Effects of education on self-care behaviour and quality of life in patients with chronic heart failure

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ESPAÑOL

Efectos de la educación en el comportamiento de auto-cuidado y la calidad de vida en pacientes con insuficiencia cardíaca crónica

Palabras clave

Calidad de vida, comportamiento de auto-cuidado, educación al paciente, insuficiencia cardíaca, manejo de la salud, modelo de promoción de la salud

Resumen

- Mejorar el manejo externo del paciente con insuficiencia cardiaca crónica (ICC) es un desafío importante. El objetivo de este estudio fue determinar los efectos de la educación sobre el comportamiento de auto-cuidado y la calidad de vida en pacientes con ICC.
- El equipo de investigación estaba compuesto por un cardiólogo principal y dos enfermeros especialistas.
- Cuarenta y cuatro pacientes con ICC fueron incluidos en el estudio. De estos pacientes 45.7% tenía enfermedad coronaria, 31.4% enfermedad valvular reumática, y 22.9% miocardiopatía dilatada.
- Se recogieron datos basales de los pacientes. El equipo realizó reuniones de educación y distribuyo manuales educativos.
- Después de proveer apoyo educativo, el Modelo de Promoción de la Salud incluyendo el Locus de Control de Salud Multidimensional, el Perfil de Estilo de Vida en Salud y el Estado de Salud Percibido fueron usados de evaluar las habilidades de los pacientes. La Escala Perfil de Salud de Nottingham fue utilizada para evaluar la calidad de vida y el Formulario de Evaluación del Comportamiento de ICC para evaluar el comportamiento de auto-cuidado del paciente con ICC.
- Dos pacientes fallecieron y 7 pacientes dejaron el estudio, quedando 35 participantes. En la visita final el escore de calidad de vida fue significativamente mayor que el basal ($p = 0.001$). La actividad física, energía, dolor, sueño, aislamiento social y reacción emocional fueron evaluados por estadística descriptiva. En la segunda visita, todos los parámetros fueron significativamente mayores que los datos basales a excepción del sueño y la energía. Hubieron significativas diferencias entre los datos basales y los parámetros finales ($p = 0.05$ para la actividad física, $p = 0.015$ para la energía, $p = 0.005$ para el dolor, $p = 0.022$ para el sueño, $p = 0.001$ para el aislamiento social y $p < 0.0001$ para la reacción emocional). Cuando se evaluó el comportamiento de auto-cuidado relacionado con la insuficiencia cardiaca, los escores finales fueron significativamente más altos que los basales (91.17 SD 8.63 y 101.53 SD 7.67; $p < 0.0001$). La dieta ($p < 0.0001$), la medicación ($p = 0.025$), la observación de aumento de peso por retención de líquidos ingeridos ($p = 0.001$) y el comportamiento de actividad-reposo ($p < 0.0001$) fueron evaluados por estadística descriptiva. En la segunda visita, todos los parámetros fueron significativamente más altos que los basales.
- Se concluye que la educación planificada y sistemática y el apoyo de un cardiólogo principal y enfermeros especialistas conducen a una mejora del comportamiento de auto-cuidado de los pacientes y a una mejora de la calidad de vida.

SUMMARY

- Improving the outpatient management of patients with chronic heart failure (CHF) is an important challenge. The aim of this study was to determine the effects of education on self-care behaviour and quality of life in-patients with CHF.
- The research team consisted of a primary cardiologist and two specialised nurses.

