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Perception of the importance and compliance with dietary treatment for patients with inflammatory bowel disease

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Abstract

Inflammatory bowel diseases (IBD), represented by Crohn's disease and ulcerative colitis, result in changes in food consumption and nutritional changes. This paper has aimed to assess the perception of importance and compliance with diet therapy by patients with IBD. The sample was made up by patients at an IBD multidisciplinary outpatient clinic of a family and community health unit in the town of Itajaí, Santa Catarina state, Brazil. A semi-structured questionnaire was applied to patients with IBD, containing questions on personal data, quality of care provided, and their compliance with the nutritional guidelines provided in the care protocol given by the nutritionists. The patient's nutritional status was also evaluated through anthropometric measurements and nutritional diagnosis at the beginning of treatment and at the time of data collection. Statistical analyses were performed using the software STATA 13.0. Of the 56 patients interviewed, 98% considered it important to receive guidelines on food and 93% said that their compliance with the guidelines helped in treating the disease. There was a prevalence of overweight patients, with 52% after follow-up with nutritional guidance, and reduction of malnutrition. Over 70% of patients said they had complied with the guidelines and the average compliance with guidelines for BMI was 7.61 and for perception of aiding it was 7.69. The guideline with highest compliance was for "reducing consumption of fats" and the least complied with was "consuming only bean broth." Based on the results, we have observed that the patients recognize the importance of nutritional care and its importance in controlling

symptoms, as well as the improvement in nutritional status and compliance with most of the diet therapy guildelines.

Keywords: Ulcerative Colitis. Crohn's Disease. Nutritional Status. Diet Therapy.

Introduction

Inflammatory bowel disease (IBD), represented by Crohn's disease (CD) and idiopathic ulcerative colitis (IUC), is a group of chronic inflammatory conditions resulting from an inadequate and persistent activation of the mucosalimmune system.[1] CD is defined as a chronic, idiopathic and transmural inflammatory process that affects one or more segments of the digestive tract. IUC is also an idiopathic chronic inflammatory process that reaches the rectum, extending continuously and proximally. It may reach the entire colon.[2]

IBD etiology is related to genetic, immunological and environmental aspects. Among the environmental aspects are dietary factors. It is suggested that diets with low fiber content and high sugar content, animal fat, total fats, omega-6 polyunsaturated fatty acids and meats may constitute risk factors for these conditions. It is also proposed that the consumption of juices, citrus fruits and vegetables can reduce the risk of developing both CD and IUC.[3]

Several epidemiological studies have demonstrated an increasing incidence of CD and IUC in recent decades. IBD affects people of different socioeconomic classes, age, gender and nationality.[4] It occurs worldwide and represents a serious health problem, since it affects mostly young people, has frequent recurrences and takes clinical forms of high severity.[5]

Brazil is still considered an area of low IBD prevalence, despite a significant increase in the incidence of these conditions in the national literature records. In our country, it is not considered compulsory to notify about these conditions, suggesting that IBD may not be being diagnosed, since medical records show high rates of bacterial or parasitic etiology diarrhea.[5]

According to Salviano, Burgos & Santos,[6] IBD conditions are commonly associated with protein-energy malnutrition as well as micronutrient deficiency in both inpatient and outpatient settings, caused by reduced food intake, malabsorption, increased gastrointestinal losses, and increased nutritional requirements. Such changes have an impact in all ages, undergoing the influence of the phase of activity, extension and location of the conditions. Malnutrition, however, aggravates the prognosis of both the patient undergoing clinical treatment and those undergoing surgeries, in addition to impairing the immune competence.

The nutritional treatment for the duration of IBD conditions aims to control symptoms, preventing and correcting malnutrition and various nutritional deficiencies, and reducing long-term sequelae.[3] In addition, an adequate nutritional support should be established to reduce surgical indications and operative complications, maintaining and/or recovering nutritional conditions.[6]

Therefore, it is extremely important to know the conditions of the patients affected by IBD and the difficulties in complying with the nutritional treatment, which may provide more subsidies for the multi-professional team working at the Inflammatory Bowel Disease Outpatient Unit of the School Health Unit in Itajaí.

The objective of the present study was to evaluate the perception of importance and compliance with dietary treatment from patients with inflammatory bowel disease.

Method

This is a cross-sectional and descriptive study carried out in an IBD multi-professional clinic at a School Health Unit in the Brazilian city of Itajaí, SC, from March 2014 to June 2015. The study was approved by the Research Ethics Committee (REC) of Brazilian UNIVALI (Universidade do Vale do Itajaí, University of the Vale de Itajaí) under no. 554518 of March 12, 2014.

