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Quality of life in patients with colorectal cancer in the Slovak Republic: A pilot study

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ABSTRACT

The aim of the study was to determine the level of QoL (quality of life) satisfaction/dissatisfaction in patients with colorectal cancer in eight health concepts in the study and control group. In this cross-sectional study, the standardized questionnaire MOS of the 36-Item Short Form Health Survey (SF-36) was used. The study group consisted of patients who were diagnosed with colorectal cancer ($n = 18$, 83.3% males; mean age 62.3 ± 15.9 years). The control group consisted of patients who were diagnosed with other diseases but not cancerous ones ($n = 34$, 58.8% males; mean age 50.6 ± 8.2 years). In the study group the highest rate of patient QoL dissatisfaction (expressed as a mean score) was observed in the subcategory of role limitations due to physical health (6.9 ± 11.5), whereas in the control group one of the highest rate of patients QoL satisfaction was achieved in this category (69.1 ± 39.9 ; $P = 0.000$). A similar high significant result was observed in the subcategory of role limitations due to emotional problems: there was a very low score in the study group and a high score in the control group (7.4 ± 18.3 and 71.6 ± 37.7 , respectively; $P = 0.000$). The highest rate of patients QoL satisfaction in the study group and the control group was observed in the subcategory of pain (31.7 ± 15.6 and 77.6 ± 13.9 , respectively; $P = 0.000$). Our results are the argument for intervention aimed at understanding the QoL experienced by colorectal cancer patients. This is essential for evaluating the full impact of the illness on individuals, their families and their communities.

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Introduction

Colorectal cancer is the second leading cause of cancer-related mortality and the fourth most prevalent malignant disease in many developed countries. Colorectal cancer and its treatment can have an adverse effect on social

functioning, including employment, living a productive life; relationships with friends, relatives, and partners; and other social activities and interests [1]. Several studies dealing with colorectal cancer prevention and/or patient nursing care have been performed [2–4].

Colorectal cancer incidence and mortality do differ significantly between European countries, even between

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countries that are close to one another geographically. Southern Europe has the lowest incidence and mortality, while Central and Eastern Europe have the highest (Slovakia, Hungary, Czech Republic), probably due to differences in lifestyle, stage at which it is diagnosed, and treatment. Similarly, there are significant intersexual differences too: males have a higher incidence and mortality than females, relating to differences in screening participation, medical attention seeking behaviour, and lifestyle. These variations suggest that country policy and societal norms play a large role in colorectal cancer development and ultimately the cancer burden [5].

Despite the continuous stabilisation and decrease of this cancer in high-risk countries from the late 1970s, an unexpected and gradual rise of incidence rates of colorectal cancer was recorded in Slovakia. During the period studied, incidence rates rose by an annual mean percent change of 4.2 (males) and 2.8 (females) in colon cancer, and 2.2 (males) and 1.0 (females) in rectal cancer [6]. In 2014 in Slovakia, the colorectal cancer incidence was 2,347 in males and 1,616 in females [7]. Slovakia has the highest colorectal cancer incidence (in men) in the world, followed by Hungary and the Republic of Korea [8].

Quality of life (QoL) is a multidimensional, dynamic, subjective approach centred on the patient; it comprises physical, functional, emotional, and social/family well-being. Quality of life is a subjective, patient-rated concept. However, the lack of a “gold standard” instrument is reflected in the wide range of available instruments, generic or disease-specific [9].

Currently, there are several therapeutic modalities for cancer treatment, such as surgery (curative and palliative) and chemotherapy. An increasing number of researches assess the QoL of colorectal cancer patients going through different treatment types [10].

Cancer patients often experience distress. More than half of the patients are forced to leave work, while 35% show an increase in their liability for emotional stress and lack of energy due to various disorders. Even family members of the affected patients reduce their job activity, and this has a negative impact on the physical and emotional status of patients [11].

It is important to be able to measure the perception of the health of the population to assess the benefit of healthcare interventions and to target services. Different data collection instruments are used in the colorectal cancer studies – the measurement of health related quality of life (HR-QOL) questionnaire, the gastrointestinal quality of life index (GIQLI), the functional assessment of cancer therapy-colorectal (FACT-C), the inflammatory bowel disease questionnaire (IBDQ), and/or the 36-item short-form (SF-36) questionnaire.

A 36-item short-form (SF-36) questionnaire was constructed to survey health status in the Medical Outcomes Study (MOS). The SF-36 includes one multi-item scale that assesses eight health concepts: (i) limitations in physical activities because of health problems; (ii) limitations in usual activities because of physical health problems; (iii) limitations in social activities because of physical or emotional problems; (iv) general mental health (psychological distress and well-being); (v) bodily pain;

(vi) limitations in usual activities because of emotional problems; (vii) vitality (energy and fatigue); and (viii) general health perceptions [12].

The aim of the study was to determine the level of QoL (quality of life) satisfaction/dissatisfaction in patients with colorectal cancer in the eight health concepts mentioned above in the study and control group.