- Forty-four patients who had CHF were included in the study. Of these patients 45.7% had coronary artery disease, 31.4% had rheumatic valve disease, and 22.9% had dilate cardiomyopathy.
- Baseline data of the patients were recorded. The team performed the education meetings and distributed educational handbooks.
- Following the provision of supportive education, the Health Promotion Model including the Multidimensional Health Locus of Control, the Health Promotion Life-Style Profile and Perceived Health Status were used to evaluate the patients' abilities. The Nottingham Health Profile Scale was used to assess the patients' quality of life and the Evaluation Form for Self-Care Behaviors of CHF was used to assess self-care behaviours of patients with CHF.
- Two patients died and seven patients left the study, leaving 35 participants. In the final visit, the quality of life score was significantly higher than the baseline ($p = 0.001$). Physical activity, energy, pain, sleep, social isolation and emotional reactions were evaluated by descriptive statistics. In the second visit, all parameters were significantly higher than baseline data except sleep and energy. There were significant differences between all baseline and final parameters ($p = 0.05$ for physicial activity, $p = 0.015$ for energy, $p = 0.005$ for pain, $p = 0.022$ for sleep, $p = 0.001$ for social isolation and $p < 0.0001$ for emotional reactions). When the heart failure-related self-care behaviours were evaluated, final scores were significantly higher than baseline (91.17, SD 8.63 and 101.53, SD 7.67; $p < 0.0001$). Diet ($p < 0.0001$), medication ($p = 0.025$), observing fluid intake-weight gain ($p = 0.001$) and activity-resting behaviours ($p < 0.0001$) were evaluated by descriptive statistics. In the second visit, all parameters were significantly higher than baseline data.
- It is concluded that systematic and planned education and support by the primary cardiologist and the specialist nurse led to an increase in-patients' self-care behaviour and improved quality of life.

INTRODUCTION

Today, chronic heart failure (CHF) is a major health and social problem. In the last decade, there have been important changes in the aetiological factors for CHF of which ischaemic factors and hypertension are the predominant ones. Valve disorders, which are mostly the consequence of rheumatic valve disorders, are still important in Turkey as rheumatic valvular disease has a high incidence, although it has decreased a little in the western parts of Turkey (Enar et al., 1999). Patients with compensated CHF can develop into a decompensated state if they do not conform to the correct diet (for example decreasing sodium intake) or stop taking their drugs. As people grow older and as their life duration increases, the number of the CHF patients will increase also (Moser, 1996; Happ et al., 1997).

The successful management of CHF often necessitates the compliance of patients and their families with life status changes. The life status adjustments include the adjustment of dietary factors and activities, and complying with complex drug regimens and symptom management (Happ et al., 1997; Brass-Mynderse 1996; Sullivan & Hawthorne, 1996; Dracup et al., 1994). Available data indicate that between one third and one half of heart failure readmissions, particularly those occurring within 90 days are preventable. Patients should comply with new restrictions and rules and should conform to them. Inadequacy in fulfilling any one of these necessities or restrictions could decrease the quality of life of the patient, resulting in unnecessary hospitalisation and potential early death (Happ et al.,1997). Thus, the targets in the management of CHF patients include pharmacological therapy in addition to the basic management principles, self-care strategies and patient education (Sullivan & Hawthorne, 1996; Davies & Bayliss 1994; McMuarray & Dargie 1996).

The quality of life and self-care of the patients are important dimensions in the management of CHF patients, and are related. Enhancement of quality of life could affect the self-care management positively and also application of suitable self-care management behaviours could enhance the quality of life.

Providing information only does not increase patient compliance. Previous researchers (Happ et al., 1997, Fleury, 1991) have observed that educational interventions have only increased the management knowledge of patients with chronic debilitating diseases, but healthy behavioural changes have not accompanied this. Thus, before starting a behavioural change, the judgment standards, beliefs, aims and comprehensive skills of the patient should be evaluated. Evaluating the personal knowledge and behaviour of the patient will help to form a base from which to develop some strategies and aims for behavioural changes (Happ et al., 1997, Fleury, 1991) . In summary, the content of education should be based on the educational level of the patient, his previous experiences in the health system and his age.

To strengthen the adaptation of patients to their condition, an emphatic approach by healthcare professionals and the use of individual attitude change models are helpful (Kasper et al., 2002; Venner & Selbinder, 1996; Enç, 1999a; 1999b). Individual models concentrate on what should be done for personal self-being. These models focus personal behaviours, beliefs and other personal characteristics which could be changed. To be able to provide suitable patient education, first self-care behaviours of the patients that are needed or lacking should be defined. Development of positive behaviours would increase the compliance of the patients for their disease management and would increase their levels of self-satisfaction of life. In order to provide this, a health promotion model was used in this study. The model define caring for the health and the avoidance of unhealthy behaviour. The aim is to promote health and prevent disease.