Data collection was carried out from a semi-structured questionnaire consisting of open and closed questions, applied as an interview during the wait or after the end of consultations in a private, peaceful and quiet place. The inclusion criteria adopted were: confirmed diagnosis of the diseases, at least one consultation with a nutritionist, patients under 18 years of age only accompanied by parents or guardians and acceptance to participate in the study by signing an Informed Consent Form (ICF).

As for the exclusion factors, individuals could not participate in the research under the following conditions: having consulted or received nutritional guidance on IBD by a nutritionist who does not belong to the multi-professional outpatient clinic; presenting a psychiatric or neurocognitive condition preventing reliable clinical data obtainment (defined by clinical judgment from the investigated ones); pregnancy or lactation; presenting difficulty in oral feeding; being wheelchair-bound; having undergone gastroplasty or organ transplantation and presenting a diagnosis of renal insufficiency with indication of dialysis.

The evaluation questionnaire contained 35 questions divided into identification data, nutritional status before and after consultation with nutritionists, data on the disease, questions related to outpatient clinic care and compliance with the main nutritional guidelines provided by the team

nutritionists to patients with IBD. Information on the diagnosis of the disease, length of outpatient clinic care, weight and height were obtained from the patients' medical records. The nutritional diagnosis was made using the body mass index (BMI) and the classification according to the criteria proposed by the Brazilian Ministry of Health.[7] For statistical purposes, compliance was considered as that presenting a percentage of 70% or more for all the patients evaluated.

As for the results analysis and interpretation, the data collected in the research were tabulated with the Microsoft Excel® and Word® software. The data analysis was performed comparing the results with the recent literature on the subject and the statistical analysis was performed with the aid of the STATA 13.0 software. For the variables with symmetric distribution, the mean and standard deviation (presented in the mean +/- standard deviation format) were calculated. For the categorical variables, the absolute and relative frequencies (number and %) were calculated. The association between the categorical variables was tested using the Pearson's chi-squared test and Fisher's exact test, and the difference between means was calculated using Student's t-test for dependent samples.

The age of diagnosis, diagnosis time, schooling, treatment time with nutrition and number of guidelines complied with were considered as possible confounders. The analyses adjusted were conducted from a multiple linear regression. In all analyses, a significance level of 5% was assumed.

Results and Discussion

During the study period, 88 patients were enrolled in the IBD outpatient clinic, of which 56 were seen between March 2014 and June 2015 and would meet the inclusion criteria.

The results showed that 57% (n = 32) of the individuals served were females and 43% (n = 24) males. Mean age was 46 ± 15.29 years, ranging from 14 to 72 years. In a similar study, Silva, Schieferdecker & Amarante[8] have assessed 55 IBD patients and 58% (n = 32) were females aged around 40. However, the literature shows that IBD does not have a gender distinction,[9] but it is known that the tendency is for women to seek health services more than men,[10] either for prevention or recovery, thus justifying the prevalence of women in this research.

As for the patients' age, IBD often occurs in adolescents and young adults, but it can occur at any age.[11] This is confirmed by the present study, since for the patients evaluated the mean age for the IBD diagnosis was 39 ± 15.9 years. However, according to the patients' own reports, some manifestations had occurred years before diagnosis.

Regarding schooling, an average of eight (± 4.2) years of study was identified and only 55% (n = 31) worked routinely. The others were unemployed, retired or on leave of absence. It was also verified that 68% (n = 38) stated being married and 95% (n = 53) lived with their families, comprising on average 3 (± 1.47) people. These findings may be decisive for recovering the patient, since, according to Salviano, Burgos & Santos,[6] the proximity to the family is related to the faster return to the normal lifestyle after acute periods of the disease, having positive results in the patients' recovery.

Regarding family income, the mean reported by the total number of patients interviewed was approximately BRL 2,700.00 (± 1,753.82), ranging from 700 to 10,000 BRL, and a *per capita* income of BRL 900.00. On the other hand, in the study by Salviano, Burgos & Santos,[6] the majority of patients interviewed presented a family income below two Brazilian minimum wages, which would be incompatible with maintaining an adequate nutritional status.

