

Quality of Life after Colorectal Cancer Surgery in Patients from University Clinical Hospital Mostar, Bosnia and Herzegovina

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ABSTRACT

Quality of life (QoL) has become an important outcome measure for patients with cancer, but results from population-based studies are infrequently published. The objective of this study was to assess QoL in patients who underwent the colorectal cancer (CRC) surgery and to compare it to the QoL of general population. The patients who were admitted from January 2004 until May 2006 at the Department of Gastrointestinal Surgery at the Clinical Hospital Mostar, Bosnia and Herzegovina were divided in three groups: group of CRC patients who had received surgery and as a result of surgical treatment have colostomy, group of CRC patients who had received surgery in the same period and don't have colostomy and the third group that consisted of controls. QLQ-C30 and QLQ-CR38 questionnaires by the European Organization for Cancer Research and Treatment (EORTC) were used. A total of 67 patients were included in this study, supplemented by the thirty healthy examinees. Healthy group had significantly better results in physical functioning compared with colorectal cancer patients and better results in cognitive and social functioning. Also, they reported symptoms of diarrhea and constipation less frequently than the group with colostomy and. The group with colostomy had poorer results in emotional functioning than the group without colostomy, and also reported significantly poorer results for domain »body image«. Healthy group showed better results in sexual enjoyment than the patient with colorectal cancer. Patients without colostomy reported more micturition and defecation problems and female sexual problems compared to the healthy group. Generally we found that healthy population had better results than the CRC patients, while the patients with stoma had worse results than the nonstoma patients. The results presented here suggest that psychological treatment should be an integral part of the CRC treatment plan.

Key words: quality of life, colorectal cancer, stoma, Bosnia and Herzegovina

Introduction

Colorectal cancer is the second leading cause of cancer-related mortality and the fourth most prevalent malignant disease. It affects men and women almost equally. Almost one million new incident cases and 250,000 deaths occur worldwide each year¹. Survival rates have increased throughout the last decades because of earlier diagnosis, improved diagnostic test, introduction of adjuvant therapy, and advances in the treatment of metastatic disease. Approximately 80% of patients now survive the first year after diagnosis and approximately 62% survive 5 years and more². According to Epidemiology

Service of the Croatian Institute for Public Health each year about 3000 new cases are registered³. Postoperative outcome has traditionally been assessed as survival or improvement of disease-related symptoms. These measures place no emphasis on the patient's overall perception of the impact of an operation on subjectively experienced distress or wellbeing. Health-related quality of life (QoL) measures have therefore been developed and used increasingly to measure the effectiveness of therapeutic interventions. In gastroenterology surgery these measure are variable. It is also difficult to distinguish be-

tween the effects of the disease itself and the therapeutic intervention on the health-related QoL⁴. The term QoL refers to a multidimensional concept, which includes, at least, the dimension of physical, emotional, and social functioning. In addition, assessment of QoL in patients with cancer may improve our understanding of how cancer and therapy influence patients' lives and how to adapt treatment strategies⁵. Colorectal cancer and its treatment can have an adverse effect on social functioning, including work and productive life; relationships with friends, relatives, and partners; and other social activities and interests⁶. Patients with colorectal cancer, both stoma and nonstoma patients, are troubled by frequent or irregular bowel movements, diarrhea, flatulence, and fatigue, and often have to follow dietary restrictions^{7,8}. QoL measures are critical to the evaluation of the new cancer treatment either surgical or nonsurgical. Each year more and more studies and trials are published and EORTC QLQ-C30 and CR38 are most frequently used instruments⁹. Recent studies were conducted to determine value of population based testing and to compare QoL values between healthy population and colorectal cancer patients. No such investigations were reported in our region yet^{6,10}.

The aim of this study is to compare QoL measured by EORTC QLQ-C30 and QLQ-CR38 questionnaires between stoma and nonstoma CRC patients and compare both groups with healthy population sample.

Subjects and Methods

This study was conducted from January 2004 until May 2006 in the Department of Gastrointestinal Surgery at the Clinical Hospital Mostar, Bosnia and Herzegovina. It was based on the two measurements related to the quality of life in colorectal patients: measurement using QLQ C-30 questionnaire and QLQ CR-38 questionnaire.