METHODOLOGY

The aim of the study was to investigate the effects of educational therapy modalities on self-care behaviours and the quality of life of the patient.

The study utilised an experimental design in which the patient group was used as its own control. Evaluations were made at three different times: baseline, and three and eight months after the education event. Consent to undertake the study was given by the research institute and a verbal consent was obtained from patients who participated in this study.

Sample

The sample consisted of 44 patients with congestive cardiac failure who were admitted to the Cardiology Department Istanbul University Cardiology Institute as outpatients or were hospitalised in the cardiology department.

Inclusion criteria

- All in- and out-patients admitted from September 2004 to December 2005 with documented CHF diagnosed at least one year ago, and aged between 40 to 75 years
- Literate
- Voluntary consent.

- No history of chronic renal failure
- Diagnosed with ischaemic cardiac disease, rheumatic cardiac disease, and dilate cardiomyopathies as aetiological factors and who are in classes II, III and IV according to the New York Heart Associations' CHF classification (depending on to the physical activities)

Assessment tools

In order to obtain baseline data several tools were used: The Multidimensional Health Locus of Control (which measures how the person perceives their health behaviours and their control of them) (Wallston et al., 1976), the Health Life Status Behavior Scale (which measures the health promotion behaviours associated with the healthy life status of the patient), Nottingham Health Profile Scale, Evaluation Form for Self-Care Behavior of CHF. Following the education intervention, the Nottingham Health Profile Scale and the Evaluation Form for Self-Care Behavior of CHF were administered in the third and eighth months.

The Nottingham Health Profile Scale was used to define the health quality of the patients with cardiovascular diseases. The first part of the scale is composed of physical activity, sleep, pain, energy, emotional reactions and social isolation; and these subgroups were used in the study. When using the scale, lower values equate to reduced quality of life.

The Evaluation Form for Self-care Behaviors of CHF patients is composed of 39 items. It is also divided into four self-care behaviour subgroups: dietary, weight and fluid gain, drug consumption, and activity, and rest. When using the scale, lower values indicate that self-care behaviours are not being followed.

Initially, physicians assessed the patients in terms of the inclusion criteria for entry into the study. Patients included in the sample were provided with general information about the study and then basic data about their demographic and disease status, their behaviours about improving their healthcare, and their quality of life and self-care behaviours about CHF were collected. The educational strategies are defined according to these data.

A face-to-face interview lasting 30-40 minutes was conducted with each patient. A group education session was provided to the patients and to their relatives by the researchers supported by a CHF handbook for the patient and CHF brochure for the patients' relatives (Enç et al., 2002). The relatives' brochure contained evidence-based information about the disease, probable life style changes, drug therapy, symptom control and management options. The primary physician of the patient and two specialised nurses provided the education. Group education was planned to include twenty people, of which ten were patients and ten were patients' relatives. The duration of the group education was planned as a total of one and a half hours, with forty minutes of education, ten minutes of free time and forty minutes of discussion about each patient's question. As soon as the education session was completed, a CHF patient handbook and CHF brochure for the patients' relatives was given to each patient and their relatives.

After the education session, the interview was repeated in the third and eighth month. Data were collected about adaptation of the CHF patients to the self-care behaviours and their quality of life. Each interview was about fifteen minutes' duration. If there were insufficient self-care behaviours of the CHF patients during the interview, individual education and consultation were continued.

Patient inquiry forms and patients' medical notes were used to collect data about demographical variables and disease characteristics. Data was collected about the patients' perceptions of health-care management and their control over their health-care using the Multidimensional Health Locus of Control Scale and data about their attitudes for improving their health with healthy living options using the Health Promotion Life-Style Profile Scale (Esin, 1997). Quality of life was assessed using the Nottingham Health Profile Scale and self-care behaviours were assessed using the Evaluation Form for Self-care Behaviors of CHF patients (Durademir, 1998).

