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Beneficial effects of a pharmaceutical care program on outpatients with inflammatory bowel disease

Nathalie de Lourdes Souza Dewulf[1*]; Vania dos Santos[2]; Leonardo Régis Leira Pereira[2]; Luiz Ernesto de Almeida Troncon[4]

[1]School of Pharmacy, Federal University of Goias.
[2]School of Pharmaceutical Sciences of Ribeirao Preto, University of São Paulo.
[3]Ribeirao Preto Medical School, University of São Paulo.

ABSTRACT

This study aimed to evaluate the effects of a Pharmaceutical Care (PC) program among outpatients with Inflammatory bowel diseases (IBD) in an outpatient department of a tertiary care teaching hospital in Ribeirao Preto, Brazil. Patients with IBD were randomized into two groups, one to receive PC procedures (PCG; N=18) and a control group (CG; N=17). Both groups were followed for one year and compared at six (T6), and 12 (T12), months of study. Patients were assessed for treatment compliance, knowledge about treatment, clinical colitis activity index, and quality of life (SF-36). In PCG patients, the number of adherent patients significantly increased from 28% to 72% ($p<0.05$), and in the percent score for patient knowledge increased from 80% to 100% ($p\leq0.0001$) from T0 to T12. There was a significant decrease in clinical activity indexes from T6 to T12 in PCG patients (median; range: 2.20; 0.99–3.77 *versus* **1.90; 0.99–3.77; p=0.02), but not in the CG group (1.69; 0.99–3.77** *versus* **1.69; 0.99–3.48). Quality of life questionnaire revealed increased scores for mental health domain at T12 in both PCG (57.5** *versus* **65.3; p=0.04) and CG (56.9** *versus* **67.0; p=0.01) groups. The PC program was associated with increased compliance, better mental health-related quality of life, and enhanced knowledge about treatment.**

Keywords: Inflammatory bowel disease. Pharmaceutical services. Treatment Adherence and Compliance. Patient Medication Knowledge. Quality of life.

INTRODUCTION

Inflammatory bowel diseases (IBD) – Crohn's disease (CD) and ulcerative colitis (UC) – are chronic diseases of growing incidence all over the world (Burisch, Munkholm, 2015), characterized by chronic bowel inflammation of undefined etiology (Farraye, Melmed, Lichtenstein, 2017; Margienean, Melit, Mocanu, *et al.*, 2017). Although in most cases, these diseases are considered incurable, several types of pharmacological treatment have been used for their control. IBD represent an important health problem since they affect a relatively young population and may present more severe clinical forms, with a consequent high cost for society (Farraye, Melmed, Lichtenstein, 2017; Margienean, Melit, Mocanu, *et al.*, 2017).

In Brazil, patients with CD and UC usually require specific procedures and prolonged treatment, and seek public tertiary care services, including outpatient clinics in university hospitals, which are part of the Brazilian Unified National Health System (SUS as the acronym in Portuguese) (Romano Junior, Errante, 2016). Public Health services of the SUS provide medications to IBD patients by means of special programs, based on clinical protocols and well-established therapeutic guidelines (Brasil, 2002). Therefore, low treatment compliance or improper use of these medications may also affect the resources of the SUS.

Management of chronic conditions requires changes in patients' habits and life style, which require patient's engagement (WHO, 2003), along with the joint action of doctors, pharmacists and other professionals. Thus, the combination of specialized and complementary knowledge can facilitate the achievement of more efficient results, with greater benefit for the patient (WHO, 2003). From this perspective of a patient-centered action, Pharmaceutical Care (PC) is defined as the provision of pharmacological treatment aimed to reach concrete results that will lead to improvements in patients' quality of life (Mohammed, Moles, Chen, 2016). PC consists of a process in which the pharmacist cooperates with the patient and with other professionals, especially the physician, by designing, executing and monitoring a therapeutic plan that will produce specific results for the patient (Hepler & Strand,

Corresponding author: Nathalie de Lourdes Souza Dewulf. Universidade Federal de Goiás - Faculdade de Farmácia - Rua 240, esquina com 5ª Avenida, s/n, Setor Leste Universitário – CEP: 74605-170 – Goiânia – Goiás – Brasil. E-mail: nlsdewulf@ufg.br

1990). Several studies have demonstrated the efficacy of PC in numerous clinical diseases, by improving patients' clinical conditions, quality of life and health service costs (Anchah, Hassali, Lim, 2017; Minarikova, Malovecka, Foltan, 2015; Obreli-Neto, Marusic, Guidoni, 2015). However, data on the effect of PC on the clinical course of patients with IBD are still scarce.

