Original Article

Quality of life of patients with inflammatory bowel disease*

Qualidade de vida de pacientes portadores de doença inflamatória intestinal

Calidad de vida de pacientes portadores de enfermedad inflamatoria intestinal

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ABSTRACT
Objectives: To assess the quality of life (QV) in patients with inflammatory bowel disease (DII), and relate it to demographic data and morbidity. **Methods:** Cross-sectional study with 103 patients with DII, registered in the high cost pharmacy of Cuiabá - Mato Grosso, who responded to the Standard Medical Record, the general QV questionnaire SF-36 and the specific IBDQ. **Results:** Among 103 patients with DII, 62 had ulcerative colitis and 41 had Crohn's disease; 62% were women; 69.9% were married; 48.5% were of mixed race; 49.5% were smokers; 37.9% required surgery; and, 40.8% had active disease. We observed significant changes in QV in men, smokers and those with active disease. **Conclusion:** DII affect QV in several respects. Measures for maintenance of QV, psychological, social and education support should be considered for patients with DII.
Keywords: Inflammatory bowel disease; Crohn's disease; Ulcerative colitis; Colitis; Quality of life

RESUMO
Objetivos: Avaliar a qualidade de vida (QV) de portadores de doenças inflamatórias intestinais (DII) e relacionar dados sociodemográficos e mórbidos à QV. **Métodos**: Estudo transversal, realizado com 103 portadores de DII, cadastrados na farmácia de alto custo de Cuiabá - Mato Grosso que responderam ao Prontuário-Padrão, ao questionário de QV geral SF36 e ao específico IBDQ. **Resultados:** Dentre os 103 pacientes com DII, 62 tinham retocolite ulcerativa idiopática e 41 doença de Crohn; 62% eram mulheres; 69,9%, casados; 48,5%, pardos; 49,5%, fumantes, 37,9% necessitaram de cirurgia e 40,8% apresentavam doença em atividade. Foi observada alteração significativa da QV em homens, fumantes e entre aqueles com doença em atividade. **Conclusão**: DII afetam a QV em diversos aspectos. Medidas para manutenção da QV, suporte psicológico, social e educacional devem ser considerados para portadores de DII.
Descritores: Doença inflamatória intestinal; Doença de Crohn; Retocolite ulcerativa; Colite; Qualidade de vida

RESUMEN
Objetivos: Evaluar la calidad de vida (CV) de portadores de enfermedades inflamatorias intestinales (EII) y relacionar datos sociodemográficos y mórbidos a la CV. **Métodos**: Se trata de un estudio transversal, realizado con 103 portadores de EII, registrados en la farmacia de alto costo de Cuiabá - Mato Grosso que respondieron a la Historia Clínica-Patrón, al cuestionario de CV general SF36 y al específico IBDQ. **Resultados:** De los 103 pacientes con EII, 62 tenían rectocolitis ulcerosa idiopática y 41 enfermedad de Crohn; 62% eran mujeres; 69,9%, casados; 48,5%, pardos; 49,5%, fumadores, 37,9% necesitaron de cirugía y 40,8% presentaban la enfermedad en actividad. Fue observada una alteración significativa de la CV en hombres, fumadores y en aquellos con la enfermedad en actividad. **Conclusión**: Las EII afectan la CV en diversos aspectos. Para la manutención de la CV, deben ser considerados el soporte psicológico, social y educacional de los portadores de EII.
Descriptores: Enfermedad inflamatoria intestinal; Enfermedad de Crohn; Colite ulcerosa; Colite; Calidad de vida

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INTRODUCTION

Crohn's Disease (CD) and idiopathic ulcerative colitis (IUC) are the most commonly found forms of inflammatory bowel disease (IBD) and is characterized by chronic inflammation of the bowel with an unknown etiology. It has incidence worldwide and represents a serious health problem, it affects young people, the course presents frequent recurrence, and there are highly severe clinical forms[1-2]. This disease leads to important outcomes in patients' quality of life (QL)[3]. Several epidemiological studies have demonstrated a growing incidence of CD and IUC in the last decades[4-5]. IBD affects people from different socioeconomic classes, age, gender, and nationality. In the United States (USA), about 1.4 million people present one of the forms of IBD[6]; in Europe 2.2 millions[7] and in Canada, about 150 thousand people present it[8]. USA, England, Italy, Scandinavia and the countries of the North Region of Europe are classified as areas with high rate of IBD, South of Europe, South Africa, Australia, and New Zealand are regions with intermediate incidence and Asia and South America are considered as low incidence regions[9]. For many years, the considered presence of IDB was restricted to North America and Europe. There was an increase in its incidence in South America as physicians have become more able to diagnose the disease. The majority of information on IBD is available in First World countries where the disease prevalence is higher. In Brazil, where the official prevalence is still low, there is little information in the literature. A significant increase of the incidence of IBD has been recorded in our environment in the South and Southeast region[9].