Two of the 44 patients enrolled in the study died and seven decided not to participate after the first examination or later. Therefore, the study was completed with the remaining cohort of 35 patients.

Statistical analysis was performed with percentage calculations, median and standard deviation tests, and by paired student's t test which compared the quality of life and self-care behaviours of CHF patients before and after the education sessions at three and eight months.

RESULTS

35 patients formed the study group. The patients enrolled into the study were between 40-75 years of age (mean 59.86, SD 9.16 years). Thirteen of the cases (37.14 %) were female and 22 (62.86 %) were male. The demographic characteristics of the patients are shown in Table 1. According to the clinical status of the patients, percentages of the aetiological factors for the congestive cardiac failure were 47.7% for ischaemic cardiac disease, 31.4% for rheumatic valvular disorders, and 22.9% for dilated cardiomyopathy. 82.9% of the patients had been treated for CHF for three years and over. The clinical status and disease characteristics of the patients are shown in Table 1.

The points obtained from the scales included in the Health Promotion Model can be seen in Table 2. According to Table 2, the internal health controls and powerful external health controls of the patients were above the mean value, but chance factor was under the mean value. When their attitudes about improvement of their health-care were investigated, the median values (in points) for subgroups of fulfillment for their self-management and for support of their relatives were greater than the median value; nutrition and stress management were at the median level; and exercise subgroup was under the median value. Patient/family group education was planned according to these data.

Quality of life

The quality of life of the patients included in the study was evaluated by using the Nottingham Health Profile Scale. While total quality of life of the cases was significantly low at the first visit before the education, it was higher at the third and eighth months (respectively $p = 0.003$ and $p = 0.001$) (see Table 3). The augmentation in the quality of life continued at the assessment the eighth month (see Figure 1).

When the subscales of quality of life were evaluated, the subscale having the lowest scores for quality of life before the education were the dimensions of emotional reactions, sleep quality and energy, and then social isolation (see Table 3).

Self-care behaviours were evaluated using the CHF self-care behaviors evaluation form (see Table 3). The total score for the self-care behaviours of the CHF patients increased in a significant manner after the education session, when compared with the total scores before the education ($p < 0.0001$) (91.17, SdD 8.63; and 101.86, SD 7.32, respectively) (see Table 3). The augmentation in the CHF self-care behaviours also continued at the eighth month controls (see Figure 2).

Frequency of self-care behaviours of CHF patients

When the CHF self-care activity subscales before the education were evaluated, the self-care activities mostly fulfilled were drug usage, followed by compliance with dietary rules. The self-care activities that were least fulfilled were observing weight gain and fluid intake, followed by attitudes to work and rest (see Table 3).

When the effect of education on CHF self-care behaviours was evaluated at three and eight months, there were significant behaviour changes found with respect to compliance with dietary rules, observing weight gain and fluid intake, and working and resting, compared to the results before the education ($p < 0.0001$). However, there was no statistically significant difference in drug usage (see Table 3).

Demographics	Features	n	Percentage (%)
Gender	Female	13	37.14
	Male	22	62.86
Age	40-49	5	14.29
	50-59	12	34.29
	60-69	13	37.14
	70-75	5	14.29
Marital status	Married	29	82.86
	Not married	1	2.86
	Widow	4	1.43
	Divorced	1	2.86
Education	Primary school	20	57.14
	High school	10	28.57
	University	5	14.29
Number of family members	Alone	2	5.71
	2-4	27	77.14
	5-7	6	17.14
Health insurance	Have	34	97.14
	Don't have	1	2.86
Clinical	**Features**	**n**	**Percentage (%)**
Diagnosed disease	Ischaemic heart disease	16	45.71
	Rheumatic heart disease	11	31.43
	Dilate cardiomyopathy	8	22.86
Duration of disease	Last 1 year	3	8.57
	Last 3 years	3	8.57
	> last 3 year	29	82.86
Hypertension	Positive/ Negative)	19/16	54.29/45.71
Diabetes mellitus type 2	(Positive/ Negative)	8/27	22.86/77.14
Hyperlipidemia	(Positive/ Negative)	6/29	17.14/82.86
Behavioural	**Habits**	**n**	**Percentage (%)**
Nicotine consumption	(Positive/ Negative)	8/27	22.86/77.14
Alcohol consumption	(Positive/ Negative)	6/29	17.14/82.86