The objective of the present study was to assess the contribution of a PC program on patients with IBD in a university hospital.

MATERIAL AND METHODS

Study design

The study was conducted at the outpatient clinic of a university hospital, which provides public health care. This was a prospective, quantitative, intervention study on the assessment of a PC program and its contribution to patients included. Patients were divided into two groups, one of them receiving PC (PCG) and the other receiving no PC, used as control (CG). PCG patients received regular medical and pharmaceutical counseling (median: 8.5 sessions; range: 4 to 13 sessions), while CG patients only received regular medical care but no PC. Each patient was followed up for one year, being evaluated at the beginning of the study, T(0), after six months, T(6), and after 12 months, T(12). The study was approved by the local Ethics Committee (identification no. 5621/2006) and all patients gave written informed consent to participate in the study.

Patients

Fifty-six patients were invited to participate in the study; of these, 32 were assigned to the PCG and 24 to the CG. Six PCG patients refused to participate in the study, 26 accepted to participate and eight dropped out of the study, Twenty-one CG patients accepted to participate in the study, three refused and four dropped out. The total number of patients invited to participate in the study corresponded to 87.5% of the patients regularly followed up at the Gastroenterology outpatient clinic, who fulfilled the inclusion criteria. The initial inclusion criterion was the continuous and regular use of medications for the treatment of IBD and additional criteria were age of 18 years or more and regularity of treatment characterized by attending periodical medical visits. Patients with deficiencies that would impair communication, patients who attended return medical visits at intervals of more than three months, or patients whose clinical condition prevented participation were excluded from the study.

Pharmaceutical care and interventions

A semi-structured and standardized instrument translated into Portuguese (Pereira, 2005), containing demographic, social, clinical and pharmacotherapeutic variables was used for the recording of periodic follow-up of PCG patients. After the data were obtained, each case was analyzed, to identify medication-related problems. Also, a care plan was designed, together with each patient, aimed to achieve the desired therapeutic results and to perform interventions to prevent medication-related problems, based on Brazilian clinical and therapeutic protocols for CD and UC patients (Brasil, 2014). Specific protocols and consensuses for each area were also used and information about the medications used were obtained by Micromedex®. The "Patient Orientation Guide" section, proposed by the clinical protocols of the Ministry of Health (Brasil, 2014), was used to guide patients on the correct use of the medication for IBD. The interviews were performed by independent research assistants.

The instruments used included a structured and standardized instrument containing specific tests for assessment of the clinical course and degree of treatment compliance (Morisky scale), as well as an instrument adapted for assessment of patients' knowledge about the pharmaceutical treatment (MedTake test). Additionally, medical records' data were collected using a specific form developed by the investigators. Outcome measures included demographic, social and clinical variables, and main characteristics of the drug treatment prescribed.

Compliance to drug treatment

To identify the degree of compliance to drug treatment, we studied the behavior reported by the patient regarding the use of drugs as defined by the Morisky scale (Morisky, Green, Levine, 1986) translated into Portuguese, and validated and used to assess compliance to the treatment of different chronic diseases (de Oliveira-Filho *et al.*, 2014). The test addresses patients' behavior on the habitual use of medications, which permits to classify them as having either a greater or a lower compliance (Morisky, Green, Levine, 1986).

Knowledge about drug treatment

Patient knowledge was assessed using an adapted version of the MedTake test (Raehl *et al.*, 2002). This instrument is used to record five points related to the medication prescribed – the name, dosage, indication, interaction with food, and times of drug taking. Each item was assigned a value of 20% of knowledge, for a total of 100% for each medication. A patient who was unable to answer the name of the medication received the lowest score, i.e. "zero". After the calculation of "percent knowledge" about each medication, the mean percentage of the medications used for IBD treatment was calculated.