IBD nutritional status may be affected by reduction in food intake caused by gastrointestinal symptoms, malabsorption due to decreased absorptive area, bile salt deficiency and drug treatment, with major changes in the acute phase of the disease.[8] Recent studies have shown that many patients in remission are in good nutritional status and others are overweight, and a follow-up with a nutritionist is necessary.[12]

Figure 1 presents the evolution of the results regarding nutritional status assessment before and after the nutritional follow-up in the IBD outpatient clinic, which on average was 893 (± 506.57) days.

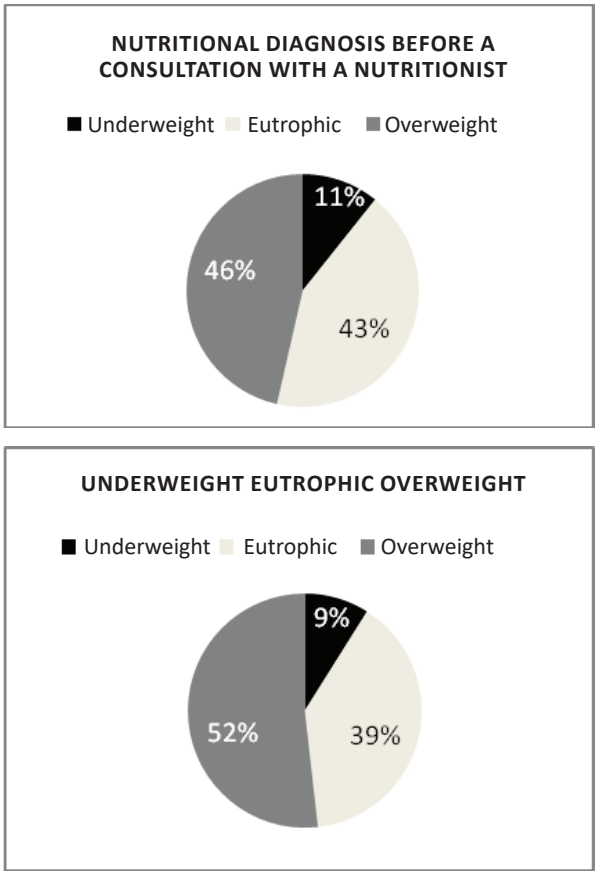

Figure 1. Comparison of the nutritional status of patients before and after nutritional care in an Inflammatory Bowel Disease multidisciplinary outpatient clinic. Itajaí, SC, June 2014.

According to Figure 1, it is possible to observe that during the treatment there was a reduction of 18.8% in malnutrition and an increase of 13.04% in overweight patients. Thus, in addition to improving quality of life, it is believed that nutritional guidelines, when complied with, can improve the patients' anthropometric condition but when not complied with at the remission of the disease they can cause overweight.

There were no significant differences between weight ($p = 0.977$) and BMI ($p = 0.971$) before and after nutritional consultations. The results of the analyses have shown that the values, when

adjusted for the variables "age of diagnosis," "diagnosis time," "schooling," "nutritional treatment time," and "number of guidelines complied with," have shown association only between final BMI and age of diagnosis (β = 0.13; IC = 0.04 to 0.22) (p = 0.005).

A study carried out by Silva, Schieferdecker & Amarante[9] has shown that patients already in remission presented higher carbohydrate and lower protein intakes when compared to healthy controls. This is probably due to the reduction of symptoms, which caused the individuals to end up eating in greater quantity and even losing the fear of eating. However, Boutros & Maron[13] state that in the last two decades obesity is becoming more frequent among IBD patients.

Regarding the disease diagnosis, 54% (n = 30) of the patients presented Crohn's disease and 46% (n = 26) ulcerative rectocolitis, diagnosed on average six years ago (± 6.57), ranging from three months to 30 years. It is possible to observe a greater number of patients with CD, but there is little difference regarding the presence of RC, as in the study by Israeli et al.,[14] in which 244 IBD patients were interviewed, being 52% CD and 48% RC.

It was also observed that 44% (n = 25) of the individuals had lactose intolerance (LI) and 60% (n = 34) had irregular bowel habits. LI can be justified by the involvement of the intestinal mucosa, more common in CD, which can lead to a reduction in the activity of the enzyme lactase, due to the decrease in enterocytes, core and brush-shaped border caused by diarrhea.[15]

As for the symptoms reported, flatulence predominated (85%, n = 48), followed by abdominal pain (55%, n = 31) and abdominal distension (46%, n = 26). Also hematochezia (39%, = 22) and fever (19%, n = 11) were reported. Based on the literature, it has been observed that the symptoms caused in lactose intolerant patients and in IBD patients are similar, among them diarrhea, flatulence and abdominal pain.[15]

Despite the fact that there is no change in the energy needs, it is observed that there is an inadequacy in food intake in IBD patients, both in activity and in remission of the disease.[8]

When the disease is active, it is important that food help control symptoms and prevent or reverse weight loss through the use of appropriate nutritional supplements. There should be restriction of simple carbohydrates and foods that cause flatulence, also restricting the content of insoluble fibers and residues, having several meals a day, containing few volumes.[3] With the improvement and beginning of the remission phase, the diet should be balanced and the calories should be adequate to the patient's nutritional status, gradually adding fibers and maintaining a moderate fat content.[8] In view of the above, it is critical that nutritional monitoring be performed in all stages of the disease.

