Articles

Quality of life after colorectal surgery – impact of stoma

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ABSTRACT

AIM: The hypothesis is that in patients with colorectal cancer who underwent surgical treatment there is disorder in particular domains of quality of life compared to healthy individuals, which can be measured by analyzing responses to the questions asked using specially adapted questionnaires to assess the quality of life. METHODS: The study included 100 patients who underwent surgery for colon cancer. Quality of life was assessed before surgery and one month after surgery using WHOQOL-BREF questionnaire. Quality of life was compared before and after surgery in respect of stoma formation. RESULTS: In patients who underwent surgery that included the formation of a stoma, a statistically significant postoperative reduction was found in the value of domain 3 (social relations) compared to preoperative value, while the differences in the preoperative and postoperative values of other domains were not statistically significant. CONCLUSION: Results of this study indicate the need to conduct psychosocial support individually adapted to the specific needs of patients, that would take into account social and demographic characteristics of the patients.

KEY WORDS: colorectal surgery; quality of life; stoma

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INTRODUCTION

Colorectal cancer is the second most common cause of death from malignancy in Western Europe and United States, with an incidence of 50 new cases per 100,000 (1). In recent years, there is growing interest not only for the analysis of oncological therapy from the standpoint of biological response to treatment but also from the standpoint of the quality of life of patients during treatment and after treatment (2, 3). Illness, as well as surgical treatment of it, significantly changes the quality and quantity of health. Surgical treatment of colorectal cancer may have an effect on all domains of quality of life (4, 5). Nowadays, the quality of life in clinical trials is considered equivalent to the survival rate (6, 7). Understanding the quality of life experienced by patients after surgery of colorectal cancer is crucial for assessing the overall impact of this disease on patients themselves, their families and communities (8, 9). Furthermore, this information is key to improving processes in order to improve the health and well-being of a growing population of patients suffering from colorectal cancer. There is a great potential to improve the well-being and quality of life of these patients if the needs of patients are adequately identified. Today, however, an impact of certain diseases and surgical procedures on the quality of life is not completely clear, particularly in three of its important components: physical, psychological and social health. By analyzing obtained data it is possible to determine the impact of certain diseases and therapeutic procedures in all three dimensions of quality of life, not only on the amount of physical health, and thereby improve treatment and accelerate recovery of patients after surgical procedure and re-integration into normal life in the community (10-12). The hypothesis of the research is that in patients with colorectal cancer who underwent surgical treatment there is disorder in particular domains of quality of life compared to healthy individuals, which can be measured by analyzing responses to the questions asked using specially adapted questionnaires to assess the quality of life.

PATIENTS AND METHODS

Patients

The study included 100 patients who underwent surgery for colon cancer. The subjects were informed about the purpose and methods of research through written instructions and were included in the study after obtaining the written informed consent and completed questionnaires. Quality of life after a diagnosis of colorectal cancer and prior to surgery was assessed using questionnaires which were handed over to patients along with the accompanying instructions and explanations at hospital admission (1-3 days before surgery). Patients filled out these questionnaires before surgery. Quality of life after surgery was assessed using questionnaires along with the accompanying instructions and explanations wich were handed over to patients at discharge or mailed to respondents who meet the above criteria. Patients filled out these questionnaires a month after the operation and brought them to a follow-up examination. Respondents who have adequately filled the questionnaires were considered to have voluntarily participated in this study. After the return of completed questionnaires, answers to the questions were entered into tables and levels of certain quality of life domains were calculated. In addition to these parameters, demographic parameters were also recorded: age, gender, marital status, professional qualifications, clinical data about the cancer and conducted treatment (a type of surgical procedure - established continuity or stoma).

Methods

The World Health Organization has defined 24 areas of quality of life and created a questionnaire to assess a quality of life (WHOQOL-BREF), which can be used in various cultures while allowing comparison of results obtained in different countries and populations (13, 14). The questions in this questionnaire are grouped in such a way as to allow assessment of the four domains of the quality of life.

The first domain refers to the quality of physical health and includes quality of everyday activities, dependence on medical assistance, energy levels and fatigue, stiffness, pain and discomfort, rest, sleep and work ability.

The second domain refers to the quality of psychological health. This domain gives us an insight into the perception of self-image, negative and positive feelings, self-esteem, spirituality, religion, personal beliefs, opinions, learning, memory and concentration.

The third domain is determined by social relationships and is based on personal relationships, social support and sexual activity.

Finally, the fourth domain analyzes the relationship with the social surroundings. This domain includes financial problems, freedom and a sense of physical security, availability and quality of health and social care, surrounding at home, the opportunity to acquire new knowledge and skills, opportunities and participation in recreational activities and leisure time, the quality of the physical environment (pollution, noise, traffic, air) and transport.

Furthermore, in the questionnaire, there are two additional questions to assess the general level of health (G1) and satisfaction with health (G2).

These four domains determine the personal experience of the quality of life in each domain. The values of the certain domain are determined by scoring answers to certain questions under the special scheme so that higher values of certain domains point to a higher quality of life at this domain (positive relationship). The values of certain domains are then expressed on a scale from 0 to 20, in order to achieve comparability of results.

Statistical analysis

Appropriate methods of descriptive statistics (median, range, maximum and minimum value) and non-parametric methods for comparison of independent and dependent samples were used in statistical analysis (Kruskal-Wallis, Mann-Whitney, and Wilcoxon test for paired data). The method for the analysis of correlation (Spearman correlation test) was also used. P values <0.05 were considered statistically significant.

