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Original Article

Quality of life in patients with colorectal cancer in Iran

Mohsen Akhondi-Meybodi [a,*], Sara Akhondi-Meybodi [b], Mahmood Vakili [c], Zahra Javaheri [d]

[a] Gastroenterology and Hepatology Department, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[b] Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[c] Social Medicine Department, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[d] Islamic Azad University, Yazd Branch, Yazd, Iran

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ABSTRACT

Background and study aims: Colorectal cancer is a major health problem primarily affecting the quality of life (QoL) of both patient and family. With the advances in surgery and novel chemotherapeutic drugs and modalities, survival has increased and the QoL has improved. The aim of this study was to assess QoL in patients with colorectal cancer taking the situation in the Iranian city Yazd from 2006 to 2011 as an example.

Patients and methods: This study was conducted on 120 patients who were diagnosed with colorectal cancer within the 5-year period of the study. Different aspects of the patients' lives were assessed using the EORTC Quality of Life Questionnaire (QLQ)-C30 questionnaire, and the results were reported in average aligned score compared with the maximum score of 100.

Result: The mean age of the patients was 60.31 ± 15.71 years (range 14–88 years). Sixty-three patients were male and 57 female. Further, 85 patients (70.8%) suffered from colon cancer and 34 (28.3%) had rectal cancer. All patients had undergone partial or total colectomies as treatment followed by chemotherapy. The average QoL score was 77.37 ± 8.7 in women and 76.64 ± 8.7 in men. No significant relationship was found between the average QoL score and gender. The average QoL score was 77.28 ± 8.86 for colon cancer and 76.5 ± 8.47 for rectal cancer, which was not statistically significant. The maximum average QoL score was 77.89 ± 8.79 for stage 2 of the disease and the minimum score for stage 3 (75.81 ± 7.66), indicating no significant relationship between the average QoL score and stage of cancer ($p = 0.89$).

Conclusion: The results of the present study revealed that despite clinical efforts in the city of Yazd, the QoL of patients with colorectal cancer is still very poor in physical, social, clinical, and financial aspects.

Introduction

Adenocarcinoma accounts for 98% of colon malignancies with a peak incidence of 60–79 years, whereas <10% of the cases have been observed before the age of 50. The rate of incidence differs from country to country [1–4] (Table 1). Annually, one million new cases of this disease are reported around the world [5]. In recent decades, the survival rate of patients has increased due to early diagnosis and treatment [2]. Despite improved survival, Quality of life (QoL) is an important factor in the analysis of clinical outcomes [6]. QoL consists of different dimensions including physical and mental aspects, and social function of the patients. Therefore, assessment of the QoL of cancer patients can provide further insight into the effect of cancer and its treatment on patients' lives [7–9].

Despite various studies on treatment complications and length of survival of cancer patients, few have investigated patients' QoL [10–14]. Regarding this issue and the significance of patients' QoL after recovery, this study was conducted to assess the QoL in patients with colorectal cancer in the city of Yazd.

Patients and methods

This descriptive analytic study was conducted to assess the QoL in patients with colorectal cancer in the city of Yazd, Iran, over a 5-year period, 2006–2011. A retrospective cross-sectional study was conducted in 2011. The subjects included 180 patients referred to the Shahid Sadoughi Hospital during the 5 years of the study, in whom diagnosis was confirmed pathologically. Based on patients' addresses and phone numbers from their hospital records, a suitable place to the comfort of the patient was appointed in order to complete the questionnaire. Of the total of

* Corresponding author.

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Table 1
Age-standardised incidence rate (ASR) of the most common cancers amongst men and women in Yazd Province from 2005 to 2009 (ASR incidence per 100,000 individuals).

Cancer type	2005	2006	2007	2008	2009
Women					
Breast	16.4	21.0	16.7	15.6	23.6
Skin	16.3	11.2	14.4	12.9	11.7
Colorectal	5.2	5.1	7.5	10.4	6.0
Leukaemia	3.9	4.6	3.8	5.1	5.2
Stomach	3.3	4.8	4.2	4.6	4.3
Men					
Skin	17.4	14.3	12.3	20.7	19.5
Bladder	10.0	10.2	12.6	9.8	15.9
Colorectal	6.1	6.9	7.9	9.6	9.9
Stomach	7.2	8.2	7.5	9.4	8.5
Prostate	5.7	5.9	6.3	10.4	12.4

180 patients, 120 completed the questionnaire. Data were collected using the valid and reliable EORTC Quality of Life Questionnaire (QLQ)-C30 questionnaire, which is used globally to assess the QoL in all types of cancers [15–19]. This questionnaire consists of items such as age, gender, address and telephone number of the place of residence, type of cancer, stage of the disease, and type of treatment used, and the final and main part of the questionnaire was completed by interview.