Evaluation of clinical IBD activity

Clinical activity indexes of CD and UC were

measured by the methods proposed by Harvey and Bradshaw (1980) and Rembacken *et al.* (1999), respectively. In both cases, the lowest score represents the best clinical condition and the highest score represents the worst. For the purpose of joint analysis of the results of patients with CD and UC, evaluated with different indices, the value of the clinical index of each patient was expressed as a percentage of the maximum possible values. Besides, the disease was recorded as 'active' or 'in remission' according to the doctor's notes in the medical records, after the clinical visit.

Quality of life

The SF-36 instrument (The Medical Outcomes Study 36-item Short Form Health Survey) (Ware, 1996) translated and validated into Portuguese (Ciconelli, Ferraz Santos, 1999) was used to assess quality of life. This is a fast, generic instrument for health assessment, with satisfactory internal consistency, discriminant validity, criterion validity, concurrent validity, and test-retest reliability (Ciconelli, Ferraz, Santos, 1999). The SF36 evaluates eight quality of life dimensions, with a score ranging from 0 to 100 being obtained for all of them. The lowest value represents the worst quality of life and the highest value the best quality of life. One of the items (second question) measures the change in health compared to the previous year, but without attributing a score. After data analysis, the quality of life was described in eight dimensions: 1) functional capacity, 2) physical aspects; 3) pain, 4) general health status, 5) vitality, 6) social aspects, 7) emotional aspects, and 8) mental health.

Data analysis

All data collected were recorded and stored using the Epi Info™ version 3.2 public domain software (http://www.cdc.gov/epiinfo). Continuous variables were analyzed statistically by the mixed effect linear model (random and fixed effects), which considers the differences between groups and the influence of time (Schall, 1991). The variable clinical index was first normalized by log transformation. Differences of proportions between the patients were analyzed by the Fisher exact test. A p value $\leq$ 0.05 was set as statistically significant.

RESULTS

Patient characteristics

General characteristics of patients are presented in Table 1. There was no significant difference between groups for any variable.

Regarding the characteristics of the drug treatment prescribed, there was no difference between groups in the total number of medications used (median: four medications). The range was one to 10 medications in the PCG and one to nine in the CG. For the specific treatment of IBD, the median was one medication in both groups, ranging from one to three in the PCG and from one to two in the CG. The medications used for IBD by both groups are listed in Table 2. The aminosalicylates used were sulfasalazine by the oral route and mesalazine by the oral or rectal route. The corticosteroids used were oral prednisone and hydrocortisone by the rectal route. The antibacterial drugs metronidazole or ciprofloxacin were used by the oral route.

Pharmaceutical care program

The median number of visits for the PCG was 8.5 per patient (range: 4 to 13 visits). Sixty-eight medication-related problems were identified, 60 of which were resolved. In addition, 14 potential problems were identified, and patients sought preventive care for 13 of them. A total of 126 interventions were necessary for the solution of these problems (median: six interventions per patient; range: 2 to 14), which consisted of patient orientation (71.4%), discussion with the prescribing doctor (10.3%), referral to other medical services (10.3%), and other forms of intervention (10.3%).

Compliance to drug treatment

There was no statistically significant difference between PCG and CG regarding the proportions of patients classified as more compliant and less compliant (Table 3) according to the Morisky scale. However, there was a gradual increase in the number of more adherent patients in the PCG, a fact that did not occur in the CG. This association with T(0), T(6) and T(12) was statistically significant ($p = 0.04$). In addition, the number of more compliant patients at T(12) was greater in the PCG than in the CG, but the difference was not statistically significant ($p = 0.09$).

Knowledge about drug treatment

Results of the MedTake test are presented in Figure 1. In the PCG, there was a significant increase in the percentage of knowledge from T(0) to T(6) ($p = 0.03$), from T(0) to T(12) ($p \leq 0.0001$), and from T(6) to T(12) ($p = 0.005$). It should also be pointed out that the percentage of knowledge observed in the PCG at T(12) was significantly greater than that observed in the CG ($p = 0.01$).