Although it is considered a region with low prevalence, the reality in Brazil can be different because there are no effective public health records on IDB. This disease is not classified as mandatory report and the notes in patients' charts and in health care services files are poor. Most patients that look for health care with complaints of diarrhea and abdominal pain are diagnosed as diarrhea with a bacterial or parasitic etiology; however, a more detailed investigation of these cases could lead to the diagnoses of IDB, which is based on the clinical and laboratory picture, and in the combination of patients' endoscopic, histological and image data.

Clinical treatment of IDB is complex because of the enigmatic pathogenesis, the limited knowledge of the underlying immunological and inflammatory events, and the lack of a standard pattern to measure the disease activity. Up to now, the therapeutic intervention focuses, above all, on fighting the consequences generated by the amplification of the immune and inflammatory cascades and the resulting systemic repercussion[10]. The therapy

measures depend on the form, extension and severity of the disease.

The quality of life is determined by the extension in which ambitions and hopes correspond to the personal experience; by individuals' perceptions on their position in life, taking into account the context of the culture and the systems of values in which people live regarding their objectives, expectations, standards and concepts, assessing their current state compared to their ideals, as well as by what people consider as important factors of their lives[11].

Measuring the QL is an important parameter to assess the impact of chronic diseases, since even though physiological changes provide important information to the GP, they can present different effects in patients and family members because they influence the functional capacity and the well being which are essential aspects to sick people[12]. In a recent bibliographical survey carried out in a broad manner, we have not found data on the QL of patients with IDB in the State of Mato Grosso. Thus, we consider that a study on the identification of the sociodemographic, economic, and health characteristics and the assessment of QL of patients with IDB can provide important information on the profile of patients and can help create the guidelines for the most adequate treatment.

METHODS

The study was carried out after the approval of the research project by the Research Ethics Committee of the University Hospital Júlio Muller and by the Research Ethics Committee at Universidade Federal de São Paulo, with patients with IBD registered in the program for dispensing exceptional drugs of the Health Secretariat of the State of Mato Grosso, from October 2006 to November 2007 after they were assessed by an auditing physician. These patients came from the public and private health care network and there were citizens from different cities of the State.

The program for dispensing exceptional drugs provides high cost drugs for free, including those used in IBD. It was implemented by the Ministry of Health through the Ordinance # 1.318/02. Patients are included in the program after they meet all the criteria required by the Ordinance. The drugs used in the treatment and paid by the State are corticosteroids, salicylates, antibiotics, immunosuppressant and infliximab, anti–TNF (tumoral necrosis factor).

We have included in the study patients with IBD that were enrolled in the high cost pharmacy of the State of Mato Grosso, that were above 18 years old, had accepted to take part in the study, and had their clinical, radiological, endoscopic and histopathological data assessed. Patients

with undetermined colitis have been excluded. All interviews were carried out by one interviewer and 103 patients were randomly chosen from the total of 220 enrolled patients. They were scheduled to answer the three study questionnaires: the Consensus of Standard-Chart to collect the sociodemographic variables, disease site and type of therapy; the "Medical Outcomes Study 36- Item Short-Form Health Survey" (SF-36)[13] to assess overall QL, and the "Inflammatory Bowel Disease Questionnaire" (IBDQ)[14] to assess specific QL related to the aspects of IDB.

SF-36 is a multidimensional questionnaire formed by 36 items, divided into eight domains: physical functioning, role limitations due to physical health, bodily pain, general health perceptions, vitality, social functioning, role limitations due to emotional problems, and mental health. It presents a final score per domain that can range from 0 (worst state) to 100 (best state). The IBDQ questionnaire is formed by 32 items with four domains: bowel symptoms, systemic symptoms, social and emotional aspects, and the answer options presented are multiple-choice with seven alternatives. Score 1 means the worst state of QL and 7 the best. Both SF-36[15] and IBDQ[3] have already been translated and validated in Brazil. To determine the disease activity, we have used Lichtiger[16] for IUC and the Crohn's Disease Activity Index (CDAI)[17], for CD.

