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Determining The Effects of Nutrition on The Quality of Life of Patients with Stoma

Stomalı Hastaların Beslenmesinin Yaşam Kalitesi Üzerine Etkisinin Belirlenmesi

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ABSTRACT

Aim: *Living with a stoma is difficult for the patient. Most of the patients are discharged from the hospital with fear and problems loaded. The majority of their problems are related with nutrition. The aim of the study was to provide nutritional training to patients with a stoma and to determine the effect of stoma on quality of life.* ***Subjects and methods:*** *This study was conducted at a university hospital, Main Scientific Branch of General Surgery (Turkey), between May 2008 and June 2009. Approximately 31 patients participated in the study. However, 5 patients were excluded from the study due to various reasons. The investigator had developed a nutritional program. The nutritional program contains various issues such as, the following-up main and snack meals giving information by the aid of a nutrition training handbook and consultation services. Patients were also asked to fill a questionnaire related with the nutritional program and quality of life.* ***Results:*** *As stated, nearly more than half of the patients experienced a "flatulence" problem and therefore they were socially isolated. After three months of period, patients stated that they experienced a lesser degree of problems related with nutrition. The quality of life scores of patients with an ileostomy was found lower when compared to patients with a colostomy.* ***Conclusion:*** *We determined that problems related with nutrition in patients with a stoma were reduced at the end of the study by the nutrition program ($p<0.05$). We also determined an increase in the quality of life according to the postoperative term three months after surgery ($p<0.05$).*

Keywords: *Ileostomy, colostomy, nutrition, nutritional program, quality of life*

ÖZET

Amaç: *Stoma ile yaşamak hastaya zorluklar getirmektedir. Hastalar stomaya ilişkin korku ve sorularla taburcu edilmektedir. Sorunların çoğunluğunu beslenme oluşturmaktadır. Bu çalışma, stomalı hastalara beslenme eğitimi vermek ve yaşam kalitesi üzerine etkisini belirlemek amacıyla yapılmıştır.* ***Bireyler ve Yöntem:*** *Çalışma Gülhane Askeri Tıp Akademisi Genel Cerrahi Anabilim Dalı Kliniği'nde, Mayıs 2008- Haziran 2009 tarihleri arasında gerçekleştirilmiştir. Çalışmaya 31 hasta ile başlanmış, 5 hasta çeşitli nedenlerle araştırma dışı kalmıştır. Araştırmacı beslenme programı geliştirmiştir. Beslenme programı, ana ve ara öğünlerin takibi, beslenme eğitim broşürü ile bilgilendirme ve danışmanlık gibi uygulamaları içermektedir. Hastalara bireysel beslenme programı ve yaşam kalitesi anketi uygulanmıştır.* ***Bulgular:*** *Beslenme programı öncesi hastaların yarısından fazlasında "gaz" problemi yaşadıkları belirlenmiş olup, sosyal izolasyon yaşadıklarını ifade etmişlerdir. Üç ay sonra hastaların beslenmeyle ilgili problemlerinde azalma olduğu saptanmıştır. İleostomili hastaların yaşam kalitesi anket puanlarının, kolostomili hastalara göre düşük olduğu saptanmıştır.* ***Sonuç:*** *Araştırma sonucunda geliştirilen beslenme programının, stomalı hastaların beslenmeyle ilgili problemlerini azalttığı belirlenmiştir ($p<0.05$). Aynı zamanda hastaların 3 ay sonrası dönemde postoperatif döneme göre yaşam kalitesinin arttığı saptanmıştır ($p<0.05$).*

Anahtar kelimeler: *İleostomi, kolostomi, beslenme, beslenme programı, yaşam kalitesi*

INTRODUCTION

Disease-related deaths are decreasing and life expectancy is prolonged thanks to advances in medicine and technology and the development of early diagnosis and treatment methods. These developments may lead to changes in the lifestyles of individuals. One of the interventions that may lead to a lifestyle change and affects the quality of life is an intestinal stoma (1). An intestinal stoma is defined as an artificial opening where the intestines are anastomosed to the abdominal wall. A stoma can be either temporary or permanent, depending on why it was necessary in the first place.