Table 1 presents the results related to patients' opinions regarding the nutritional care provided by nutritionists at the IBD outpatient clinic multi-professional team.

Table 1. Patients' opinion on the nutritional care offered at the Inflammatory Bowel Disease multidisciplinary outpatient clinic. Itajaí, SC, June 2014.

	Yes		No		Partial		I do not know	
	N	%	N	%	N	%	N	%
Has received food guidance from the beginning	52	93	3	5	1	2	–	–
Has understood the instructions	52	93	–	–	4	7	–	–
Finds it important to receive them along with medical care	55	98	–	–	1	2	–	–
Thinks that nutritional guidelines have helped in treating the disease	52	93	1	2	1	2	2	3

According to Table 1, 98% (n = 55) of the patients interviewed consider it important to receive guidelines on diet in conjunction with medical care. In addition, the majority (93%, n = 52) understood them and stated that their compliance aided in treating the disease. It is known that compliance with treatment, be it nutritional or medical, plays an important role in its success. It is a multifactorial process that is established through a partnership between the health professional and the patient, covering aspects that include frequency of consultations, recognition, acceptance and adaptation of their health condition, identification of risk habits, preservation of attitudes that promote quality of life, development of awareness for self-care and maintenance of health care. Chronic condition patients have less compliance with treatment, since the often complex therapeutic care requires an immense effort from them and should be constantly followed.[16]

Data on compliance with the main nutritional guidelines for IBD are presented in Table 2.

Table 2. Nutritional guidelines compliance evaluation provided to patients of the Inflammatory Bowel Disease multidisciplinary outpatient clinic. Itajaí, SC, June 2014.

Main nutritional guidelines	Always/almost always		Rarely/never		Has not received such guidance	
	N	%	N	%	N	%
1. Having meals in a quiet and peaceful place	44	78	10	18	2	4
2. Having 4 to 6 meals/day	42	75	14	25	–	–
3. Avoiding foods that are irritant to the mucosa	44	78	10	18	2	4
4. Avoiding foods that release gas from the digestive tract	36	64	14	25	6	11
5. Consuming cooked fruits and vegetables	44	78	10	18	2	4
6. Decreasing the consumption of fried foods and fat	52	93	3	5	1	2
7. Avoiding industrialized products	44	78	10	18	2	4
8. Decreasing the consumption of milks and dairy products	25	44	29	52	2	4
9. Consuming only the bean broth	21	37	23	41	12	22
10. Avoiding excessive consumption of coffee and *chimarrão* maté	29	52	21	37	6	11
11. Reducing the consumption of sugars and sweets	41	73	13	23	2	4

It was observed that of the 11 recommendations evaluated, 64% (n = 7) were complied with by more than 70% of the patients, although there was no association between compliance with guidelines and nutritional diagnosis (p = 0.359). It was verified that the average number of instructions necessary for patients to improve BMI (approximation of the ideal BMI for the age group) and had the perception that the nutritional instruction aided in the treatment was of 7.61 and 7.69, respectively. It should be noted that the most commonly used guidance was "to reduce the consumption of fats and fried foods." As for those that presented more difficulties of compliance, they were: "Consuming only the bean broth," "Decreasing the consumption of milk and dairy products," and "Avoiding excessive consumption of coffee and chimarrão maté."

In relation to the most complied with guidelines, the reduction of the intake of fats and fried foods (93%) and of industrialized foods (78%) were important findings on dietary guidelines, especially when compared to the results by Campos & Cavalcante,[11] who have demonstrated in their study that 83% of patients with CD usually consume fried foods and 48% canned foods. It is known that when there is inflammation of the intestinal mucosa, the absorption of fats is made difficult by the reduction of the absorptive area, which may aggravate the steatorrhea.[17]

Corroborating these results is the compliance (78%, n = 44) with the recommendation to avoid foods that are irritant to the mucosa, since the consumption of these foods stimulates the increase of gastric acid, causing constant irritations.[18] According to Santos, Silva & Santana,[19] the reduction of these foods may also be related to fear of symptoms onset or worsening.

