Assessment of quality of life in patients with inflammatory bowel disease

Avaliação da qualidade de vida em pacientes com doença inflamatória intestinal

Ives Alexandre Yutani Koseki[1] , João Hélio Alves Marciano Neto[1] , Djeison Mikael Campanher[1] ,
Simoni Euzébio Nunes[2] , Daniel Brito de Araujo[1] , Elza Cristina Miranda da Cunha Bueno[3]

ABSTRACT

Inflammatory bowel disease (IBD) is a chronic inflammatory disorder of the gastrointestinal tract, occurring mainly in the young, socioeconomically active age group. Both the recurrent-remitting course of symptoms and the chronicity of the disease impact patients' quality of life (QoL). **Objective**: determine the contributing factors associated with QoL in IBD patients in a tertiary service. **Methods**: a cross-sectional study of patients seen at the IBD outpatient clinic of the Federal University of Pelotas from January to November 2020, with clinical and laboratory data collection. Disease assessment was performed using Crohn's Disease Activity Index for Crohn's disease and Mayo score for ulcerative colitis and quality of life through the Inflammatory Bowel Disease Questionnaire (IBDQ). **Results**: the presence of a history of depression resulted in a significant impact on the overall QoL (p = 0.005) and mainly in the systemic symptoms (p = 0.04), social (p <0.001), and emotional (p = 0.008) domains. Regarding disease activity, statistical significance was evidenced in the intestinal symptoms domain (p <0.001) and overall QoL (p <0.001). **Conclusion**: a history of psychiatric illness and IBD disease activity were predictors of poorer QoL assessed by the IBDQ.

Keywords: Ulcerative rectocolitis, Crohn's disease, Quality of life, Depression.

RESUMO

A doença inflamatória intestinal (DII) é um distúrbio inflamatório crônico do trato gastrointestinal ocorrendo principalmente na faixa etária jovem socioeconomicamente ativa. Tanto o curso recorrente-remitente dos sintomas quanto a cronicidade da doença impactam a qualidade de vida (QoL) dos pacientes. **Objetivo**: avaliar a qualidade de vida de pacientes com DII em um serviço terciário. **Métodos**: estudo transversal de pacientes atendidos no ambulatório de DII da Universidade Federal de Pelotas no período de janeiro a novembro de 2020, com coleta de dados clínicos e laboratoriais. A atividade de doença foi avaliada pelo *Crohn's Disease Activity Index* para os casos de Doença de Crohn e *escore de Mayo* para os casos de retocolite ulcerativa e QoL por meio do *Inflammatory Bowel Disease Questionnaire* (IBDQ). **Resultados**: a presença de história de depressão resultou em impacto significativo na QoL (p = 0,005) e principalmente nos domínios sintomas sistêmicos (p = 0,04), social (p < 0,001) e emocional (p = 0,008). Em relação à atividade da doença, evidenciado significância estatística nos domínios sintomas intestinais (p < 0,001) e qualidade global (p < 0,001). **Conclusão**: há evidências de que os pacientes com história de depressão e não remissão da DII apresentam maior impacto na qualidade de vida avaliados pelo IBDQ.

Palavras-chave: Retocolite ulcerativa, Doença de Crohn, Qualidade de vida, Depressão.

INTRODUCTION

Inflammatory bowel disease (IBD) is a chronic inflammatory disorder of the gastrointestinal tract with unknown etiology and includes two subtypes: ulcerative colitis (UC) and Crohn's disease (CD).[1] IBD occurs mainly in young people between 15 and 30 years old, in the socioeconomically active age group, and the recurrent-remitting course of symptoms and chronicity of the disease have a significant negative impact on the quality of life (QoL): interruption of daily activities, hygiene, employability, and social and interpersonal functioning.[1,2]

1   Federal University of Pelotas. Department of Internal Medicine. Pelotas, (RS), Brasil.
2   University of the Extreme South of Santa Catarina, Criciúma, (SC), Brasil.
3   Federal University of Pelotas. Pelotas, (RS), Brasil.