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The abstract of this study (Clinical Nutrition Supplement 7(1):117 (Abstract:PP235) was presented as a poster at the 34th ESPEN congress on 8-11 September 2012 at Barcelona,/Spain. Also some part of the study was asked to be presented orally at the training session/nursing session.

In the case of a permanent stoma the operation has meant that the natural opening, the anus or the bladder, can no longer be used. A temporary stoma is formed when it is going to be reversed at some later date. (2). The most common problem requiring the opening of a permanent abdominal stoma is colorectal cancer. The 1999 Statistics of the Ministry of Health showed colon cancers as ranked fifth in women and eighth in men in our country (3). Considering that an intestinal stoma is opened in the majority of these cases, the stoma and the cancer itself become major factors in the patients' life (1,4,5).

Patients with a stoma encounter problems affecting the physical, psychological and social aspects of their life (6-9). Colorectal cancer patients lose weight because of loss of appetite before the surgery. Nutritional intake is reduced in the pre-operative period and restricted until bowel sounds are heard following the surgery. Fulham (6) has reported the malnutrition rate as 27% in general surgery patients, and 50% in colon cancer patients.

There are only two studies on the diet options of stoma patients between years 1990-2000 in MEDLINE (7). This indicates that there is not enough research on this subject and that the professional responsibility for the patient's nutrition seems to rest with the dietitian and the nurse. Recommendations and guidelines related to the nutritional management of patients are required in the early periods of rehabilitation after stoma surgery (5). A healthy diet is regarded as the basis for quality of life (7,10). Assessment of the nutritional status of stoma patients and providing the necessary nutritional support would be expected to have a positive effect on patient's quality of life. The aim of the study was to provide nutritional training to patients with a stoma and to determine the effect of stoma on quality of life.

SUBJECTS and METHODS

Study Design

The study was carried out at the Department of General Surgery Clinic of Gulhane Military Medical Academy (GATA). The patients, being 18 years and over, literate, getting ileostomy and colostomy applications, not being within the terminal period and willing to participate in the research without any communicational problems, were included. Patients about to undergo a colostomy or ileostomy were determined and the nutritional program administered preoperatively and during the 3 months postoperatively. An educational brochure was designed to draw the attention to the importance of the matter to provide information about nutrition and related complications, and to increase the accessibility to the provided services. Nutrition content development was planned. The medical literature devoted to the diet of stoma patients (6,7,11-14) were reviewed and assessed by the experts in the field. The opinions of two stoma patients with different educational status on the clarity and design of the brochure were also obtained before it was published. The brochure also contained the contact numbers of the investigator and appointment information. The stoma quality of life questionnaire was administered. The demographic information was recorded.

Data related to nutrition were re-evaluated in the postoperative period. Nutritional training was provided to the stoma patients on the fifth postoperative day by the nurse. In addition, the brochure consisting nutrition advice was provided to the stoma patient after the training. Any nutritional stoma-related problems were recorded in the data collection form.

Patients were invited for follow-up three months after the discharge and data related to nutrition were re-evaluated. Nutrition based problems that the patients encountered were investigated and recorded. The quality of life questionnaire was re-administered.

The points to take into consideration are listed in sub-title form in the nutrition leaflet. The sub-titles, provided to the patient in list, include the issues such as "eating little and often", "avoid from any meals and soups prepared with beef and chicken broth", "eating slowly and chewing well", "avoid from putting on over-weight", "consuming more fluid (6-8 glasses) everyday", "different reactions of people to the same meals", "putting all the stuff in a raw form and not roasting while cooking", "not consuming the food, determined as gas generator although it is included in the diet list", "special diets" and "food in the direction of literature in concern with nutritional problems (diarrhea, obturation, gas, bad smell)".

Quality of Life Questionnaire of the Stoma Patient

The literature (15-17) was searched by the investigator to develop a questionnaire in order to assess the quality of life of stoma patients. A newly-developed quality of life questionnaire was employed for this purpose. This questionnaire was used to evaluate the social, physiological and psychological problems that patients can experience. Reliability and validity of the quality of life questionnaire was not analyzed.