Materials and methods

In this cross-sectional study, the standardized questionnaire MOS of the 36-Item Short Form Health Survey (SF-36) was used [12]. The questionnaire itself was preceded by several questions regarding basic demographic data. The standardized questionnaire SF-36 consists of 36 statements focusing on QoL. The statements are divided into the following subcategories: physical functioning (10 questions), role limitations due to physical health (4 questions), role limitations due to emotional problems (3 questions), energy/fatigue (4 questions), emotional well-being (5 questions), social functioning (2 questions), pain (2 questions), general health (5 questions), health change (1 question) and overall satisfaction (all of the 36 questions).

The numeric values in the questionnaire are recoded as per the scoring key of the RAND Health Policy Institute [13]. The mean score in each subcategory is transformed into a percentage-like expression on a 0–100 scale, with a higher score being better. This means that a strong agreement with the statement represents the lowest level of QoL satisfaction. Answers to some questions where strong agreement means the maximum satisfaction with the QoL had to be rescaled to obtain a unified QoL score: 0 = maximum dissatisfaction with the QoL, 100 = maximum satisfaction with the QoL. Particular groups of answers reflecting the degree of QoL satisfaction were evaluated as mean scores for each subcategory. Level of satisfaction (in percentages) is identical to the mean score in each subcategory. The highest average value means the highest level of QoL satisfaction.

The study sample was made up of patients (during illness) attending gastroenterological surgery in the capital of Slovakia. Questionnaires were collected from July 2015 to July 2016. The selection criteria for patients' inclusion in the study were: being after the first symptoms detection and positive family anamnesis, the length of the illness being more than one month, and voluntary participation in the study. The location of the colorectal cancer, the stage of the illness and therapeutic procedures were not considered. Incomplete questionnaires were rejected. In total, 52 completed questionnaires were collected. All participants signed an informed consent before participating in the study. This study was approved by the University Hospital Ethics Committee of the Faculty of Medicine of the Comenius University in Bratislava (in accordance with the Helsinki Declaration and guidelines).

The study group consisted of patients who were diagnosed with colorectal cancer ($n = 18$, 83.3% males; mean age 62.3 ± 15.9 years). The control group consisted

of patients who were diagnosed with other gastrointestinal but not cancerous diseases (ulcer diseases, celiac diseases, ulcerative colitis, Crohn's diseases, liver diseases and diseases of the gallbladder; $n = 34$, 58.8% males; mean age 50.6 ± 8.2 years).

The data were analyzed by the statistical program SPSS. Descriptive statistics (percentages, averages, standard deviations) were used. A two-sample t -test was used to compare the mean scores of QoL satisfaction in the study and control groups. The statistically significant level was determined at P values < 0.05 .

Results

The mean scores of QoL satisfaction in all subcategories are presented in Table 1.

In the study group, the highest rate of patient QoL dissatisfaction (expressed as a mean score) was observed

in the subcategory of role limitations due to physical health (6.9 ± 11.5), whereas this subcategory achieved one of the highest rate of patient QoL satisfaction in the control group (69.1 ± 39.9 ; $P = 0.000$). A similar high significant result was observed in the subcategory of role limitations due to emotional problems: there was a very low score in the study group and a high score in the control group (7.4 ± 18.3 and 71.6 ± 37.7 , respectively; $P = 0.000$).

The highest rate of patient QoL satisfaction in the study group and the control group was observed in the subcategory of pain (31.7 ± 15.6 and 77.6 ± 13.9 , respectively; $P = 0.000$).

We observed a high rate of percentage difference of satisfaction level (PDSL) in all subcategories, as well as in overall satisfaction in terms of significantly lower QoL satisfaction in colorectal cancer patients. The highest PDSL was in the subcategory of role limitations due to emotional problems (64.2%), and the lowest in the subcategory of energy/fatigue (36.5%).

Table 1 – Mean scores of QoL satisfaction in all subcategories in the study group ($n = 18$) and control ($n = 34$) group

Subcategories	Number of questions	Groups	Mean score (SD) ^a	PDSL (%) ^b	p
Physical functioning	10	Study Control	22.5 (10.2) 71.3 (20.4)	48.8	0.000
Role limitations due to physical health	4	Study Control	6.9 (11.5) 69.1 (39.9)	62.2	0.000
Role limitations due to emotional problems	3	Study Control	7.4 (18.3) 71.6 (37.7)	64.2	0.000
Energy/fatigue	4	Study Control	28.6 (10.4) 65.1 (15.4)	36.5	0.000
Emotional well-being	5	Study Control	30.7 (15.6) 67.8 (17.3)	37.1	0.000
Social functioning	2	Study Control	20.8 (12.9) 61.0 (11.8)	40.2	0.000
Pain	2	Study Control	31.7 (15.6) 77.6 (13.9)	45.9	0.000
General health	5	Study Control	13.6 (11.5) 57.6 (19.0)	44.0	0.000
Health change	1	Study Control	16.7 (32.1) 68.4 (25.6)	51.7	0.000
Overall satisfaction	36	Study Control	19.9 (10.3) 67.7 (16.7)	47.8	0.000

^a Maximum possible score in each subcategory is 100; the mean score is identical to the level of satisfaction (%). The higher the mean score, the higher the QoL satisfaction.