Quality of life measurement

Quality of life was measured using two instruments: the European Organization for Research and Treatment for Cancer (EORTC) QLQ C-30 questionnaire (version 3.0) and the EORTC colorectal module QLQ C-38 questionnaire. First questionnaire can be applied to all patients with malignant tumors, while the QLQ-CR38 is only intended for evaluation of colorectal cancer patients¹¹.

Data analysis for EORTC instruments was carried out using the official scoring procedures for the QLQ-C30 and QLQ-CR38. The QLQ-C30 is composed of both multi-item scales and single-item measures. These include five functional scales (physical, role, emotional, cognitive and social functioning), three symptom scales, a global health status/QoL scale, and six single items (fatigue, nausea and vomiting, pain, dyspnea, insomnia, loss of appetite, constipation, diarrhea and financial difficulties). All of the scales and single-item measures range in score from 0 to 100. A high scale score represents a higher response level. Thus a high score for a functional scale represents a high/healthy level of functioning, a high score for the

global health status/QoL represents a high QoL, but a high score for a symptom scale/item represents a high level of symptomatology/problems^{12,13}.

The EORTC QLQ-CR38 module comprises 38 questions assessing disease symptoms, side effects of treatment (sphincter-saving resection, rectum extirpation, radiotherapy and chemotherapy) and four functional scales: body image, sexual enjoyment, sexual functioning and future perspective. All patients complete 19 questions, while the remaining questions are completed by sub samples of patients (men or women; patients with or without a stoma)¹⁴.

Examinees

Examinees were divided into three groups: (i) group of colorectal cancer patients who had underwent surgery from January 2004 until January 2005 and as a result of surgical treatment have colostomy, (ii) group of colorectal cancer patients who had received surgery in the same period and don't have colostomy and (iii) the third group, which consisted of healthy people who were chosen by random sampling. Ninety-one patients with colorectal carcinoma were approached for this study. The patients were asked for participating in the study.

The first measurement (questionnaire QLQ-C30) which was conducted in April 2005: four (4.4%) patients refused to participate; eleven (12.1%) patients were excluded from study because of missing data, nine (9.9%) patients died. Of the remaining 67 (73.6%) patients, 35 (38.5%) patients were with colostomy and 32 (35.2%) patients without colostomy (Figure 1). The sample thus consisted of 34 men and 33 women. Men/women ratio in the cancer group with colostomy was 18/17, and that in the cancer group without colostomy was 16/16. Mean age for the cancer group with colostomy was 64 years (SD=12.9), and that of the cancer group without colostomy was 61 years (SD=12.7). In the group of healthy people were 30 examinees. Men/women ratio in this group was 15/15,

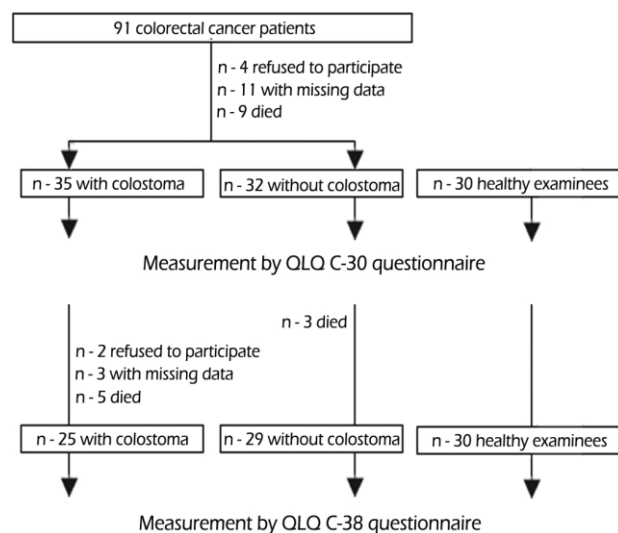


Fig. 1. Flow of the groups of examinees in the study.

and mean age was 60 years (SD=12.2). The differences in men/women ratio and in age between these three groups were not significant.