The average aligned score of different aspects of QoL were compared with the maximum aligned score of 100, where the higher score indicated better status (score = 0–25: very poor QoL; 25–49: poor QoL; 50: average QoL; 51–75: average to good QoL; and 75–100: very good QoL).

Data analysis was performed by SPSS using descriptive statistics, analysis of variance (ANOVA), and chi-squared tests.

Results

This study was performed on 120 colorectal cancer patients who completed the questionnaire with a mean age of 60.31 ± 15.71 years ranging from 14 to 88 years. Of these patients, 63 were male (52.5%) and 57 were female (47.5%). Further, 85 patients (70.8%) suffered from colon cancer and 34 (28.3%) had rectal cancer. All patients had undergone partial or total colectomies as treatment followed by chemotherapy. Eleven patients (9.2%) died during the study period (Table 2).

The average QoL score was 77.37 ± 8.7 in women and 76.64 ± 8.7 in men, but no significant relationship was noted between average QoL score and gender ($p = 0.662$). The average QoL score was 77.28 ± 8.86 for colon cancer and 76.5 ± 8.47 for rectal cancer, which was not statistically significant ($p = 0.67$). According to Table 3, the maximum average QoL score was obtained for stage 2 of the disease (77.89 ± 8.79) and the minimum score for stage 3 (75.81 ± 7.66), indicating no considerable relationship between the average QoL score and stage of cancer ($p = 0.89$).

Table 2
General characteristics of patients.

120 patients	Colon rectal
Mean age	60.31 ± 10
Number of patients	
Colon	85
Rectum	34
Gender	
Male	64
Female	57

Table 3
Average score of QoL in terms of different criteria in the study subjects.

		Average score	Standard deviation	*p*-value
Gender	Men	76.64	8.7	0.662
	Women	77.37	8.7	
Type of cancer	Colon	77.28	8.86	0.67
	Rectal	76.50	8.47	
Stage of cancer	1	77.50	3.53	0.89
	2	77.89	8.79	
	3	75.81	7.66	
	4	76.60	16.04	
Age range	14–59	73.34	6.41	<0.001
	60–88	80.33	9.20	

Table 4
Patients death status in terms of different variables in the study subjects.

		Death status	*p*-value
Gender	Men	7 (11.1%)	0.43
	Women	4 (7.0%)	
Type of cancer	Colon	9 (10.6%)	0.727
	Rectal	2 (5.9%)	
Stage of cancer	1		0.31
	2		
	3	5 (23.8%)	
	4	0	
Total		11	

The average QoL score was 73.34 ± 6.41 at 14–59 years and 80.33 ± 9.20 at 60–88 years. A significant association was found between the average QoL score and age range: the lower the age range, the lower the average QoL score. The most deaths occurred during the third stage of disease (23.8%), but none in the first and fourth stages; therefore, no significant relationship was noted between death and stage of cancer ($p = 0.31$; Tables 3 and 4).

Nine deaths (10.6%) occurred due to colon adenocarcinoma and two (5.9%) due to rectal adenocarcinoma. Therefore, regarding the *p*-value, death was not associated with the type of cancer. Seven deaths were reported amongst men (11.1%) and four amongst women (7%), showing no significant relationship between death and gender ($p = 0.43$; Tables 4 and 5).

Multivariable linear regression analysis was simultaneously performed. Only age was significant; other parametres such as sex, site (colon vs. rectum), and stage of disease were nonsignificant (Table 6).

Discussion

This study was conducted on 120 patients who were diagnosed with colorectal cancer within the 5-year period of the study. Different aspects of the patients' lives were assessed using the EORTC QLQ-C30 questionnaire, and the results were reported as the average aligned score compared with the maximum score of 100. The mean age of the patients was 60.31 ± 15.71 years ranging from 14 to 88 years. Sixty-three patients were male and 57 were female.

The results of this study showed that the following aspects were most negatively affected by cancer: patients' financial status (score = 5.3 ± 11.0), social function (32.5 ± 15.4), pain (32.4 ± 19.8), and physical function (40 ± 19.7). A significant relationship was found between these aspects and the age of the patient ($p < 0.001$; Table 5).

In 2011, a study on the QoL of colorectal cancer patients in London was conducted. It aimed to assess the QoL in 495 patients

Table 5
Quality of life aspects and age, gender, and stage of tumour.