Table 1: Demographic and clinical features of the chronic heart failure patients

Scales		Min and max points	Median value of min and max points	Baseline min and max points	Baseline median value of min and max points
Multi-dimensional Health Locus Control	İnternal control	12 - 72	42	37 - 70	55
	Dominant external control	12 -72	42	29 - 72	59
	Chance effect	12 - 72	42	18 - 61	41
Healthy Life Status Behaviour Scale	To demonstrate his/her	13 - 52	32.5	24 - 49	40
	Responsibility about health	10 - 40	25	13 - 38	25
	Exercise	5 - 20	12.5	5 - 17	8
	Nutrition	6 - 24	15	12 - 24	17
	Support of others	7 - 28	17.5	13 - 28	21
	Management of stress	7 - 28	17.5	10 - 26	17
Nottingham Health Profile (quality of life)	Physical activities	0 - 100	50	0 – 55,44	13
	Energy	0 – 100	50	0 - 100	26
	Pain	0 - 100	50	0 – 70.27	9
	Sleep	0 – 100	50	0 – 87.43	25
	Social isolation	0 - 100	50	0 – 80.64	18
	Emotional reactions	0 – 100	50	0 – 92.92	25
Self-care behaviours of chronic heart failure patients	Dietary habits	12 – 36	24	21 – 34	29
	Drug usage	13 – 39	26	13 – 39	32
	Management of weight-fluid intake	6 – 18	12	6 – 16	11
	Activity-resting habits	8 – 24	16	13 – 22	18