The quality of life questionnaire consisted of 20 questions. Likert-type scaling ranging from 1 to 5 as "always" (1), "often" (2), "sometimes" (3), "rarely" (4), and "never" (5) was used to score the questionnaire. "0" was the worst and "100" the best. The quality of life questionnaire score is the average of answers to 20 items. Patients were asked to mark the most appropriate expression for them. Duration to complete the questionnaire was 5-10 minutes on average. It was administered to patients before the discharge and three months afterwards. Because other studies have reported the incidence of problems unique to these patients to be high in the short term after stoma surgery (0-4 months), we limited our study to 3 months, taking into account the other phases and planned completion time of the study (3,15).

Before starting the study, consent was obtained with correspondence no 1491-767-08/1539 from the GATA ethical committee. Verbal consent was obtained after providing information about the study and the following-up form.

Statistical Analysis

The SPSS 15.0 package program was used to evaluate the data obtained from the study. The level of significance was determined as 0.05 for the data analysis. "p" values less than or equal to this value were accepted as statistically significant while higher "p" values were accepted as not statistically significant. A "p" value of 0.001 was used for advanced significance.

Descriptive statistics were shown as number and percent for discrete data and mean±standard deviation for continuous data. The Wilcoxon signed-rank test, McNemar test and Friedman analysis of variance were used in the comparisons of dependent groups (before-after). The Wilcoxon signed-rank test and Bonferroni correction were used in order to test the source of the difference when a difference was found according to the results of Friedman's analysis of variance.

RESULTS

The mean age of the patients was 48.8±19.1 years (21-86 years) and 53.8% was below the age of 55 years. The hospitalization duration of the patients was 18.7±13.4 days and the 88.5% had no any chronic disease.

A 14-point increase was found in the mean quality of life questionnaire scores in patients aged 55 years and below after three months. The minimum postoperative quality of life value was 27.00, increasing to 50.00 after 3 months. There was a 7-point increase in the mean quality of life questionnaire scores after three months in patients aged 56 years and above. However, no increase was found in the minimum quality of life questionnaire score (24.00) of patients aged 56 years and above. The difference between patient age and the scores from the quality of life questionnaire were found to be statistically significant ($p<0.05$) (Table 1).

A statistically significant relationship was found between patient gender and quality of life scores as presented in Table 1 ($p<0.001$). The mean quality of life scores had increased 13 points in single patients and 17 points in married patients after three months. A statistically significant relationship was found between the quality of life scores and the marital status of the patients ($p<0.05$). The increase in quality of life scores after three months was also higher in high school and college graduates then elementary school graduates. The mean quality of life questionnaire scores increased in elementary

Tablo 1. Comparison of some patient descriptive characteristics affecting the quality of life in the postoperative period and 3 months later

Characteristics	**Quality of life questionnaire scores**		**Z**	**p***
	Postoperative $\overline{x}$ **± SD** **(min-max)**	**After 3 months** $\overline{x}$ **± SD** **(min-max)**		
Age (years)				
≤ 55	55.07±17.20 (27.00-81.00)	69.07±13.82 (50.00-85.00)	3.300	0.001
≥ 56	45.58±14.56 (24.00-81.00)	62.91±20.58 (25.00-85.00)	3.059	0.002
Gender				
Female	54.36±19.70 (24.00-81.00)	69.27±18.45 (25.00-85.00)	2.93	0.003
Male	48.00±13.68 (28.00-81.00)	64.00±16.50 (35.00-85.00)	3.408	0.001
Marital status				
Single	48.44±13.87 (32.00-81.00)	61.22±14.60 (35.00-85.00)	2.666	0.008
Married	51.88±17.94 (24.00-81.00)	68.88±18.27 (25.00-85.00)	3.625	<0.001
Educational status				
Elementary school	46.15±12.41 (24.00-63.00)	62.70±15.87 (25.00-81.00)	3.186	0.001
Higschool	54.92±19.25 (27.00-81.00)	69.76±18.34 (35.00-85.00)	3.186	0.001
Stoma type				
Colostomy	58.34±16.50 (24.00-81.00)	73.33±15.86 (25.00-85.00)	2.934	0.003
Ileostomy	40.27±9.38 (27.00-52.00)	56.54±14.41 (35.00-82.00)	3.414	0.001
Stoma type				
Permanent	47.85±21.17 (24.00-81.00)	51.71±20.68 (25.00-85.00)	2.384	0.017
Temporary	51.73±14.90 (27.00-81.00)	71.58±12.48 (50.00-85.00)	3.825	<0.001

