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Investigation of Effective Factors on the Quality of Life of Patients Suffering from Ulcerative Colitis in Remission

Ali Akbar Hajaghamohammadi,[1] Bahareh Keshavarzi,[2] and Ali Zargar[1,*]

[1]Department of Internal Medicine,Velayat Clinical Research Development Unit,Velayat Hospital, Qazvin University of Medical Sciences, Qazvin, Iran
[2]Velayat Clinical Research Development Unit, Velayat Hospital, Qazvin University of Medical Sciences, Qazvin, Iran

[*]*Corresponding author*: Ali Zargar, Department of Internal Medicine,Velayat Clinical Research Development Unit,Velayat Hospital, Qazvin University of Medical Sciences, Qazvin, Iran. Tel: +98-2833760620, E-mail: alizargar78@yahoo.com

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Abstract

Background: Ulcerative colitis (UC) is a chronic inflammatory disease with a variable and unpredictable course. This disease has noticeable consequences and by causing limitations in the life style of patients affects their quality of life.
Objectives: In this study, we evaluated the quality of life (QOL) of these patients in the remission period of this disease.
Methods: Health-related quality of life (HRQOL) in 96 patients suffering from UC in clinical remission phase were evaluated by the use of two questionnaires of IBDQ and SF-36 which evaluate the domains of QOL and physical-psychological health, respectively. Results were analyzed by independent sample t-test and regression analysis using of SPSS version 22.
Results: Mean total scores from SF-36 and IBDQ tests were 79.5 $\pm$ 17.7 and 48.8 $\pm$ 9.5, respectively. Based on the results of IBD-Q test, the least score was given to the systemic symptoms (11.01 $\pm$ 3.17) and the most was related to the emotional function (30.06 $\pm$ 8.03). In the domain of physical-psychological health, physical health (15.06 $\pm$ 25.7) compared to the psychological health (33.5 $\pm$ 7.8) had a higher score. In addition, the mean total score from the IBD-Q test (P = 0.017), intestinal symptoms (P = 0.015) and emotional function (P = 0.007) were statistically more significant in males compared to the females.
Conclusions: In patients suffering from UC in the remission phase males had a better HRQOL compared to females. Also remission period and absence of EIM have a positive effect on the QOL of these patients.

Keywords: Ulcerative Colitis, Health Related Quality of Life, IBDQ, SF-36

1. Background

Ulcerative colitis (UC) is a chronic inflammatory bowel disease with a variable and unpredictable course of immunological response and morphologic alterations in colon (1, 2). This inflammation is confined to its mucosa and depending on its severity can manifest from edema to ulcer and bleeding in a part or in whole colon (3). Major symptoms of this disease are as diarrhea, abdominal pain, lower gastrointestinal bleeding (LGIB), weight loss and fatigue which may result in noticeable social and psychological consequences limiting the life style of these patients thereby affecting their quality of life (QOL) (4). According to the epidemiological studies, the prevalence of this disease is increasing in the recent years and it usually affects the younger individuals with its peak from 20 to 40 years of age. Its prevalence ranges from 4.9 - 505, 4.9 - 168.3, and 37.5 - 248.6 per 100,000 persons for UC in Europe, Asia and Middle East, and North America, respectively. The incidence and prevalence rates of UC have increased in the last 4 - 5 decades (5).

Etiological factors of this disease are not yet well understood, but in appropriate genetic background immunologic and environmental factors play important roles in its pathogenesis (6). Effective therapeutic modalities for patients suffering from UC is not well clarified and each patient's therapeutic response is variable (7). Previous studies have shown that the health-related quality of life (HRQOL) in patients suffering from UC is lower compared to the healthy individuals (8, 9). Many studies have shown that the medical treatment (corticosteroids and immunosuppressive-drugs) (8), extra-intestinal manifestations (10) and employment status (11) are among the factors which reduce the HRQOL of patients suffering from UC (12, 13). In addition, there are contradictory data in regard to the effect of therapeutic regimens of UC on HRQOL. Some reports denote the negative effect of therapies based on immunosuppressive-drugs on HRQOL (1, 14), while other studies have failed to prove this relation (15).

Nowadays, the first priority is to understand how UC and its related domains can affect the well-being and to what extent. Most of studies have evaluated the HRQOL in patients with active UC. Therefore, evaluating the QOL of patients suffering from UC is not only to improve the symptoms in different stages of disease, but it is also important in planning and guiding the medical or surgical treatment in order to improve the QOL.