Table 2. Distribution of median points calculated by different scales

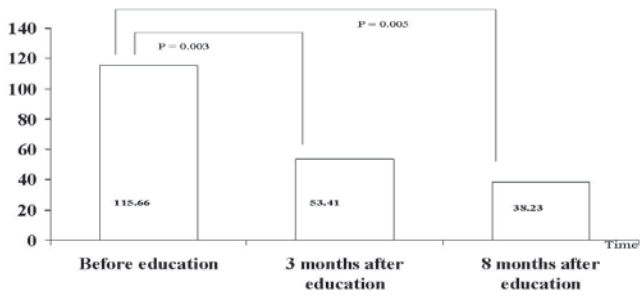

Figure 1. Nottingham Health Profile of HF patients

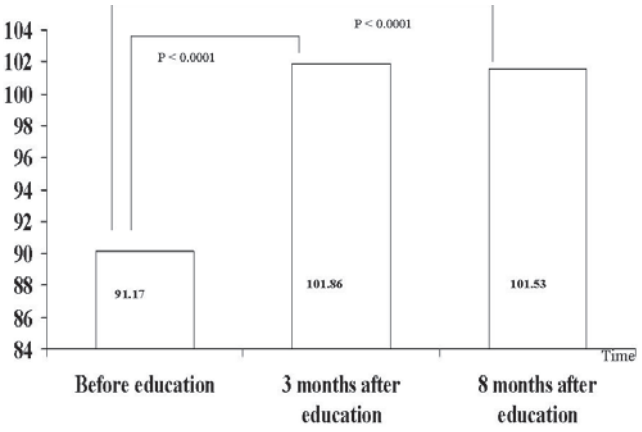

Figure 2. Evaluation of the self-care behaviours of the heart failure patients

Scales		Pre educ'n	Post educ'n month 3	*p* (1-2 control)	Post educ'n month 3	*p* (1-3 control)
Nottingham Health Profile Scale (quality of life)	Physical activities	13.05 ± 12.59	6.90 ± 12.10	0.018	7.36 ± 10.97	0.05
	Energy	25.55 ± 34.67	14.79 ± 32.97	NS	7.04 ± 24.53	0.015
	Pain	8.92 ± 14.02	1.53 ± 5.59	0.001	1.10 ± 3.72	0.005
	Sleep	25.07 ± 28.02	15.50 ± 25.40	NS	11.88 ± 18.51	0.022
	Social isolation	18.02 ± 28.30	4.58 ± 14.34	0.006	3.65 ± 10.64	0.001
	Emotional reactions	25.07 ± 25.82	10.12 ± 18.85	NS	7.20 ± 10.70	> 0.0001
	Total	**115,66 ± 106.01**	**53.41 ± 86.40**	**0.003**	**38.23 ± 51.27**	**0.001**
Self-care behaviours of CHF patients	Dietary habits	29.09 ± 3.16	32.71 ± 2.71	< 0.0001	31.69 ± 0.25	0.039
	Drug usage	32.29 ± 5.03	34.00 ± 5.08	0.025	34.15 ± 2.97	ns
	Weight/ fluid intake	11.09 ± 2.74	13.06 ± 1.92	0.001	13.09 ± 2.09	0.002
	Activity-resting habits	17.71 ± 2.96	21.54 ± 2.37	< 0.0001	21.68 ± 2.16	< 0.0001
	Total	**91.17 ± 8.63**	**101.86 ± 7.32**	**< 0.0001**	**101.53 ± 7.67**	**< 0.0001**

Table 3. Comparison of life quality and self-care behaviours of CHF patients pre-education and post-education at three and eight months

DISCUSSION

The findings of the study suggest that the education provided to the CHF patients, based on the health promotion model, improved their self-care behaviours and significantly increased their quality of life.

As the self-health (internal) control of individuals, as measured by the multidimensional health locus of controls, were above the median value in our study, it suggests that the self-health control of the individuals was high and they had the motivation to start and to continue the positive health attitudes. As the powerful external environmental effect is high, this shows that the effect level of the other individuals (family, doctor, nurse) on the health status of the patient is high. This result may be explained by the fact that the individuals diagnosed as CHF are at least 50 years of age and need other people to assist with the management of their symptoms.

When the attitudes of the patients about improving their health-care were investigated, as the sublevels of "support of other people" and "improving his-her self-confidence" are over the mean value (see Table 2), it supports the above results. The "exercise" sublevel is the least performed attitude, which is similar other findings in the literature. Bennet et al. (2000) reported that most of the patients have walked wanderingly without any plan instead of regular exercise, and Carlson et al. (2001) reported that participation in regular physical activities was low and most patients preferred walking. Ni et al. (1999) reported that 30% of patients ceased to exercise regularly (as they believed it to be harmful) after the diagnosis of the CHF.

An important conclusion of our study is that the attitude changes of the CHF patients by the third and eighth months after the education about their self-care behaviours for CHF and their life qualities (Figures 1,2) were improved and continued to stay at the same high level. Jaarsma et al. (1999) have reported that self-care behaviours of both the research and control groups have improved in a month (study which included an education plus observation by a nurse), but improvement in the research group were better, and self-care behaviours of both groups decreased by the eighth month, thus suggesting that education and support should be continued.

As at the third and eighth month in our study, there were improvements about the self-care behaviours for CHF and as the quality of life was high and continued to stay at this high level, it can be attributed to:

- Including the patient and her/his relatives to the group education at the beginning
- Providing the education by a primary physician and two specialised nurses
- Continuing education and supporting when there is need after the baseline education
- Positive cooperation and compliance of the primary physician, nurse and the patient

Knox and Mischeke (1999) who reported results similar to ours had applied a management program which included patient consultation, education, out-patient observation and household management and compliance observation to decrease the duration of hospitalisation and expenditures. These authors reported that compliance rates of the patients was approximately 89.5% 18 months later, and hospitalisation rates reported were 0.6/patient/year (national hospitalisation rate was 1.7/ patient/year). Again Kasper et al., (2002) have reported fewer re-hospitalisation, improved life-quality, and less weight gained at 6 months after the education.