Statistical Analysis

To characterize sample data we have carried out descriptive analysis with values of absolute and percentage frequencies, medians, means, standard deviation and standard error for the mean. We have used a 95% confidence interval to compare the scores of the domain of the SF-36 of patients with CD and IUC. The correlation between the variables of the IBDQ and those from the SF-36 was verified using Pearson's coefficient correlation. A multiple regression analysis for the total IBDQ (dependent variable) was carried out according to the sociodemographic independent variables and the domains of the SF-36. To introduce the independent variables in the regression model we used the stepwise process. They were introduced according to their level of significance, from the smallest to the highest value. The variables that presented significant level $p<0.05$ remained in the regression model.

RESULTS

Data from table 1 show the sociodemographic and morbid variables of the 103 IBD patients studied.

In the data from Table 1 we can see that the mean age of the patients studied was 40.2 years, with

predominance of females (62%), brown (48.5%), married (69.9%), IUC patients (60.2%) with no need for surgery because of the disease (62.1%). Mean schooling was 10 years. At the time of the study, 42 (40.8%) patients presented active disease. All patients lived in Mato Grosso, however, 55 (53.4%) were from the State and the rest 48 (46.6%) were from other places, with a predominance of the States from the South (16.5%) and Southeast (12.6%). The age with higher prevalence of IBD ranged from 20 and 40 years (48.6%). Of the 41 patients with CD, the site of the disease in 24 (58.5%) was ileal/ileocecal, in 7 (17.1%) it was ileocolonic, in 5 (12.2%) it was perianal and rectal, in 4 (9.8%) it was colonic, and 1 (2.4%) it was in the upper part of the digestive tract. The behavior of CD in 19 (46.3%) patients was perforating, in 17 (41.5%) it was non-perforating/non-stenosing and in 5 (12.2%) it was stenosing. Of the 62 patients with IUC, 32 (51.6%) presented proctitis/proctosigmoiditis, 23 (37.1%) pancolitis; and 7 (11.3%) left-sided colitis. Using the Truelove & Witts classification(18), 33 (53.2%) patients presented the mild form of the disease, 13 (21%) the moderate form, and 16 (25.8%), the severe form.

Table 1 – Sociodemographic and morbid characteristics of patients with IDB. October 2006 to November 2007, Mato Grosso

Characteristics	D II (n = 103)
Age (years)	40.2 ± 12.4
Age variation (years)	18 – 76
Gender	
Female	64 (62)
Male	39 (38)
Skin color	
White	45 (43.7)
Yellow	2 (1.9)
Black	6 (5.8)
Brown	50 (48.5)
Marital Status	
Married	72 (69.9)
Single	23 (22.3)
Divorced	4 (3.9)
Widow	4 (3.9)
Smoker	
Yes	51 (49.5)
No	52 (50.5)
Diagnoses	
Crohn's disease	41 (39.8)
Idiopathic ulcerative colitis	62 (60.2)
Surgery	
Yes	39 (37.9)
No	64 (62.1)

Note: The values are expressed as number (%) or mean ± standard deviation (SD).

The most commonly used corticosteroid in the treatment was prednisone, with doses ranging from 2.5 mg to 80 mg (mode 20 mg). All patients used salicylates and the minimum dose was 0.5g and the maximum dose

was 6.0g (mode 2.4g). Among immunosuppressants, the only one used was azathioprine by 24 (23%) patients. Anti TNF was being used by 14 (13.6%) patients and among them 10 had the active disease, and four were in remission. Thirty-nine patients (37.9%) had undergone some sort of surgical procedure, 27 (26.2%) had diagnosis of CD and 12 (11.7%), IUC. The scores obtained with the application of the SF-36 in the 103 patients with CD and IUC are found in Table 2.

In the data from Table 2, we could observe that the scores of the SF-36 dimensions of the patients with CD and IUC were not statistically significant, and that the values of all dimensions show important involvement of the quality of life. However, the physical aspect, vitality and the emotional aspects are the most commonly affected regardless of the type of disease. The scores obtained with the application of the IBDQ in the 103

patients with CD and IUC are found in table 3.