2. Objectives

In this study, we are attempting to evaluate the QOL of patients in the clinical remission by assessing their data in respect to the severity of disease, its durations and received treatments.

3. Methods

This descriptive analytic study is performed with the aim to determine the effective factors on QOL of patients suffering from UC in clinical remission phase based on the demographic characteristics. 96 patients suffering from UC whose diagnosis was confirmed by adult gastroenterologists based on the clinical, colonoscopy, pathologic and imaging (if needed) were participated in this study from April 2007 to March 2015 at Rahimian Charity hospital in Qazvin (Iran). Patients were monitored by being in clinical remission for the past 6 months. Exclusion criteria were such as suffering from another disease affecting their QOL, drug abuse and psychiatric disease. A filled informed consent form were obtained from the patients by fully advising them about the details and the goals of the study. Patients were asked to fill in two questionnaires.

3.1. Evaluation of Effect of Disease on HRQOL

In order to evaluate the effect of disease on HRQOL, two standard questionnaires of IBDQ and SF-36 were used which evaluate the domains of QOL and physical-psychological health, respectively. IBDQ questionnaire which evaluates the patients QOL is composed of 32 questions which are categorized in four groups; intestinal symptoms (10 questions), systemic symptoms (5 questions); emotional (12 questions) and social function (5 questions). For each question, seven answers were considered as of score 1 denoting for the worst and score 7 for the best status. Total score for each individual is varied from 32 to 224 and the higher the score was the better was his or her status. Validity and reliability of IBDQ questionnaire in Persian language was evaluated by Maleki et al. in 2015 in Iran, showing a good validity and reliability to evaluate the QOL patients suffering from UC (16).

SF-36 questionnaire is mainly evaluating the domain of physical-psychological health by vitality, physical functioning, body pain, general health perceptions, physical, emotional and social role functioning and mental health. In addition, SF-36 also summarizes two general measures, physical component summary scores (PCS) and mental component summary scores (MCS) which evaluates the psycho-social health. Score range in each of these domains varies from 0 to 100 and the higher score denotes a better QOL. Validity and reliability of this questionnaire in Iranian population has been confirmed (17). Questionnaires are completed bya trained personnel and also the technical section is filled in by a gastroenterologist.

After data collection, descriptive and analytical statistical tests including two independent samples t-test and regression analysis were performed using SPSS software of 22 versions. Descriptive statistics data are reported as per percentage, mean and standard deviation. Normality of data was checked by the Kolmogorov–Smirnov test (K-S test) and also using Q-Q normal plot for exact evaluation, confirming normality test. Statistical significant was considered as $P < 0.05$.

4. Results

In this study, data from 96 patients suffering from UC were investigated. 82 cases (85.2%) were in the phase of clinical remission (i.e. based on the absence of diarrhea and visible blood in stool, without any systemic sign or symptom and bowel movement of 1-3 times a day). 44 (45.8%) patients were male and 52 (54.2%) were female. Their mean age was 37.9 $\pm$ 12.44 ranging from 14 to 70 years and the mean of 32.9 $\pm$ 12.8 months was elapsed from their diagnosis. Most patients with the prevalence of 92 cases (95.8%) were city dwellers. Most patients, 80 cases (87.9%) had never smoked cigarettes. The largest complains of patients from extra-intestinal manifestations (EIM) were rheumatologic with the prevalence of 30 (35.8%) cases and 44 (52.4%) patients were devoid of any EIM. The largest bowel movements were from 1 to 3 times (85.2%) a day and with the prevalence of 20 (20.5%) nocturnal bowel movements. Other demographic data of patients are summarized in Table 1.

Total and individual scores relating to the IBDQ and SF-36 are shown in Table 2. Mean of total score from the IBDQ test was 79.5 $\pm$ 17.7. In the domain of QOL results, of IBD-Q test showed that the least score was given to the systemic symptoms (11.01 $\pm$ 3.17) while the most was related to the emotional function (30.06 $\pm$ 8.03). Mean total score from SF-36 score was 48.8 $\pm$ 9.5. In the domain of physical-psychological health, physical health (15.06 $\pm$ 25.7) as compared to the psychological health (33.5 $\pm$ 7.83) had a higher score.