Clinical course

Figure 2 presents the progression of clinical indices (log) over time in PCG and CG patients. There was no statistically significant difference between the groups. However, regarding the influence of time, there was a significant reduction in the clinical indices from T(6) to T(12) in the PCG ($p = 0.02$).

Table 1. General characteristics of the patients submitted to pharmaceutical care intervention (pharmaceutical care group, PCG) and controls (control group, CG)

	PCG N=18	CG N=17
Age (years))		
Median (range)	44 (20 – 62)	49 (24 – 69)
Sex		
Women/Men	9/9	9/8
Marital status		
Patients with partners (Number and %)	13 (72.3%)	11 (64.7%)
Educational attainment		
Patients with complete elementary school (Number and %)	10 (55.7%)	11 (64.7%)
Occupation		
Patients with their own income (Number and %)	13 (72.3%)	11 (64.8%)
Per capita family income (US dollars)		
Median (range)	$ 182 (47 – 3,525)	$176 (55 - 399)
Medication provision		
Patients with medication fully supplied by SUS (Number and %)	16 (88.9%)	17 (100.0%)
Main diagnosis of IBD		
Crohn's disease (Number and %)	11 (61.1%)	7 (41.2%)
Ulcerative rectocolitis and nonspecific IBD (Number and %)	7 (48.9%)	10 (58.8%)
IBD activity		
Patients in remission or with indeterminate activity (Number and %)	16 (88.9%)	14 (82.4%)
Patients in activity (Number e %)	2 (11.1%)	3 (5.6%)
Duration of disease (years)		
Median (range)	8 (3 – 27)	7 (3 – 30)
Hospital admissions for IBD		
Patients who required hospitalization (Number and %)	13 (72.2%)	8 (47.1%)
Median number of hospital admissions (range)	1 (0 – 3)	0 (0 – 4)
Previous surgeries for IBD		
Patients who had at least one previous operation (Number and %)	5 (27.8%)	3 (17.6%)
Number of operations (median and range)	0 (0 – 2)	0 (0 – 2)

IBD: inflammatory bowel disease; N: number of patients in each group; SUS: Brazilian Unified Health System

Table 2. Medications used by the patients submitted to pharmaceutical care intervention (pharmaceutical care group, PCG) and controls (control group, CG)

CLASS	PCG N=18		CG N=17	
	CD	UC	CD	UC
Aminosalicylates	3 (16.7)	5 (27.4)	1 (5.9)	8 (46.9)
Azathioprine	4 (22.4)	2 (11.2)	2 (11.8)	—
Aminosalicylates and azathioprine	3 (16.7)	—	—	2 (11.8)
Aminosalicylates and corticosteroids	1 (5.6)	—	—	—
Azathioprine and corticosteroids	—	—	2 (11.8)	—
Aminosalicylates and metronidazole	—	—	1 (5.9)	—
Infliximab and metothrexate	—	—	1 (5.9)	—

CD: patients with Crohn's disease; UC: patients with ulcerative colitis. N: number of patients in each group.

Table 3. Adherence to pharmaceutical treatment assessed by the Morisky scale in patients submitted to pharmaceutical care intervention (pharmaceutical care group, PCG) and controls (control group, CG) at inclusion in the study (T0), at six months (T6) and at 12 months (T12)

	PCG N=18			CG N=17		
	T0	**T6**	**T12**	**T0**	**T6**	**T12**
More compliant	5 (27.8)	10 (55.6)	13 (72.2)	7 (41.2)	7 (41.2)	7 (41.2)
Less compliant	13 (72.2)	8 (44.4)	5 (27.8)	10 (58.8)	10 (58.8)	10 (58.8)

Data in number and percentages in parentheses

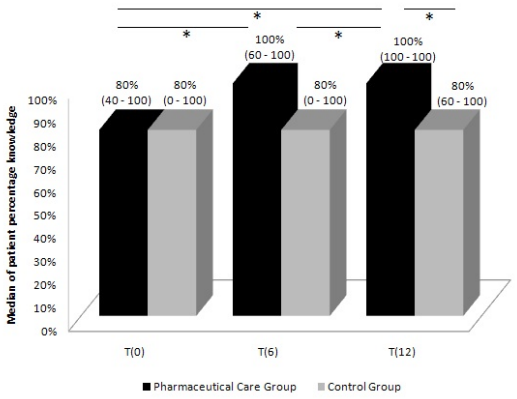

Figure 1. Results of modified MedTake for assessment of patient knowledge about drug treatment. T(0): inclusion in the study; T(6): six months of follow-up; T(12): 12 months of follow-up. PCG: Pharmaceutical care group; CG: control group. * - p< 0.05.