The mean scores resulting from the IBDQ that assessed specific QL of patients with IBD were not statistically significant among patients with CD and IBD in the present study. Data from table 4 show the Pearson's correlation coefficient between the domains of the IBDQ and the SF-36.

When we assessed the coefficients obtained in the 103 patients with IBD, we observed that all domains of the SF-36 presented medium to high correlation with the domains of the IBDQ, showing that IBD strongly affects the quality of life of those who have it, both in the general and in the specific aspects related to the disease. Data from Table 5 show multiple linear regression analysis carried out between the total scores of IBDQ and those of the SF-36 domains, considering a p value of £0.05.

Table 2 - Scores of SF-36 domains of the 103 patients with IBD. October 2006 to November 2007, Mato Grosso

Domain	Mean Score ± standard deviation		*P* value
	*CD (n=41)	**IUC (n=62)	
Physical functioning	64.8 ± 26.3	72.7 ± 25.5	0.13
Physical role functioning	42.1 ± 41.6	52.8 ± 44.2	0.21
Bodily Pain	55.2 ± 28.9	50.5 ± 25.4	0.40
General Health Perception	56.7 ± 21.0	53.4 ± 22.6	0.45
Vitality	49.9 ± 21.9	54.3 ± 22.7	0.32
Social role functioning	64.6 ± 27.1	62.5 ± 28.1	0.71
Emotional role functioning	47.2 ± 38.8	51.6 ± 44.2	0.59
Mental Health	55.1 ± 23.4	55.7 ± 21.9	0.89

*CD (Crohn's disease); **IUC= idiopathic ulcerative colitis

Table 3 – Scores of the Inflammatory Bowel Disease Questionnaire (IBDQ) domains of patients with IBD. October 2006 to November 2007, Mato Grosso

IBDQ Domains	Mean score ± standard deviation		*P* Value
	CD* (n=41)	IUC** (n=62)	
Bowel Symptoms	49.3 ± 15.0	47.8 ± 15.0	0.631
Systemic Symptoms	20.5 ± 7.9	21.3 ± 6.9	0.593
Social Aspects	23.1 ± 8.4	24.4 ± 8.8	0.441
Emotional Aspects	54.8 ± 15.1	51.3 ± 15.9	0.263

*CD (Crohn's disease); **IUC= idiopathic ulcerative colitis

Table 4 – Values of Pearson's correlation between the SF-36 domains and IBDQ domains of the 103 patients with IBD. October 2006 to November 2007, Mato Grosso

SF-36 Domains	Bowel Symptoms	Systemic Symptoms	Social Aspects	Economic Aspects
Physical functioning	0.422*	0.601*	0.640*	0.527*
Physical role functioning	0.464*	0.595*	0.664*	0.543*
Bodily Pain	0.640*	0.696*	0.661*	0.684*
General Health Perception	0.529*	0.529*	0.528*	0.562*
Vitality	0.550*	0.655*	0.606*	0.623*
Social role functioning	0.412*	0.608*	0.530*	0.640*
Emotional role functioning	0.379*	0.462*	0.558*	0.505*
Mental Health	0.431*	0.614*	0.459*	0.731*

* Statistic significance level lower than or equal to 0.0001 (pd"0.0001).

Remark: To check the suitability of the multiple linear regression model a residual analysis was carried out; after this analysis, the model was considered adequate. The constant of this model is 54.4620 (*b0=54, 4620*) and the F value calculated is 42.11 (*F6,96=42.11*) with a significance level lower than 0.001 (*p < 0.001*) and *R2=0.72* (total variation of the dependent variable total IBDQ), which is totalized by the independent variables of the scores of the SF-36 domains, by sociodemographic and health related variables.

Table 5 – Multiple linear regression analysis, between the total score of the Inflammatory Bowel Disease Questionnaire (IBDQ) and the scores of the SF-36 domains and the sociodemographic variables related to health of the 103 patients with IBD, October 2006 to November 2007, Mato Grosso.

Variable	Coefficient	EP	R²
Pain	0.6176	0.1238	0.54
General health perception	0.3622	0.1283	0.06
Physical aspect	0.1467	0.0700	0.02
Mental Health	0.2855	0.1360	0.01
Disease activity	19.1350	4.7450	0.05
Gender	13.830	4.9540	0.04

We could observe that both the aspects of the general domains of QL, represented by the dimensions of the SF-36, and the sociodemographic (gender) and morbid (active disease) variables were responsible for the worsening of the specific QL related to the IBD.