Self-perception and self-esteem are associated with complications of the disease, such as chronic changes in intestinal function (diarrhea), pain, surgical scars, ostomy, and side effects of medications, which in turn can adversely affect QoL.[3]

QoL has a broad concept and, as defined by the World Health Organization, it is a subjective assessment of an individual conforming to their values, expectations, objectives, and standards according to the environmental, social, and cultural context.[4,5]

Patients' perspectives are increasingly sought through qualitative research methods to understand the burden of IBD and improve the quality of treatment and care.[1] Several questionnaires to assess QoL in patients with IBD were developed and validated, being the Inflammatory Bowel Disease Questionnaire (IBDQ) the most used among them, and it has already been translated and validated for the Brazilian population.[6]

The present study aims to determine the contributing factors associated with QoL in IBD.

METHODOLOGY

This is a cross-sectional study of patients seen at the IBD outpatient clinic of the Federal University of Pelotas (UFPEL) from January to November 2020. Initially, 72 patients were approached for participation in the study, of which 45 agreed to participate. The following variables were evaluated among the groups: age, sex, smoking, drug treatment, disease activity (using the Crohn's Disease Activity Index for CD and the Mayo score for UC), depression [diagnosis based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V)] and C-reactive protein (CRP).

The IBDQ that assesses QoL over the last two weeks consists of 32 questions divided into four domains: intestinal symptoms (10 items), systemic symptoms (5 items), social (5 items), and emotional aspects (12 items), with scores ranging from 32 to 224, with higher scores indicating better QoL.[7-9]

Inclusion criteria were: diagnosed with IBD, both active and in remission, literate, and who agreed to participate in the study. The exclusion criteria were: illiterate patients and incomplete records. The study was approved by the Research Ethics Committee of UFPEL under protocol number 4120030 and CAAE 33224920.7.0000.5317.

The data collected were analyzed using the IBM Statistical Package for the Social Sciences (SPSS) version 22.0. Quantitative variables were expressed by median and interquartile range when they did not present a normal distribution. The mean and standard deviation were used when the variables had a normal distribution. Qualitative variables were expressed using absolute and relative frequency.

The statistical tests were performed with a significance level of $\alpha = 0.05$. The distribution of data regarding normality was assessed using the Kolmogorov-Smirnov test. The investigation of the homogeneity of the quantitative variables was carried out by applying the Levene test. The comparison of the mean among the quantitative variables was performed by the Student's T-test for independent samples when normal distribution was observed. The investigation of an association among qualitative variables was carried out by applying the Chi-Squared and Fisher's Exact Tests, followed by residue analysis when statistical significance was observed. Among the continuous variables, after all the assumptions were met, linear regression analysis was performed.

RESULTS

This study analyzed 45 patients diagnosed with IBD, with 29 cases (64.4%) diagnosed with CD and 16 cases with UC (35.6%) (Table 1).

Concerning treatment, no significant difference was identified in the overall QoL (Table 2) among patients who used biological compared to those who did not (p = 0.34). Likewise, smoking and sex did not have a significant impact at patients' QoL (p = 0.73 and p = 0.49, respectively).

Age, when analyzed using linear regression, showed [$F_{(1.43)} = 4.186$, p = 0.047; $R^2 = 0.089$], explaining only 8.9% of the variation at the patients' QoL, with 91.1% of the variability being explained by other factors not included on the model and, for each increase of one unit in age, causes an increase of 0.212 units in the

IBDQ score (95% CI 0.003 - 0.421), probably demonstrating that the impact of age may not be relevant when verified in isolation.

The CRP presented an average of 13.1 mg/L in the cases of CD and 17.3 mg/L in those with UC, not showing statistical significance in linear regression [F (1.43) = 0.928, p = 0.341; R2 = 0.021].

In patients with a history of depression (68.9% of cases), there was a significant change at the overall QoL (p = 0.005), mainly in the systemic symptoms (p = 0.04), social (p <0.001) and emotional (p = 0.008) domains. Similarly, when comparing disease activity, 25 cases were in remission (55.6%) and statistical significance were evidenced at the overall QoL (p = 0.001) and in the intestinal symptoms domain (p <0.001).