The instruction for having meals in a quiet and peaceful place had a high compliance rate (78%, n = 44) and having several meals a day had 75% (n = 42) compliance from patients, which may help in controlling serum glucose concentration, cholesterol, maintenance of an adequate body weight and also intestinal health.[20]

The compliance by 78% (n = 44) of patients to the consumption of cooked fruits and vegetables improves the diet quality and helps minimize symptoms, especially in the active phase of the disease. According to Santos,[21] an adequate consumption of vegetables and fruits contributes to reducing the risk of developing IBD. In addition, reducing sugar and sweets consumption, complied with by 73% (n = 41) of the patients, is a significant finding because, for Almeida et al.[22], the consumption of these foods can cause flatulence and diarrhea, impairing the gastrointestinal microbiota.

On the other hand, the low compliance percentage with the guidelines of "avoiding foods that release gas from the digestive tract" and "consuming only bean broth," with 64% (n = 36) and 37% (n = 21) compliance respectively, may be contributing to the main symptom reported by patients: flatulence (85%, n = 38). São José[23] stresses that foods rich in sulfur can cause gastric discomfort, such as flatulence, due to the high content of sulfur compounds.

Another guideline that presented low compliance (52%, n = 29) was that of avoiding excess coffee and chimarrão maté, because caffeine is a potent stimulant of colonic contraction and if consumed in excessive amounts it can cause diarrhea.[24]

Regarding the consumption of milk and dairy products, only 44% (n = 25) of the patients decreased their intake, the same percentage of patients with lactose intolerance. According to Branco,[17] the consumption reduction of foods with lactose in the acute phase is important, regardless of the lactase deficiency, because its quantity in the organism decreases with cellular injury and with the presence of diarrhea, increasing the volume of residues produced by milk and, consequently, the patient's discomfort.

A study carried out by White & Marin-Leon[25] has evaluated the compliance with nutritional guidelines provided to hypertensive elderly people in health services and found that although they received nutritional guidelines, most did not follow them, probably because they did not understand the guidelines received and/or felt unmotivated to comply with them and did not understand the importance of measures for the control of diseases. The authors also emphasize the need to stimulate the patients' empowerment through group education, which can allow autonomy in the choices, decisions and behaviors when facing a treatment.

For Zanetti and contributors,[26] it is crucial to investigate the contributions from sociodemographic variables in compliance with food plans and in the present study it is highlighted that compliance with the guidelines has not presented a statistically significant association with schooling ($p = 0.808$), work ($p = 0.080$), or gender ($p = 0.813$).

In general, the nutritional guidelines given to patients treated at the IBD outpatient clinic provide a balanced diet and aim to encourage adequate eating habits, both for patients in the active phase, relieving the symptoms, as for those who are in remission of the disease. But it is well known that nutritional counseling and education are long intervention processes that require professional time and dedication, since they start from the reconstruction of information arising from the knowledge and experience of the individuals themselves in the process of forming their habits and modifying their behavior.[27]

Conclusion

The results obtained in the present research were relevant to the perception of the IBD patient in relation to the diet that must be followed to improve nutritional status, especially during the active phase of the disease. Dietary therapy was observed by the majority of patients, with a better acceptance of the following guidelines: "reducing the consumption of fats and fried foods,"

"avoiding foods that are irritant to the mucosa," and "avoiding the consumption of processed products." While those which were more likely to non-compliance were: "consuming only bean broth," "reducing milk and dairy products consumption," and "avoiding excessive consumption of coffee and chimarrão maté."

It is noteworthy that individuals who improved BMI and had the perception that nutritional monitoring aided in the IBD treatment complied with on average 7.61 and 7.69 of the 11 guidelines, respectively. It was also observed that there was a reduction in malnutrition, but overweight increased, necessitating a more effective nutritional follow-up in the phase of remission of the disease.

The comparison of results obtained with those found in the literature was limited, considering the scarcity of studies reporting dietary behavior in inflammatory bowel diseases and compliance with them. Thus, it is suggested that more investigations on the subject be carried out.

In view of the above, it is possible to verify the importance of patients' compliance and perception regarding nutritional guidelines, thus offering support so that the professionals involved can reflect on dietary behavior, seeking new ways to motivate treatment compliance and consequently patients' quality of life.

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