In comparing the mean score of domains of QOL and physical-psychological health of patients suffering from UC by gender, results from the two independent samples t-test showed that mean total score obtained from the IBD-Q test ($P = 0.017$), also mean scores of intestinal symptoms ($P = 0.015$) and emotional function ($P = 0.007$) were statistically and highly significant in males compared to the fe-

Table 1. Description of Demographic Attributes of Patients Suffering from UC (n = 96)

Variable	No. (%)
Marital status	
Married	79 (83.2)
Single	16 (16.8)
Occupation	
Government job	13 (13.7)
Private job	14 (14.7)
House wife	38 (40)
Retired	15 (15.8)
Self-employed/Laborer	15 (15.8)
Educational level	
Under diploma	32 (35.6)
Diploma and upper	32 (35.6)
University and upper	26 (28.9)
Relapse with drug usage	
Yes	37 (48.1)
No	40 (51.9)
Relapse without drug	
Yes	16 (51.6)
No	15 (48.4)
Extra-intestinal manifestations (EIM)	
Yes	52 (54.2)
No	44 (45.8)
Disease extent	
Distal colitis	48 (50)
Left side colitis	30 (31.2)
Pan colitis	18 (18.8)
Type of treatment	
ASA	69 (77.5)
Corton	4 (4.5)
AZA	13 (14.6)
Renitec	3 (3.4)

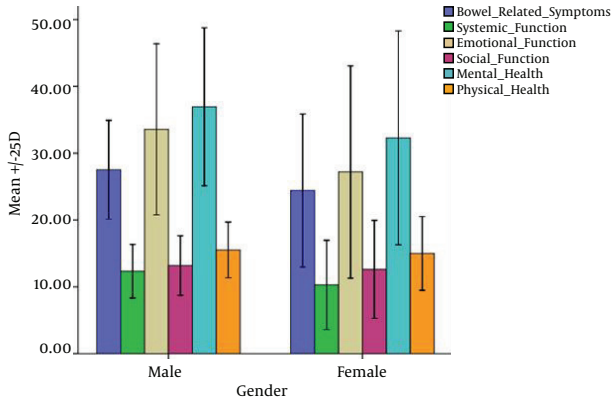

Figure 1. Plot of Mean ± 2SD of Each Domain Vs. Gender

males. Comparing the mean of total score obtained from the SF-36 test and its domains did not show a significant difference in the domain of physical-psychological health between female and male (P > 0.05). These results are shown in Table 3 and Figure 1.

In evaluating the effect of variables on QOL and physical- psychological health of patients suffering from UC, results of regression analysis showed that the factors of gender (male) (P = 0.025) and the remission duration (P = 0.042) and absence of EIM (extra-intestinal manifestation) (P = 0.04) were effective on QOL and in the SF-36 scale, the gender (male) (P = 0.019) was the only significant variable. These results are shown in Table 4.

In order to better evaluate the results of IBDQ test, in Table 5 scores obtained from this test was compared with the other studies (3, 18, 19). Results from this population study show that the HRQL in general is noticeably lower compared to that of the other studies.

5. Discussion

Data from this study show that the HRQL is better in males compared to the females suffering from UC, in clinical remission phase. In addition, intestinal symptoms and emotional functions are better in males compared to the females. Evaluation of relation between gender and QOL by kamrowska et al., (2010) showed that the females had a lower HRQOL compared to males, which is consistent with our data. In contradistinction, another study showed similar relation in males (20). In contrast, there were other studies in which no relation was found between the gender and QOL (19, 21). Our results show that males had a better emotional function than females; Therefore it seems that females had a more emotional affection from this disease because it not only affects their health but also affects their attractiveness, social and sexual relation. Furthermore, studies have shown that the relapse of the disease often affects females more seriously compared to males (1).

Regarding the scores of IBDQ questionnaire of QOL, in our results the least score was in domain of systemic symptoms and the most was in the domain of emotional function, evaluation of other studies showed a similar pattern (3, 18, 19). But total sum of score obtained from our population study show a lower QOL compared to other stud-

Table 2. Description Statistic of the Domains of QOL and Physical and Psychological Health of Patients

Scale	Min	Max	Mean	SD
Total IBDQ score	40	100	79.5	17.7
Bowel symptoms	14	36	25.03	5.6
Systemic symptoms	2	16	11.01	3.17
Emotional functioning	13	44	30.06	8.03
Social functioning	4	16	12.5	3.3
Total SF-36 score	28	65	48.8	9.5
Psychological health	18	47	33.5	7.8
Physical health	7	19	15.06	25.7