DISCUSSION

IBD can affect individuals of any age group, but it mainly affects women between 15 and 30 years, that is, young people of working age.[10] Few studies compare the QoL between the elderly and younger populations, and the results are conflicting.[11] In our study, there was no influence of age on QoL. Similarly, in a study with 92 patients with IBD, age also did not show a relationship with better parameters at QoL when analyzed on a linear regression model.[12] Likewise, another study with 143 patients with CD indicated that age is not an independent factor in predicting QoL.[13]

The assessment of QoL about gender is also divergent in the literature[14], with some showing a reduction in women compared to men with IBD[15], and others do not demonstrate such a relationship.[14] In a prospective study with 58 patients diagnosed with IBD, no statistically significant relationship between gender and QoL was found (p = 0.23).[16] In our study, sex similarly did not present statistical significance at global QoL or in other domains p = 0.49). In another study with 169 patients with CD, no relationship was found between the two variables.[17]

Smoking as an environmental risk factor in IBD is well established in the literature. While smoking has deleterious effects on CD, beneficial effects have been observed in the UC.[18] In CD, smoking is associated with disease activity, hos-

pitalizations, surgical treatment, and increased use of immunosuppressive drugs, while in the UC, smoking was associated with reduced use of corticosteroids and a reduced risk of colectomy.[19,20] Smoking was not associated with low IBDQ scores in our study (p = 0.73).[20] However, concerning QoL, there are conflicting data in studies from different countries and populations.[21] In a study of 150 Portuguese patients diagnosed with IBD, smoking also had no impact on QoL (p = 0.789).[22] Furthermore, in two studies with patients with DII from Singapore and Ohio, smoking did not show a relationship with QoL (p> 0.05).[17,23]

The CRP is a serum indicator of inflammation and the most widely used biomarker in IBD.[24] Most studies that assess the correlation between disease activity and CRP are in patients with CD and with a modest correlation.[25] In our study, when including CRP on a linear regression model, its impact on QoL is not statistically significant. However, due to the pandemic caused by the SARS-COV-2 virus, many of the collected CRP tests were outside the period of up to 30 days after the questionnaire was completed, which could interfere with the results. In a study conducted in 2018, at the end of two years of follow-up, patients classified as having low QoL during the observation period were also significantly more likely to have elevated inflammatory biomarkers, including CRP.[26]

Numerous clinical and demographic factors have been associated with poorer QoL in patients with IBD, including disease activity.[21] In our study, a significant impact was demonstrated on overall QoL (p = 0.001) and in the intestinal symptoms domain (p <0.001) of the IBDQ. In a prospective study of 195 IBD patients, 73.8% were in remission, and statistical significance was demonstrated in all the domains of the IBDQ questionnaire (p <0.05).[23] In another study of 92 IBD patients in which 55 cases were in remission, disease activity showed a significant relationship with better scores in QoL (p <005).[12]

The prevalence of depression is higher in patients with chronic diseases than in the general population, and it is associated with decreased QoL and greater morbidity and mortality.[27] The prevalence of depressive symptoms was higher in CD cases than in the RCU.[28] In our study,

46.7% of CD cases had depression compared to 22.2% of cases with UC. In addition, the presence of depression resulted in a significant difference at the overall QoL (p = 0.005), systemic symptoms (p = 0.04), social (p <0.001) and emotional (p = 0.008) domains. In a study with 262 cases of IBD, depression was associated with a worse QoL (p <0.001)[29], as well as in another study with 110 patients with CD (p <0.001).[30] Likewise, a meta-analysis demonstrated a statistical difference in QoL in 578 patients with IBD (p = 0.01) who received psychological treatment.[31]

The treatment, in addition to being indicated for periods of crisis of the disease, maintaining the objective of remission and control, improves the QoL.[32] In a study with 47 CD patients using biologicals, statistical significance was evidenced at the QoL referring only to the systemic symptoms domain of the IBDQ (p = 0.03).[32] In our study population, the use of anti-TNF did not show a correlation with the QoL compared to the group that did not use the medication (p = 0.94), which was also demonstrated in a study with 150 patients with IBD, in which the use of biologicals also did not result in a significant impact on QoL.[21] However, the main objective of our study was not to evaluate the treatment effectiveness, as it was performed in just a moment, making comparison impossible and requiring a methodological approach for this purpose.