Second measurement (QLQ-CR38) was conducted in April 2006, on the same sample that filled out the first questionnaire. A total of three (8.6%) patients were unreachable, two (5.7%) patients refused to participate, and five (14.3%) patients died. In cancer group without colostomy three (9.4%) patients died. Fifty four colorectal cancer patients and 30 examinees from healthy group participated in research with questionnaire QLQ-CR38. Of the 54 patients, 25 (29.8%) patients were with colostomy and 29 (34.5%) patients without colostomy (Figure 1). Men/women ratio in the cancer group with colostomy was 11/14, and that in the cancer group without colostomy was 14/15. Men/women ratio in the healthy group was 15/14. Mean age for the cancer group with colostomy was 65 years (SD=12.5), and that of the cancer group without colostomy was 60 years (SD=12.3). Mean age of the healthy group was 61 years (SD=12.1). The differences in men/women ratio and in age between these three groups were not significant.

Statistical analysis

Data were reported as means and standard deviations (SD). Differences between more than two groups of examinees were compared using the Kruskal-Wallis test. Data between two groups of examinees were compared with Mann-Whitney U test. For all analyses, $p < 0.05$ was considered significant. Data were analyzed using SPSS, version 13.0¹⁵.

Results

Comparing the three groups, significantly better results in physical functioning were observed for the healthy group when compared with two other groups of colorectal cancer patients, the group with colostomy ($p=0.029$) and the group without colostomy ($p=0.032$). Financial difficulties were significantly more expressed in the group with colostomy than the other two groups, healthy group ($p=0.003$) and group without colostomy ($p=0.001$). The instrument QLQ-C30 showed significant difference in the level of symptoms of diarrhea ($p=0.003$) and constipation ($p=0.013$) between these three groups. Intra group

TABLE 1
FUNCTIONAL AND SYMPTOM SCALES (MEAN±SD) MEASURED WITH THE EUROPEAN ORGANIZATION FOR RESEARCH AND TREATMENT OF CANCER QLQ-C30 IN THE THREE GROUPS OF EXAMINEES*

Functional/symptom scales	Group of examinees			p**
	With colostomy	Without colostomy	Healthy group	
Global health	69.01 (21.81)	67.38 (22.98)	67.22 (25.79)	0.962
Physical functioning	69.37 (22.70)	70.09 (21.77)	81.33 (18.39)§	0.046
Role functioning	76.56 (22.34)	75.71 (21.13)	82.77 (23.35)	0.223
Emotional functioning	69.27 (21.10)	75.95 (30.30)†	75.00 (17.64)	0.093
Cognitive functioning	79.16 (16.39)¶	82.85 (22.31)	86.11 (23.60)	0.072
Social functioning	74.47 (25.03)£	83.33 (20.61)	88.88 (18.22)	0.061
Financial functioning	56.25 (27.35)‡	84.76 (21.90)	77.77 (28.13)	0.001
Pain	22.91 (17.32)	22.38 (23.89)	25.00 (22.63)	0.838
Dyspnoea	15.62 (16.90)	13.33 (21.69)	17.77 (20.96)	0.499
Fatigue	36.80 (16.31)	36.82 (22.02)	34.07 (21.62)	0.561
Insomnia	28.12 (24.11)	21.90 (24.17)	28.88 (29.98)	0.513
Appetite loss	15.62 (18.90)	15.23 (18.68)	12.22 (20.49)	0.583
Nausea and vomiting	10.93 (13.78)	7.14 (14.73)	7.22 (12.13)	0.227
Constipation	25.00 (25.40)¥	18.09 (27.22)	7.77 (14.33)	0.013
Diarrhea	23.95 (19.37)	23.80 (25.01)	8.88 (19.44)II	0.003

* Abbreviations: SD – standard deviation; ** Kruskal-Wallis test

† Significant difference from the group with colostoma ($p=0.048$) (Mann-Whitney U-test)

‡ Significant difference from the group with colostoma ($p=0.001$) and from the healthy group ($p=0.003$) (Mann-Whitney U-test)