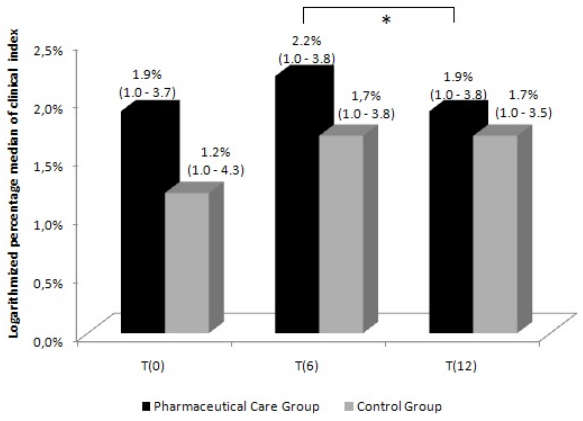

Figure 2. Clinical activity index (log) expressed as percentage of the highest possible score. Data as median (range). T(0): inclusion in the study; T(6): six months of follow-up; T(12): 12 months of follow-up. * p< 0.05.

Quality of life

Table 4 describes the results for the different domains of quality of life in PCG and CG. There was no significant difference between the groups in any domain at any time during the study, except for the mental health domain in both groups and the physical aspects in the PCG. The scores of mental health domain increased from T(0) to T(12) (p = 0.04) in both groups (p = 0.01) and such increase occurred earlier in the PCG, between T(0) and T(6) ($p \leq 0.01$). A significant increase in physical domain scores occurred only in the CG between T(6) and T(12) (p = 0.01).

DISCUSSION

In this study on the contribution of PC to the treatment of patients with IBD, an improvement in clinical and pharmacotherapeutic aspects was observed in the PCG but not in control patients. Clinical indexes improved during the last semester in the groups submitted to intervention, and both treatment compliance and patient knowledge about the treatment increased in the PCG at the end of the study. Thus, the results of the present study indicate that IBD patients benefit from PC.

Previous PC studies have included more complex therapies, due to their higher risk of drug-related problems (Messerli *et al.*, 2016; Blozik *et al.* 2017). In the current study, the use of at least one medication for IBD was established as an inclusion criterion. Hence, the possibility that the number of drug-related problems was overestimated cannot be ruled out, making difficult the confirmation of a beneficial effect of PC. In addition, there was a high proportion of patients in remission, which may indicate a stability of pharmaceutical treatment or a better quality of the outpatient care provided. Also, the number of patients was relatively small, which may have impaired the demonstration of more expressive differences between groups.

Clinical data of patients were mainly collected from the medical records. In the last six months of follow-up, clinical index values significantly decreased in the PCG, suggesting a reduction in IBD symptoms and clinical activity. PC has been shown to improve systolic and diastolic pressure control in hypertensive patients (Cazarim *et al.*, 2016), and fasting glycemia and of glycated hemoglobin control in diabetes (Khan Mohammed, 2015).

In the current study, Morisky scale revealed an improvement in medication-taking behaviors under the influence of PC, since there was a significant increase in the proportion of patients classified as more compliant from the beginning to the end of the study in the PCG. Although the difference between PCG and CG was not statistically significant at the end of the study, it is of note that most of patients were in remission and had a good adherence index at inclusion in the study.