The main limitations of our study were due to the conduct of research during the time of a SARS-CoV-2 virus pandemic and recommendations for social isolation from the Brazilian Ministry of Health, leading to significant sample loss of patients and outdated test results.

In conclusion, IBD patients with a history of depression and IBD remission have more significant changes at QoL assessed by the IBDQ, demonstrating that comprehensive care in addition to disease activity contributes to optimizing patients' well-being.

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Autors' Contributions:
IAYK - author
JHAMN - co-author
DMC - co-author
SEN - translator
DBA - co-author
ECMCB - co-author

Corresponding Author:
Ives Alexandre Yutani Koseki
ives.alexandre@hotmail.com

Table 01

General characteristics of the population in research

Characteristic	Inflammatory bowel disease	
	CD (%)	UC (%)
Age (years)	47.6 ± 13.9[†]	46.5 ± 13.6[†]
CRP (mg/ml)	13.1 ± 11.4[†]	17.3 ± 14.0[†]
Sex		
Male	4 (13.8)	3 (18.8)
Female	25 (86.2)	13 (81.2)
Smoking		
Yes	14 (48.3)	9 (56.3)
No	15 (51.7)	7 (43.7)
Depression		
Yes	21 (72.4)	10 (62.5)
No	8 (27.6)	6 (37.5)
Disease activity		
Remission	16 (55.2)	9 (56.3)
Active	13 (44.8)	7 (43.7)
Treatment		
Glucocorticoid	4 (13.8)	3 (18.8)
Biological	21 (72.4)	7 (43.7)
Total	29 (64.4)	16 (35.6)

CRP = C - reactive protein; † = mean ± standard deviation.

Table 02

Domains of the IBDQ questionnaire regarding the general characteristics of the sample.

Characteristic	Intestinal symptoms[†]	Systemic symptoms[†]	Social[†]	Emocional[†]	Overall[†]
Age	52.9 ± 3.5	30.0 ± 2.4	30.7 ± 2.3	51.3 ± 4.5	165.0 ± 9.7
Sex					
Male	52.4 ± 4,4	29.4 ± 2.8	30.5 ± 2.9	50.2 ± 5.4	162.7 ± 14.4
Female	53.0 ± 3.3	30.1 ± 2.4	30.7 ± 2.2	51.5 ± 4.4	165.5 ± 8.8
Smoking					
Yes	52.8 ± 3.1	30.5 ± 1.9	30.6 ± 1.6	51.6 ± 3.5	165.5 ± 7.6
No	53.0 ± 3.9	29.5 ±2.8	30.8 ± 2.8	51.0 ± 5.4	164.5 ± 11.6
Depression					
Yes	52.7 ± 3.3	29.5 ± 2.3	29.9 ± 2.1	50.1 ± 3.3	162.3 ± 8.1
No	53.3 ± 3.9	31.1 ± 2.3	32.5 ± 1.5	53.9 ± 5.7	171.0 ± 10.5
Disease activity					
Active	49.9 ± 2.4	29.3 ± 1.8	30.7 ± 2.4	50.0 ± 4.3	160.0 ± 7.9
Remission	55.3 ± 2.0	30.6 ± 2.7	30.7 ± 2.2	52.3 ± 4.5	169.0 ± 9.2
CRP	52.9 ± 3.5	30.0 ± 2.4	30.7 ± 2.3	51.3 ± 4.5	165.0 ± 9.7
Biological					
Yes	52.8 ± 3.8	30.2 ± 2.0	30.8 ± 2.2	51.5 ± 4.5	165.1 ± 9.9
No	53.1 ± 2.9	29.8 ± 3.0	30.4 ± 2.4	51.2 ± 4.6	164.9 ± 9.7
Glucocorticoid					
Yes	49.5 ± 2.8	28.4 ± 1.5	30.2 ± 2.5	48.5 ± 4.1	156.8 ± 8.5
No	53.5 ± 3.3	30.3 ± 2.4	30.8 ± 2.2	51.8 ± 4.4	166.5 ± 9.2

CRP = C-reactive protein; † = mean ± standard deviation.