RESULTS

By analyzing the correlation of preoperative quality of life measured by questionnaire WHOQOL BREF and the age of patients, statistically significant correlation was found between patient age and domain 1 quality of life (Table 1). Statistically significant association between age and the measured preoperative value of others domains were not found. (Table 1).

Table 1. Correlation analysis of certain domains of quality of life assessed using WHOQOL BREF questionnaire with the patient's age before surgery

Domains	Spearman R [1]	P
G1 – Age	-0.120	0.283
G2 – Age	-0.161	0.149
Domain 1 - Age	-0.228	0.039
Domain 2 - Age	-0.126	0.260
Domain 3 - Age	-0.183	0.105
Domain 4 - Age	-0.161	0.149

[1] Spearman's rank correlation

G1 = own experience of quality of life; G2 = the satisfaction of their own quality of life; Domain 1 = physical health; Domain 2 = psychological health; Domain 3 = social relations; Domain 4 = relations with the environment.

Table 2. Comparison of certain domains of quality of life assessed using WHOQOL BREF questionnaire in patients in whom stoma was not created, before and after surgery

Domain	Before surgery			After surgery			P
	Median	Minimum	Maximum	Median	Minimum	Maximum	
G1	4.0	0.0	5.0	4.0	3.0	5.0	0.182
G2	3.0	0.0	5.0	4.0	1.0	5.0	0.266
Domain 1	13.7	8.6	17.1	12.0	10.0	16.0	0.079
Domain 2	14.7	11.3	18.4	14.7	10.7	17.3	0.363
Domain 3	16.0	10.0	20.0	14.7	12.0	18.7	0.208
Domain 4	15.0	10.0	20.0	14.0	11.5	18.0	0.140

G1 = own assessment of the quality of life; G2 = the satisfaction of their own quality of life; Domain 1 = physical health; Domain 2 = psychological health; Domain 3 = social relations; Domain 4 = relations with its surroundings.

Table 3. Comparison of certain domains of quality of life assessed using WHOQOL BREF questionnaire in patients in whom stoma was created, before and after surgery

Domain	Before surgical procedure			After surgical procedure			P
	Median	Minimum	Maximum	Median	Minimum	Maximum	
G1	3.5	0.0	5.0	3.0	2.0	5.0	0.260
G2	3.0	1.0	5.0	3.0	1.0	5.0	0.678
Domain1	12.7	8.0	18.7	12.0	9.1	15.4	0.875
Domain 2	14.0	8.7	18.0	12.7	8.0	17.3	0.056
Domain 3	16.7	12.0	20.0	14.7	10.7	20.0	0.047
Domain 4	15.0	8.5	19.0	12.6	7.5	19.0	0.081

G1 = own assessment of the quality of life; G2 = the satisfaction of their own quality of life; Domain 1 = physical health; Domain 2 = psychological health; Domain 3 = social relations; Domain 4 = relations with its surroundings.

The comparison between preoperative and postoperative values of quality of life measured by WHOQOL BREF questionnaire showed no statistically significant differences in the quality of life in patients whom stoma was not created (Wilcoxon's test) (Table 2).

The comparison between preoperative and postoperative values of individual domains of quality of life measured by WHOQOL BREF questionnaire showed statistically significant differences in certain domains in patients in whom the stoma was created during surgery (Wilcoxon's test) (Table 3). In patients who underwent a surgical procedure that included the formation of a stoma, a statistically significant postoperative reduction was found in the value of domain 3 compared to preoperative value, while the difference in the preoperative and postoperative values of other domains were not statistically significant (Table 3).

DISCUSSION

The concept of quality of life is composed of three main components (domains or dimensions). The physical domain refers to the patient's ability to carry out daily activities and roles that require physical activity. The social dimension refers to the ability of patients to fit in complex relationships with family members, neighbors, workplace colleagues and in the community. Finally, the psychological dimension incorporates emotional and mental health and disorders such as depression, discomfort, fear, anger etc. The quality of life varies over time in the same patient. Therefore, the quality of life of patients can best be determined using repeated measurements that begin before treatment (baseline assessment) and at regular intervals during and after treatment. In this manner it is possible to follow up changes under the influence of disease regression or progression, as well as short-term and long-term effects of treatment (12, 15). The quality of life can be quantified using questionnaires that determine the numerical value of each dimension of quality of life, depending on the type of disease and the use of questionnaires, enabling scientific comparability in clinical research and drawing conclusions on the basis of statistical significance.

Generally, the values of certain domains of quality of life are lower in the early postoperative period than before surgery. This finding was expected, primarily in the domain associated with physical qualities, such as physical health, independence, and fatigue. Early in the postoperative period patients are gradually recovering from surgical procedure and adapt to the new situation, whether it's about a colostomy or neorectum after continuity resection of the rectum.

The surgical procedure also has a negative impact on the social life of patients after surgery for colorectal cancer. Patients with colostomy are more likely to suffer from depression, loneliness, and even despair because of low self-esteem and feelings of undesirable changes in physical appearance. Cancer of the rectum can cause difficulties in social relationships such as indecision with continuing professional activities after surgery, limited social contacts, changes in patterns of rest and leisure activities and taking more passive roles that do not require the presence of others (16).

In previously published studies, correlation of age and some determinants of quality of life has also been found, as well as differences in specific domains of quality of life in patients with colorectal cancer and healthy individuals (17). Arndt and colleagues found a negative correlation between age and domains of independence and social health in healthy individuals, but also a positive correlation between these components of quality of life and longer life expectancy (17).

Results of this study indicate the need to conduct psychosocial support individually adapted to the specific needs of patients, that would take into account social and demographic characteristics of the patients (17).

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