Table 4. Scores of quality of life assessed by the SF36 in patients submitted to pharmaceutical care intervention (pharmaceutical care group, PCG) and controls (control group, CG) at inclusion in the study (T0), at six months (T6) and at 12 months (T12)

	PCG N = 18 Median (range)			CG N = 17 Median (range)		
	T0	**T6**	**T12**	**T0**	**T6**	**T12**
Functional capacity	82.5 (15 - 100)	82.5 (25 - 100)	85.0 (20 - 100)	65.0 (5 – 100)	75.0 (25 - 100)	75.0 (12 - 100)
Physical aspects	62.5 (0 - 100)	87.5 (0 - 100)	87.5 (0 - 100)	50.0 (0 - 100)	25.0 (0 - 100)	75.0# (0 - 100)
Pain	62.0 (22 - 100)	61.0 (31 - 100)	62.0 (31 - 100)	52.0 (22 - 100)	52.0 (22 - 100)	62.0 (22 - 100)
General health status	68.5 (35 – 97)	69.5 (40 - 97)	74.5 (25 - 100)	52.0 (30 - 92)	67.0 (35 - 97)	62.0 (5 - 92)
Vitality	57.5 (10 - 95)	60.0 (20 - 90)	57.5 (15 - 90)	60.0 (10 - 95)	55.0 (10 - 100)	60.0 (5 - 100)
Social aspects	75.0 (12.5 - 100)	93.7 (25 - 100)	81.2 (12.5 - 100)	62.5 (37.5 - 100)	75.0 (37.5 - 100)	87.5 (37.5 - 100)
Emotional aspects	66.6 (0 - 100)	100.0 (0 - 100)	83.3 (0 - 100)	33.3 (0 - 100)	33.3 (0 - 100)	100.0 (0 - 100)
Mental health	54.0 (20 - 100)	74.0* (24 - 96)	66.0* (12 - 96)	60.0 (20 - 88)	64.0 (28 - 88)	68.0* (8 - 100)

*- P<0.05 *versus* T0; # - P=0.01 *versus* T(6).

Low compliance to pharmaceutical treatment for many diseases is about 50% (WHO, 2003). Low compliance levels ranging from 30% to 72% have been observed in patients with IBD (Fidder *et al.*, 2013; Robinson *et al.*, 2013). Nahon *et al.*, (2011), in a study assessing socioeconomic and psychological factors and adherence to treatment in a cohort of 6,000 patients, identified that older age, treatment with anti-tumor necrosis factor (TNF), and membership in an association of IBD patients were associated with good adherence. On the other hand, nonadherence increased with smoking, constraints related to treatment, anxiety, and moodiness. A recent review on patients with UC demonstrated that in the management of these patients, adherence is low, resulting in fivefold higher risk of relapse, reduced quality of life and higher health care costs for both in- and outpatient settings (Testa *et al.*, 2017). An online survey assessed clinicians' awareness of the extent of non-adherence and factors associated with non-adherence in IBD (Soobraty, Boughdady, Selinger, 2017). The authors showed that clinicians frequently underestimate non-adherence and the use of validated screening tools is infrequent. The main reasons for non-adherence identified were forgetfulness, beliefs about necessity of medication and not immediately apparent benefits. Therefore, adherence to therapy for IBD is a complex issue that should be approached by individualized, multidimensional interventions (Lenti & Selinger, 2017). Also, professional education should focus on non-adherence practices to avoid adverse events related to non-adherence (Soobraty, Boughdady, Selinger, 2017).

Previous studies have reported improved compliance to pharmaceutical treatment in response to PC intervention (Leguelinel-Blache *et al.* 2015; Saleem *et al.*, 2015). In the present study, the rate of patients who were adherent increased by more than 2.5 times from the beginning to the end of PC intervention. In addition, increased compliance was followed by a reduction of clinical index, suggesting a lower occurrence of IBD symptoms.

Another aspect related to pharmacotherapy assessed in the present study was patient knowledge about the medication prescribed. Similar to a previous study conducted in Brazil (Azzoli, *et al.*, 2015), PC was effective in improving patient knowledge. However, it should be pointed out that the patients included in our study already showed high levels of knowledge (80%) in the beginning of the investigation, which may indicate, again, a good quality of the services provided by the outpatient clinic.

PC actions are characterized by patient-centered care, which assumes that the patient can take care of his own treatment as an active agent, participating and taking on responsibilities (WHO, 2003). Provision of appropriate information thus represents a tool that favors increased adherence to treatment, the rational use of medications, and hence better safety for patients (Testa, 2017; WHO, 2003). Some studies have indicated that inadequate communication regarding the medications is one of the main reasons why patients show deviations from proper compliance to treatment (Schinkel, 2016; Street *et al.*, 2017).