Table 3. Comparison Between the Mean of Domains in Different Gender Using T-Test

Scale	Female		Male		P Value[a]
	Mean	SD	Mean	SD	
Total IBDQ score	74.4	18.8	85	14.8	0.017
Bowel symptoms	23.5	5.9	27.6	4.9	0.015
Systemic symptoms	10.5	3.5	11.6	2.8	0.095
Emotional functioning	27.7	7.9	32.5	7.4	0.007
Social functioning	12.63	3.5	12.7	2.8	0.578
Total SF-36 score	47.6	10.03	50.5	8.6	0.189
Psychological health	32.3	8.1	35.02	7.3	0.124
Physical health	14.8	2.8	15.3	2.6	.0392

[a] P value is significant at the 0.05 level.

ies. In a study by Casellas et al., (2001) showed that the QOL of patients suffering from IBD during the relapse of disease has been completely deranged. The most important symptoms and issues which a physician should exert special efforts to treat are the gastrointestinal and psychological symptoms during the relapse period but when the patient is in remission phase special attention has to be given to his or her systemic symptoms. Based upon the results of above- mentioned study, the social disorders of sufferers from active disease is less affected than the other issues of patients' life. Emotional function is more deranged as compared to other issues of life which is still obvious even after being in remission (22). Our data show that the factors such as gender, duration of remission and absence of EIM (extra-intestinal manifestation) were effective on QOL and in the SF-36 scale.

Other demographic factors evaluated in this study such as marital status, occupation, education and type of treatment had no effect on the QOL patients suffering from UC in the clinical remission. In a study on QOL of patients suffering from UC, no significant relation was found among variable of gender, age and cigarette smoking to the lessened score of IBDQ in any of the investigated domains (23). Different studies have shown that the level of disease activity noticeably affects the QOL (24, 25). Patients with more severe symptoms have obtained lower score as compared to those with less severity of symptoms and hence they had lower QOL. Therefore, our data are consistent with the results obtained from previous studies regarding the significant effect of remission duration of disease and absence of EIM on QOL in patients.

Also our data show that patient's occupation had no effect on their QOL in remission phase. Results of studies by Hoivik et al., (2012) (1) showed that occupational conditions as compared with disease relapse more negatively affects the QOL of males.

Here, we conclude that perhaps the social consequences of disease affect the QOL of patients more than disease itself. Different studies have shown the relation between higher educational level and better QOL in patients suffering from UC in active phase (26).This perhaps could be related to, having more knowledge and higher capabil-

Table 4. Regression Analysis Data of Effective Factors on QOL and Psychological and Physical Health of Patients

Variable	SF-36		P Value	IBDQ		P Value
	Beta	SE		Beta	SE	
Gender (male)	10.12	11.4	0.019*	18.9	7.3	0.025[a]
Diseases inactive duration	1.31	0.72	0.214	0.98	0.065	0.042[a]
Extra-intestinal manifestations (No)	8.3	3.1	0.211	16.9	5.6	0.04[a]

[a] Is significant at the 0.05 level.

Table 5. Comparison of IBDQ Test's Score of Our Study with Others

Scale	de Boer et al. (1995)	Han et al. (2005)	Cohen et al. (2010)	Present Results
Total IBDQ score	119.1	173.7	166.36	79.5
Bowel symptoms	37.3	54.9	55	25.03
Systemic symptoms	17	25.3	23.72	11.01
Emotional functioning	44.9	64.1	59.6	30.06
Social functioning	20	29.4	28.52	12.5

ity to obtain better information and consequently better practice. Our data did not show a relation between the level of education and QOL of patients suffering from UC in remission phase. It seems that having a more knowledge to better manage the disease has a direct and better effect on the QOL of patients.

Different studies have reported contradictory results on the type of medicines used in the treatment and QOL, some studies have reported no relation between the type of treatment received and QOL while the results from another studies have shown that systemic corticosteroids, immunosuppressive-drugs and anti TNF-α exert negative effects on the QOL of this patients (14, 15, 23, 27). Our data did not show a significant difference between the type of treatment received and QOL in the patients. At the end, it can finally be concluded that in patients suffering from UC in the clinical remission phase males had a better HRQOL compared to females and absence of EIM has a positive effect on the QOL of these patients.

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Footnote

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