§ Significant difference from the group with colostoma ($p=0.029$) and from the group without colostoma ($p=0.032$) (Mann-Whitney U-test)

II Significant difference from the group with colostoma ($p=0.001$) and from the group without colostoma ($p=0.004$) (Mann-Whitney U-test)

¶ Significant difference from the healthy group ($p=0.017$) (Mann-Whitney U-test)

£ Significant difference from the healthy group ($p=0.020$) (Mann-Whitney U-test)

¥ Significant difference from the healthy group ($p=0.003$) (Mann-Whitney U-test)

analysis showed that the group with colostomy had more expressed symptoms of diarrhea ($p=0.001$) and constipation ($p=0.003$) when compared with the healthy group. The group without colostomy in comparison to healthy group had more expressed symptoms of diarrhea ($p=0.004$). The group with colostomy showed poorer results in emotional functioning ($p=0.048$) when compared with the group without colostomy. The group with colostomy had also poorer results than healthy group in cognitive functioning ($p=0.017$) and in social functioning ($p=0.020$) (Table 1).

The group with colostomy also showed significantly poorer results for the domain »body image« than healthy group ($p=0.001$) and the group without colostomy ($p=0.022$). In sexual enjoyment lesser results were observed for the group with colostomy ($p=0.004$) and for the group without colostomy ($p=0.029$) when compared with the healthy group. In the group without colostomy there were more expressed micturition problems ($p=0.035$) than in the healthy group. The disease-specific tool QLQ-CR38 also showed frequent female sexual problems in the group without colostomy ($p=0.048$) when compared to the healthy group (Table 2).

Defecation problems were more expressed in the group without colostomy (12.81 ± 7.09) compared to healthy group (5.24 ± 6.89) ($p<0.001$).

Discussion

This is the first study of QoL of CRC patients in the region and the results showed that subjects from general

population have better results of QLQ tests than CRC patients and those patients with colostomy had worse results than patients without colostomy. That was expected and is consistent with other investigations^{16–19}. An explanation for the small difference in overall QoL and general health between CRC patients and general population may be that the patients been treated for malignancy expect a different concept of subjective well being compared to healthy individuals and as the result reports more optimistic assessment of QoL⁶. Further this can be result of small size of the groups in this study specially the general population group. This emphasizes the need for further investigation on CRC patients and general population such as those in Germany and Norway to exclude regional specificities^{20,21}.

Financial difficulties expressed in colostomy group are result of the medical insurance policy. Only a part of the stoma care products' costs was recognized by the insurance found at the time of the study. Unlike some other studies²² we have found that colostomy group showed worse result in emotional functioning, »body image« and sexual enjoyment than the group without colostomy. This emphasizes that stoma therapist and psychologist should be included in treatment of CRC patients²³. Gastrointestinal concerns a constant in our as in all similar studies²⁴. Healthy group had less expressed symptoms of diarrhea and constipation than the group with colostomy and less express symptoms of diarrhea than the group without colostomy. Further investigations should be performed in order to assess how will patients' education and including the patient in the process of decision making influence QoL and overall outcome.

TABLE 2
FUNCTIONAL AND SYMPTOM SCALES (MEAN \pm SD) MEASURED WITH THE EUROPEAN ORGANIZATION FOR RESEARCH AND TREATMENT OF CANCER QLQ-CR38 IN THE THREE GROUPS OF EXAMINEES*

Functional/symptom scales	Group of examinees			p**
	With colostomy	Without colostomy	Healthy group	
Body image	79.11 (20.61)†	91.57 (10.14)	100.00 (10.53)	0.001
Future perspective	74.67 (27.69)	77.01 (25.36)	72.41 (23.69)	0.671
Sexual functioning	28.67 (24.30)	27.01 (23.32)	29.88 (30.33)	0.962
Sexual enjoyment	38.46 (18.49)	44.44 (20.57)	64.44 (19.79)‡	0.005
Micturition problems	14.52 (15.30)	22.96 (15.97)	6.67 (10.95)§	0.072
Symptoms in the area of gastro-intestinal tract	19.44 (15.59)	19.31 (11.45)	15.11 (13.09)	0.282
Male sexual problems	33.33 (28.87)	18.51 (19.44)	10.42 (23.47)	0.176
Female sexual problems	19.44 (16.39)	30.00 (18.26)¶	7.14 (8.91)	0.069
Weight loss	6.67 (13.61)	4.59 (11.69)	4.44 (14.47)	0.611