The dimensions with the lowest quality of life scores before the education in our study, were emotional reactions, sleep quality and energy dimensions, then social isolation subgroup followed next (Table 2). Bennett et al. (2000), and Carlson et al. (2001) have reported that the symptoms mostly encountered by the patient were weakness, sleeplessness and depression. The CHF patients have symptoms associated with their therapy regimens. Diuretics are the drugs frequently used by the CHF patients and as they cause frequent urination at night, they defragment sleep, and also awaken the patient early. In our study most of the patients reported that they were taking diuretics after noon before the education and thus

urinated frequently at night. As the sleep quality of the patients has increased after the education, it can be evaluated as an adaptation to the advice. In addition, Bennett et al., (2000) have also reported that, most of the patients were hindered from visiting places without toilets and also were hindered from climbing stairs because of low energy levels. This resulted in exhaustion and also hindered them from going out of home; all of these have resulted in social isolation.

The self-care behaviours for drug usage and visiting the doctor's office regularly are the attitudes frequently observed both before the education and after the education in our study, and this is in contrast with the literature reporting high non-compliance with drug usage. The most important reason for re-hospitalisation of the CHF patients in different studies is non-compliance to drug therapy (Happ et al., 1997; Ghali et al., 1988; Feenestra et al., 1998). The results of our study are similar to the results of Ni et al. (1999) who reported most of the patients (74%) were taking their drugs, and 25% were usually complying with their prescriptions. Artinian et al. (2003) and Evangelista et al. (2001) reported that most patients complied and were taking advised drugs and visiting the doctor's office regularly.

The reasons for high compliance to the drug usage both before the education and after the education in our study were: high external and internal control, patients' health insurances; and because of new arrangements in the health system not necessitating frequent prescription and clear cooperation and participation of the patient, doctor and nurse.

Most patients in our study have reported complying to the diet advised before the education, but at the third and eighth months after the education, especially attitudes about "complying to the amounts of salt advised, not adding salt while eating, avoiding from consuming meals containing salt ingredients and using spices to give delicious taste to the meal" had changed positively. We concluded that the CHF patients did not have full knowledge about the ingredients of their meals before. Riegel and Carlson (2002) have reported that most of patients do not understand the importance of their symptoms and reach wrong decisions. They do not believe that the self-care attitudes are good for themselves, and do not have a clear thought about preventing CHF symptoms when dietary sodium intake is restricted. Bennett et al., (2000) have reported that most patients did not comply with the dietary rules, but used low sodium diet to prevent CHF symptoms. Evangelista et al., (2001) reported low compliance rates about dietary intake and exercises. Thus subgroups of the dietary compliance instead of general dietary compliance of the CHF patients should be investigated and education should be planned accordingly.

In our study, we have concluded that factors such as supporting basic education by use of educational material, showing clear cut relations between CHF and nutritional rules, involvement of patients' relatives in educational process and maintenance of individual education in accordance with patients' needs were effective in providing and maintenance of behavioural change. The least applied self-care behaviours of CHF patients before the education were observing their weight gains and fluid intake and this is similar to other studies. Artinian et al. (2003) reported that the least performed behaviour was symptom control and management; Ni et al. (1999) reported that 40% of the patients did not know the importance of weight control, 37.2% did not regard weight-gain as an important problem, and 36% prefer to consume a lot of fluid; and Carlson et al. (2001) reported that it is difficult for most patients to recognise changes in symptoms and signs of CHF.

With all of these results, when an individualised model is used for CHF management (Health Promotion Model), group education, participation of the patient and his/her relatives in the education and continuing individualised education over time to positive effects on patient compliance result.

CONCLUSIONS

In our study, group education was provided to the patients diagnosed with CHF and to their relatives by the primary physician and by two specialised nurses in accordance with the planned education of the Health Promotion Model. Individualised education and consultation services were continued at regular intervals. At the end of the study, the quality of life of the CHF patients increased and behaviour changes about CHF self-care behaviours (dietary habits, management of weight-fluid intake and activity-resting habits) had continued. To apply these changes to a larger scale of CHF patients, Health Management Policy should be developed. Also longer periods of study, with a larger number of cases are advised.

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