QoL aspects	Variables			
	Age *p*- value	Gender *p*- value	Stage *p*-value	Type of cancer *p*-value
Overall health status	<0.001	0.89	0.40	0.99
Physical function	<0.001	0.99	0.46	0.55
Role-playing function	<0.001	0.41	0.09	0.34
Emotional function	0.1	0.06	0.82	0.01
Cognitive function	<0.001	0.66	0.29	0.93
Social function	<0.001	0.18	0.50	0.08
Fatigue	<0.001	0.85	0.20	0.16
Nausea and vomiting	0.51	0.21	0.61	0.29
Pain (in any part of body)	<0.001	0.63	0.35	0.46
Shortness of breath	<0.001	0.29	0.28	0.22
Lack of sleep	0.06	0.29	0.44	0.54
Lack of appetite	0.91	0.89	0.52	0.61
Constipation	0.96	0.47	0.80	0.03
Diarrhoea	0.01	0.06	0.74	0.41
Financial difficulties	0.11	0.12	0.85	0.87

Table 6
Multivariable linear regression analysis.

Coefficients[a]							
Model	Unstandardised coefficients		Standardised coefficients	*t*	Sig.	95.0% confidence interval for *B*	
	B	Std. error	Beta			Lower bound	Upper bound
(Constant)	62.445	8.903		7.014	0.000	44.604	80.287
Age	0.246	0.083	0.388	2.968	0.004	0.080	0.411
Sex	1.667	2.233	0.093	0.746	0.459	−2.809	6.142
Tumour site[#]	−3.225	2.768	−0.145	−1.165	0.249	−8.771	2.322
Stage	0.522	1.686	0.040	0.310	0.758	−2.856	3.900

[a] Dependent variable: number = QOL scores.
[#] Site rectum versus colon.

who had been diagnosed with the disease within the last 5 years using EORTC OLO-C30. It was concluded that a high proportion of the patients had very QoL, which confirmed the results of our study [18,20].

Another study was conducted by the Cancer Treatment Centers of America (CTCA) from 2001 to 2008 to improve the QoL of patients with colorectal cancer. Using the EORTC QLQ-C30 questionnaire, the results showed that whilst the average score of physical health was 87–100 for the general population, the score was about 77 for the studied patients. Moreover, the average score of mental health was 67–100 for the general population and about 71 for the studied patients. The poor QoL in these patients is consistent with the results of the present study [21]. The difference in the average scores between this study and ours can be attributed to the different questionnaire analyses or the difference in the year of publication [19,22].

According to the results of our study, patients who had undergone surgeries and chemotherapy showed deficiencies in mental and social activities; clinical signs such as fatigue, shortness of breath, lack of sleep, constipation, and diarrhoea; and financial difficulties. Except for constipation, all of these problems worsened with age ($p < 0.001$) (Table 5).

In 2004, Arndt et al. investigated the limitations in the QoL of colorectal cancer survivors 1 year after diagnosis in comparison with the general population. They revealed that some deficiencies in mental and social activities and some specific limitations such as fatigue, shortness of breath, and lack of sleep were the main factors limiting their QoL, which were even more severe in younger patients. These results were in agreement with ours [21,23].

In 2004, Dawn et al. studied the effect of social support on the improvement of QoL in 636 patients diagnosed with colorectal adenocarcinoma from 1997 to 2001. They assessed two indexes termed as mental health status (MHS) and physical health status (PHS) at a score range of 0–100, 0 being the worst and 100 the best status using the SNJ (Raw Scale Score) questionnaire. The results showed a score of 52.6 ± 11 for MHS and 37.3 ± 11.4 for PHS. In general, these indexes were found to be poor. Patients with stronger social support had a higher score of MHS and PHS ($p < 0.01$). The results of this study were consistent with our findings [22,24].

However, Mohler et al., in 2009, assessed the QoL of survivors of colorectal cancer after surgery. They compared the patients who had stoma after surgery with the control group who did not have a stoma using the modified City of Hope Quality of Life (mCOH-QOL) and SF-36V2 questionnaires. The results of this study showed that patients undergoing surgery with a stoma had better QoL than those who did not have a stoma. This may be because patients with a stoma had received more care from the hospital staff. A thorough follow-up and a team for preoperative and postoperative patient care ensured patient satisfaction and a QoL superior to that reported presently. Most of their patients were satisfied with the care provided by the hospital staff after surgery, which may have led to an improved QoL [23,25]. The results of the present study revealed that despite clinical efforts in the city of Yazd, the QoL of colorectal cancer patients is still very poor in physical, social, clinical, and financial aspects.

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