* Abbreviations: SD – standard deviation; ** Kruskal-Wallis test

† Significant difference from the group without colostoma ($p=0.022$) and from the healthy group ($p=0.001$) (Mann-Whitney U-test)

‡ Significant difference from the group with colostoma ($p=0.004$) and from the group without colostoma ($p=0.029$) (Mann-Whitney U-test)

§ Significant difference from the group without colostoma ($p=0.035$) (Mann-Whitney U-test)

¶ Significant difference from the healthy group ($p=0.008$) (Mann-Whitney U-test)

¶ Significant difference from the healthy group ($p=0.048$) (Mann-Whitney U-test)

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KVALITETA ŽIVOTA BOLESNIKA OPERIRANIH RADI KOLOREKTALNOG KARCINOMA U KLINIČKOJ BOLNICI MOSTAR

SAŽETAK

Kvaliteta života (QoL) je postala važno mjerilo ishoda kod pacijenata s malignom bolesti, ali nema mnogo rezultata studija populacijskih studija. Cilj našeg istraživanja bio je utvrditi QoL bolesnika operiranih zbog kolorektalnog karcinoma (CRC), usporedba s QoL opće populacije, kao i usporedba QoL bolesnika sa stomom i bez stome. Ovo istraživanje provedeno je od siječnja 2004. do svibnja 2006. godine na odjelu abdominalne kirurgije Kliničke bolnice Mostar, Bosna i Hercegovina. Istraživanje se temelji na dva mjerenja QoL bolesnicima od CRC: mjerenje je izvedeno upitnicima za kvalitetu života Europske organizacije za istraživanje i liječenje karcinoma (EORTC) QLQ-C30 i QLQ-CR38. Ispitanici su bili podijeljeni u tri grupe: grupu bolesnika operiranih radi CRC koji imaju kolostomu kao posljedicu operativnog liječenja, grupu bolesnika operiranih radi CRC bez kolostome i treću grupu u kojoj su bili zdravi ljudi izabrani metodom slučajnog odabira. U ovo istraživanje je uključeno šezdeset sedam bolesnika i trideset zdravih ispitanika. Svi su bili ispitani s upitnikom QLQ-C30. Testiranje s upitnikom QLQ-CR 38 je izvedeno kasnije i trinaest bolesnika je isključeno radi raznih razloga. Zdrava grupa je pokazala značajno bolje rezultate u fizičkom funkcioniranju u odnosu na bolesnike i bolje rezultate u kognitivnom i socijalnom funkcioniranju od grupe s kolostomom. Financijske poteškoće su bile izraženije u grupi s kolostomom nego kod ostalih. Zdravi su imali manje problema s dijarejom i opstipacijom nego bolesnici s kolostomom i manje problema s dijarejom nego bolesnici bez kolostome. Bolesnici s kolostomom pokazali su lošije rezultate u emotivnom funkcioniranju od onih bez kolostome. Koristeći specifični test našli smo da grupa s kolostomom pokazuje značajno slabije rezultate za domenu »tjelesni izgled« od zdravih i grupe bez kolostome. Zdrava grupa je pokazala bolje rezultate u spolnom zadovoljstvu nego bolesnici. Bolesnici s kolostomom su imali više problema s mokrenjem i stolicom kao i ženskih spolnih problema nego zdrava grupa. Sumarno, rezultati ukazuju na to da zdrava populacija ima bolje rezultate nego pacijenti od CRC te da pacijenti sa stomom imaju lošije rezultate nego oni bez stome. Male razlike mogu biti posljedica smanjenog očekivanog QoL kod pacijenata s CRC. Loši rezultati pacijenata sa stomom u financijskom, emocionalnom i spolnom funkcioniranju ukazuju na potrebu uključivanja psihologa i stoma terapeuta u liječenje bolesnika s CRC.