**From the Wilcoxon signed-rank test*

school and high school graduate patients when the educational status and quality of life scores at the postoperative period and three months later were analyzed. A statistically significant relationship was found between educational status and quality of life scores of the patients (p<0.05). The quality of life scores of patients with a temporary stoma increased in the postoperative period and this increase was statistically significant (p<0.05).

Table 2 showed that patients most often complained of gas problems (53.84%, n=17) before the nutritional program. Other major problems were diarrhea and skin irritation. The number of patients with no problems after three months was 16 (61.55%). The number of patients having gas problems had decreased (n=5) but the problem continued in the group. Problems related to nutrition at the postoperative period and after 3 months were grouped as yes/no. A statistically significant difference was found between the postoperative period and 3 months values (p<0.001).

The quality of life was found to be increased in all 26 patients undergoing the stoma nutrition program when postoperative quality of life scores were compared with those 3 months later as presented in Table 3. Quality of life scores were 50.70±16.44 in the postoperative period and had increased to 66.23±17.20 points with a 16-point rise three months later. This increase in the quality of life scores was found to be statistically significant (z=4.460, p<0.001).

The statements of the patients after receiving the nutritional training and within three months are shown in Table 4. The majority of the patients (n=

Tablo 2. Distribution of nutritional problems before and after the nutritional program and intra-group comparison

Nutritional program	Type of the stoma problem	Number	%	p**
Before	No problem	-	-	<0.001
	Gas	17*	53.84	
	Diarrhea	6*	15.38	
	Skin irritation	4*	11.54	
	Odor	3	11.54	
	Pain	2	7.7	
After 3 months	No problem	16	61.55	
	Gas	5	19.25	
	Diarrhea	2	7.7	
	Odor	2	7.7	
	Skin irritation	1	3.8	

**The number n is folded.*
***From the Mc Nemar test*

Tablo 3. Comparison of the postoperative and after 3-months mean quality of life scores of patients participating in the nutritional program

Quality of life	Minimum	Maximum	$\bar{x}$±SD	z	p**
Postoperative	24.00	81.00	50.70±16.44	**4.460**	**<0.001**
After 3 months	25.00	85.00	66.23±17.20		

**From the Wilcoxon signed-rank test*

21, 80.7%) answered the "I worry when the bag is full" statement as "always-often". More than half of the patients (57.7%) answered the "I worry that smell could come from the bag" and "noises coming from my stoma worry me" statements as "always-often". The statement "I avoid close physical contact with my friends" was valid for 53.9% of the patients. Very few patients (n=2) felt the "my stoma makes it difficult for me to be with other people statement "never" applied.

DISCUSSION

The objective of patient nutrition is to provide an adequate and balanced nutrition by arranging the patient's diet. The patient's nutrition is one of the most important responsibilities of the dietitian and the nurse. Diet adaptation should be specific to the patient and take into account the patient's physiological condition and the ability to tolerate various foods prepared with a certain consistency. Patient must be informed about why the diet is altered and negative consequences if he/she does not eat the provided meals.

Following abdominal surgery, the stoma shrinks in 4-6 weeks and the abdominal incision is shaped. This is also a period for the patient's adjustment to the stoma bag. The patient needs to obtain information on issues related to adaptation of the diet, stoma care and lifestyle during this period. However, no consensus has been reached on the diet of patients with a stoma (6,18).

The discharge plan of the stoma patient includes subjects such as provision of care, written sources, and where and how to obtain the materials. Living with a stoma is physically and psychologically difficult for the patient. Many patients are discharged with fear and unanswered questions related to stoma care. Nutritional matters are the subject of the majority of these questions. Nutritional follow-up of the stoma patient is therefore important. Floruta et al. (12) found that patients were not receiving a special diet for their stoma, did not know the content of special diets and were unaware of how to arrange their nutrition in the future. The majority of the patients report limiting raw vegetables, fruits and foods with fiber (12,18,19).