Multiple linear regression analysis demonstrated, through the R2=0.72 (total variation of the dependent variable total IBDQ), that the variables which affected the most specific quality of life measured by the total IBDQ were: the SF-36 domains (mental health 1%, physical role functioning 2% general health perceptions 6%); male gender (4%), active disease (5%) and pain (54%).

DISCUSSION

IBD can permanently affect the QL of patients, especially when it is in a period of exacerbation. The symptoms presented by IBD patients can lead to important changes in the attitudes and behaviors, as well as changes in physical, emotional, and social aspects. The psychosocial aspects are relevant factors to trigger outbreaks, although there are not many studies in this area. Among our subjects we saw a significant amount of patients that associated the onset of symptoms and periods of disease worsening to emotional changes.

In the present study we have found greater distribution of IBD among the age group from 20 to 40 years old[19], in agreement with the data from the literature; however, we have not observed another peak of the disease at the age of 60. There was greater prevalence of the disease among white or brown individuals, which matched the findings from other authors[19-20]. Data from the present study showed a predominance of female IBD, in agreement with other studies carried out in Brazil[3,20-21]. We have also found QL scores significantly better in women compared to men. Smokers presented total IBDQ scores lower than non-smokers. A study shows that smoking is associated to higher risk for developing IBD[22-23], and it also affects the QL of those with it[24]. Among patients with IUC, 12 (11.7%) needed some type of surgical procedure in the course of the disease, in patients with CD this amount corresponded to 27 (26.2%). As for the site of the disease, among patients with CD, 24 (58.5%) presented ileal/ileocecal, 4 (9.8%) colonic, 7 (17.1%) ileocolonic, 1 (2.4%) upper digest tract and 5 (12.2%) perianal and rectal; these findings match other studies[20,25]. As for the extension of the IUC involvement, we have found the following: 32 (51.6%) patients with proctitis/proctosigmoiditis, 7 (11.3%) with left-sided colitis and 23 (37.1%) with pancolitis, these findings are compatible with those found by some authors[20]. According to the Truelove & Witts classification, IUC can be subdivided into mild (60%-70%), moderate (20%-25%) and severe (10%-15%); in our casuistic we have obtained: 33 (53.2%) patients with mild, 13 (21%) with moderate and 16 (25.8%) with severe.

Patients whose disease was active during the study presented worse both general and specific QL. The high number of patients with active disease found in the study (42-40.8%) may be because the high cost pharmacy in Mato Grosso is a reference center and received both public and private patients. A study carried out with 50 patients with IBD showed that only 6% of them presented active disease in the study period[3].

The values of the SF-36 and IBDQ scores found in patients of the present study were lower than those found by Brazilian authors[3]; however, when the scores are assessed separately, according to diagnoses, either CD or IUC, there was no statistically significant difference. This outcome was similar to that found in a study carried out in Spain[26].

In the present study, when we analyzed the coefficient obtained in the 103 patients with IBD, we observed moderate and high correlations between IBDQ domains and SF-36 dimensions. The variables that influenced IBDQ significantly were: male gender, smoking, active disease, pain, overall health perception, physical aspect and mental health; however, we could not find previous studies that reinforced our findings.

In the present study, we observed a high correlation between emotional aspects of the IBDQ and the components pain and mental health of the SF-36. A study found in the literature that focused mental health as a risk

factor for IBD did not provide enough data for definite conclusions[27]. A psychological change seems to be a consequence of the disease and the level of psychological anguish and disturbances is related to the severity of the disease and predicts QL, influencing its course[28].

Abdominal pain as an important symptom is more common when the disease is active, decreasing when it is inactive, however, this is not an absolute rule because patients in the different stages can be presented with different intensity. In the study in which abdominal pain affected the overall IBDQ score, we observed that this has been recently reported by other authors[29].

CONCLUSION

Patients presented changes in the QL, especially when the disease was active, men and smokers presented more severe outcomes in the QL. Measures to promote and prevent outbreaks should be introduced as well as the psychological, social and educational support should be considered to improve their care and to keep and /or improve QL of people with IBD. New studies on the issue and with other types of design should be carried out with IBD patients to subsidize health professionals in their decision on this area.

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