^b Percentage difference of satisfaction level (PDSL) between the study group and control group.

Discussion

According to the experience of several authors, the SF-36 questionnaire is shown to be a suitable and valuable tool for the monitoring of patients' overall health status after colorectal cancer diagnosis and therapy. It is easy to use, acceptable to patients, and fulfils the criteria of reliability and validity. Its application can give physicians information about patients' physical and/or psychological

status and call attention to a more intensive intervention if necessary [14, 15].

Epidemiological evidences support the role of physical activity as an important factor in cancer prevention, as well as in improving QoL and non-cancer health outcomes in colorectal cancer patient survivors [16]. Howard et al. [17] found an 18% reduction in the colon cancer risk among people aged 50–71 years who exercised at least five times per week compared to people of the same age who never or rarely exercised. In contrast, sedentary behaviour

was positively associated with colon cancer. Convincing evidence exists for the preventive effect of physical activity for colon cancer; meta-analyses of over 60 studies suggest a reduction of 20–25% in colon cancer risk in people with the highest level of physical activity [18]. Meyerhardt et al. [19] confirmed the positive role that physical activity can play even after colorectal cancer diagnosis and treatment. From this point of view, the very low QoL satisfaction in the subcategory of physical functioning and role limitations due to physical health is a particularly unfavourable finding. Due to these limitations, colorectal cancer patients often avoid any physical activity, which could have an adverse effect on their health and survival.

Patients, who are physically active, married or in long-term relationships, tend to report lower levels of anxiety and psychosocial distress. Discussing these symptoms with doctors early in care also increases the likelihood that patients will report anxiety and depression if they occur later in treatment [18]. Our study showed a very high level of dissatisfaction in the subcategory of role limitations due to emotional problems (7.4 ± 18.3). In their study of 95 Greek colorectal cancer patients aged 67.9 ± 10.2 years, Theodoropoulos et al. [15] found the lowest level of satisfaction in this subcategory to be 3 and 6 months after the treatment starting. They recommend that follow-up after diagnosis and treatment should be continued for at least 1 year with the presence of a trained skilled psychologist or even psychiatrist.

Fatigue and disturbed sleep are common problems in cancer patients and survivors. Fatigue is reported by as many as 40% of cancer patients at the time of diagnosis, by up to 90% of those treated with radiation, and by up to 80% of those treated with chemotherapy; and as well as this fatigue continues for months [20]. Fatigue was not a major QoL problem in our group of cancer patients. The mean score in the subcategory of energy/fatigue was one of the highest, and the percentage difference of satisfaction level between the study group and control group was the lowest (36.5%). Fatigue is probably a common problem in older patients, regardless of the diagnosis, although in cancer patients it is even more severe.

The symptoms of colorectal cancer can have an adverse effect on social functioning, relationships and can cause several job restraints. Patients are troubled by irregular or frequent bowel movements, flatulence, diarrhoea and fatigue. The most common symptom of colorectal cancer is also vague abdominal pain. This pain is nonspecific. Otherwise, it can just be constant localized or generalized [21] and can dramatically change the lifestyle and QoL of many patients. Domati et al. [11] studied the QoL of 220 colorectal cancer patients aged 66.5 years who survived 5 years after diagnosis and compared these patients' QoL with the healthy general population sample using a SF-36 questionnaire. The highest differences were found in men in the subcategory of bodily pain (25%), while in women it was only 10%. They concluded that the large majority of surviving cancer patients could tolerate this painful event, even without changing their habits or lifestyle, thanks to the medical management of pain.

A possible limitation of this pilot study is the sample size and its representativeness, which could pose problems in terms of generalizing the results.

Conclusion

In conclusion, patient QoL satisfaction is a complex issue with various influencing factors.

The highest level of QoL dissatisfaction was observed in role limitations due to physical health, while the highest level of satisfaction was found in the subcategory of pain. The highest PDSL between the study group and control group was found in role limitations due to emotional problems. The overall satisfaction level was significantly lower in the colorectal cancer patient group.

Our results are the argument for an intervention aimed at understanding the QoL experienced by colorectal cancer patients. It is essential for evaluating the full impact of the illness on individuals, their families and their communities. Patient perspective is essential in establishing a proper understanding of the quality of life of colorectal cancer patients. Well-designed oncological studies are of importance for a profound understanding of the impact on treatment outcome in terms of QoL. It can be expected to contribute to an individualization of oncological treatment and thereby an improvement of oncological care.

Based on the results of the pilot study, an individual approach to patient care and psychosocial support is recommended.

Conflict of interests

The authors have no conflict of interests to declare.

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