The quality of life scores of ileostomy patients were found to be lower than colostomy patients in this study (Table 1). The fecal content of ileostomy patients contains digestive enzymes depending on the opening region of the stoma. This can lead to skin irritation, loss of fluid and volume and increased nutritional problems (18).

Patients with a stoma cannot control gas excretion due to the absence of a sphincter in the stoma. A wide range of physiological problems such as

Tablo 4. Distribution of patients' postoperative and 3-month answers to the quality of life questionnaire and intra-group comparisons

Stoma-related statements of the patients	Postoperative (n=26)		After 3 months (n=26)		Z	p
	n	%	n	%		
I worry when the bag is full						
Always-often	21	80.7	16	61.5	2.397	0.01
Sometimes-rarely	2	7.7	2	7.7		
Never	3	11.5	8	30.8		
I worry that the bag will get loose						
Always-often	20	77.0	10	38.5	3.155	0.002
Sometimes-rarely	5	19.2	14	46.1		
Never	1	3.8	4	15.4		
I feel a need to know where the closest toilet is						
Always-often	18	69.3	9	34.6	2.128	0.03
Sometimes-rarely	3	11.5	10	38.5		
Never	5	19.2	7	26.9		
I worry that a smell could arise from the bag						
Always-often	15	57.7	11	42.3	2.390	0.01
Sometimes-rarely	9	34.6	4	15.4		
Never	2	7.7	11	42.3		
Noises coming from my stoma worry me						
Always-often	15	57.7	8	30.8	3.145	0.002
Sometimes-rarely	6	26.9	9	34.6		
Never	4	15.4	9	34.6		
My stoma bag limits the choice of the clothes that I can wear						
Always-often	17	65.4	10	38.5	**	**
Sometimes-rarely	9	34.6	16	61.6		
Never	-	-	-	-		
I feel tired during the day						
Always-often	12	46.2	3	11.5	**	**
Sometimes-rarely	14	53.8	21	80.8		
Never	-	-	2	7.7		
My stoma causes me to feel sexually unattractive						
Always-often	10	38.5	4	15.4	3.077	0.002
Sometimes-rarely	7	26.9	7	26.9		
Never	9	34.6	15	57.7		
I am having sleeping problems throughout the night						
Always-often	10	38.4	6	23.1	2.043	0.04
Sometimes-rarely	14	53.9	13	50.0		
Never	2	7.7	7	26.9		
The sizzle of the bag worries me						
Always-often	14	53.8	6	23.9	2.286	0.02
Sometimes-rarely	10	34.8	13	50.0		
Never	2	7.7	6	23.1		
I am embarrassed of my body because of my stoma						
Always-often	10	38.5	7	26.9	2.349	0.02
Sometimes-rarely	9	34.6	4	15.4		
Never	7	26.9	15	57.7		
It is difficult for me to spend the night outside my house						
Always-often	16	61.5	13	50.0	1.428	0.153
Sometimes-rarely	6	23.1	6	23.1		
Never	4	15.4	7	26.9		
It is difficult to hide the fact that I am using a bag						
Always-often	17	65.4	13	50.0	2.368	0.01
Sometimes-rarely	6	23.1	9	34.6		
Never	3	11.5	4	15.4		
I worry that my condition is a burden for others close to me						
Always-often	12	46.2	9	34.6	1.951	0.05
Sometimes-rarely	11	42.3	9	34.6		
Never	3	11.5	8	30.8		
I avoid close physical contact with my friends						
Always-often	14	53.9	10	38.5	2.332	0.02
Sometimes-rarely	9	34.6	10	38.5		
Never	3	11.5	6	23.0		
My stoma makes it difficult for me to be with other people						
Always-often	15	57.7	8	30.8	3.572	<0.001
Sometimes-rarely	9	34.6	10	38.5		
Never	2	7.7	8	30.8		
I am afraid to meet new people						
Always-often	12	46.2	5	19.2	3.153	0.002
Sometimes-rarely	9	34.6	13	50.0		
Never	5	19.2	8	30.8		
I feel lonely even when with other people						
Always-often	9	34.6	7	26.9	1.844	0.06
Sometimes-rarely	9	34.6	7	26.9		
Never	8	30.8	12	46.2		
I worry that my family feels bad when close to me						
Always-often	12	46.2	8	30.8	2.359	0.01
Sometimes-rarely	7	26.9	8	30.8		
Never	7	26.9	10	38.5		

