in risk factors decreased the probability of sudden death and hospitalization rate in CHD patients.

Ethical issues: The study was approved by the Ethical Committee of the University.

Conflict of interests: No conflict of interest to be declared.

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