Regarding the effect of PC on patients' quality of life, there was an increase in mental health domain scores in both groups. This fact suggests that the inclusion in the study, per se, may have caused an improvement in participants' mental health. However, the fact that such increase was detected as early as in the first six months of follow-up in the PCG suggests a beneficial effect of PC in this group. In fact, attention should be given to mental health aspect in the management of IBD, since greater proportions of patients with changes in this domain in relation to the general population have been reported (Fiest *et al.*, 2016; Mikocka-Walus, *et al.* 2017).

In the present study, a generic instrument focused on health was used for the assessment of quality of life. This instrument was found to be satisfactory for the assessment of IBD patients in other studies (LeBlanc *et al.*, 2015; Slonim-Nevo, *et al.*, 2016). However, one should consider the use of specific instruments for assessing the quality of life of IBD patients, such as the Inflammatory Bowel Disease Questionnaire (IBDQ), already translated into Portuguese (Pontes *et al.*, 2004). This instrument has also been successfully used in previous studies (Magalhães *et al.*, 2014).

PC actions are largely of an educational nature, based on the use of communication skills by healthcare professionals (Street *et al.*, 2009; 2017). In this context, the early effects of PC may be in increasing patient knowledge on medications, with a consequent increase in treatment compliance. This, in turn, would promote a better control of the disease, and ultimately increase patients' quality of life. However, as the current study was not specifically designed to evaluate a cause-effect relationship between these factors, future studies are needed to confirm it. Additionally, further studies on a larger number of individual could provide more definitive evidence that PC has positive effects on patients' quality of life in long term, and a favorable economic impact on public health care services.

In conclusion, the present study showed a positive impact of PC on patient knowledge, treatment compliance and quality of life in a population of IBD patients, with high rates of disease remission, and use of a relatively small number of medications.

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RESUMO

Contribuição de um programa de atenção farmacêutica para pacientes ambulatoriais com doença inflamatória intestinal

Este estudo teve como objetivo avaliar a contribuição de um programa de Atenção Farmacêutica (PC) em pacientes ambulatoriais com Doença Inflamatória Intestinal (IBD) em acompanhamento ambulatorial de um hospital ensino de nível terciário em Ribeirão Preto, Brasil. Pacientes com IBD foram randomizados em dois grupos, um para receber procedimentos de PC (PCG; N = 18) e um grupo controle (GC; N = 17). Ambos os grupos foram acompanhados por um ano e comparados aos seis (T6) e 12 (T12) meses de estudo. Os pacientes foram avaliados quanto à adesão ao tratamento medicamentoso, conhecimento sobre o tratamento, índice de atividade clínica e qualidade de vida (SF-36). Nos pacientes do PCG, houve aumento significativo do percentual de pacientes mais aderentes ao tratamento medicamentoso de 28% para 72% (p <0,05), e quanto ao conhecimento do paciente sobre o tratamento, ocorreu um aumento de 80% para 100% (p≤0,0001) de T0 para T12. Houve uma diminuição significativa nos índices de atividade clínica de T6 para T12 em pacientes com PCG (mediana; faixa: 2,20; 0,99–3,77 ***versus*** **1,90; 0,99–3,77;** ***p*** **= 0,02), mas não no grupo GC (1,69; 0,99–3,77** ***versus*** **1,69; 0,99–3,48). O questionário de qualidade de vida revelou maiores escores no domínio saúde mental no T12 nos grupos PCG (57,5** ***versus*** **65,3;** ***p*** **= 0,04) e GC (56,9** ***versus*** **67,0;** ***p*** **= 0,01). O programa de CP foi associado a maior adesão ao tratamento medicamentoso, melhor qualidade de vida relacionada à saúde mental e maior conhecimento sobre o tratamento.**

Palavras-chave: Doenças inflamatórias intestinais. Assistência Farmacêutica. Cooperação e Adesão ao Tratamento. Conhecimento do Paciente sobre a Medicação. Qualidade de Vida.

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