**: From Mc Nemar*

***: A statistical comparison could not be performed as the number of subjects in the groups did not meet the conditions of the test.*

formation of gas and odor, fecal leakage, skin problems, fatigue, loss of appetite, dyspepsia, nausea, diarrhea, constipation and pain can be observed in stoma patients. Odor and fecal leakage cause the greatest discomfort for patients (18). Colwell (20) followed up 408 patients for periods of 10 days, and 3, 6, 12 and 48 months for stomal and peristomal complications. 6-15% of the patients with an ileostomy and 9-32% of the patients with a colostomy reported gas problems (20). We also found the most common nutrition-related problem to be "gas" while other problems were listed as diarrhea, skin irritation and smell. The nutritional problems of our patients were found to be decreased after 3 months (Table 2). Our results are similar to others (3,7,19).

The quality of life was found to be increased after 3 months in all 26 patients in this study when compared with the postoperative scores. The increase in quality of life scores was determined to be statistically significant (Table 3) ($p<0.001$). Olsson (21) reported a significant relationship between good care and patient quality of life. Marquis (15) conducted a study to determine how stoma surgery affects the life of a patient. They evaluated their patients at the postoperative 3rd, 6th, 9th and 12th months. A statistically significant relationship was found between postoperative and 3-month quality of life scores. The patients that were satisfied with the nursing care and reported good communication with the stoma care nurse had higher quality of life scores (15).

One of the main responsibilities of the stoma care nurse is to ensure the control of eating and excreting habits of the patient. We ensured the establishment of good communication and the continuity of care and communication in our study. Floruta (7) indicated that the nurse has an important role in the preparation of nutrition lists and asked patients to make list of foods they were avoiding due to the stoma. Patients listed steaks, sausages, milk, cheese, bran, high fiber grains, corn, cabbage, beans, onions, broccoli, lettuce, mushrooms, hazelnuts, nuts, apples, strawberries, cherries, oranges, grapes, alcohol, tea, coffee, carbonated drinks, grape juice, spices, fried foods and fast-food. Patients mostly indicated that these foods increased the amount of stool at their stoma and generated gas. We found that the numbers of affirmative answers from patients that were uncomfortable because of large amounts of ileal and fecal output to the statements "I worry when the bag is full" and "I feel a need to know where the closest toilet is" were reduced after three months. We felt that giving patients a brochure on foods that increased or decreased stool output and what to do could be effective.

Gas excretion, anxiety of the smell being be noticed by people around and suffering passing gas without their control lead to sense of shame in patients with stoma. Patients with stoma were reported to isolate themselves from social life due to reasons like noise, smell, leakage (2,7,8,22). Literature indicated that most patients did not participate in their usual social activities after the surgery such as visiting friends and going shopping. Patients may stay away from people, become introverted and want to stay alone due to fear that the stoma will cause leakage and smell. Foods that can cause gas and smell were listed in the nutrition program and brochure given to patients in this study. Answers to statements such as "I avoid close physical contact with my friends", "My stoma makes it difficult for me to be with other people", "It is difficult to hide fact that I am using a bag" were decreased after three months with the quality of life questionnaire assessment compared to the postoperative period (Table 4).

In conclusion, assessing the nutritional status of the patients with stoma, providing the necessary nutritional support, training and consulting the services according to the results of these assessments, might lead to a decrease in nutritional problems. Hence, a reduction in these nutritional problems increases the patient's quality of life. Whole in all, all health professionals must take responsibility for the nutrition of the patient with stoma and provide the necessary nutritional support during the treatment and care.

Conflict of interest/Çıkar çatışması: *There is no conflict of interest.*

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