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RESEARCH ARTICLE

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CLINICAL-EPIDEMIOLOGICAL PROFILE OF NOTIFIED CASES OF PATIENTS WITH CROHN'S DISEASE AND ULCERATIVE RECTOLITIS IN PIAUI

*Debora Regina Marques Barbosa, Rafael Lisboa da Silva, Manoel Guedes de Almeida and Lorena Maria Barros Brito Batista

Brazil

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*Corresponding author:

Debora Regina Marques Barbosa

ABSTRACT

Introduction: inflammatory bowel diseases (IBD) correspond to a group of immune-mediated chronic inflammatory diseases of the gastrointestinal tract of unknown causes on genetically predisposed individuals. In this group are heterogeneous diseases that affect the mucosa of the gastrointestinal tract, being more common Crohn's disease and ulcerative colitis. **Material and Methods:** this is a descriptive study of the sectional type, of documentary nature. By taking possession of clear norms and scientific rigor, data were collected from the Hospital Mortality System of the SUS (SIH/SUS) available in the SUS Information Department (DATASUS), tabulated by TABNET, regarding the place of hospitalization of the patient with ulcerative colitis and Cohn's disease (code K51 and K50 of the ICD-10) between 2018 and 2022. The variants used are color/race, sex, age group, ICD-10, year of hospitalization, deaths and mortality rate, FU, and area of residence of the patient diagnosed with IBD. **RESULTS:** in the period from 2018 to 2022, 602 cases of SUS hospital morbidity of the main diseases of the digestive system in the State of Piauí were confirmed, with an average of 120.4 cases/year. Of these, 314 are male and 288 are female. Regarding hospitalization for care character, 535 were emergency and only 67 elective. The years 2018, 2019 and 2022 presented the highest incidence coefficients of this series, respectively 4.15/100,000hab., 4.30/100,000hab. and 4.25/100,000hab. When considering the age group as the analysis variable, the ages are in the interim of 1 and 80 years or more, a large part of the population was in the range of 30 and 39 years (125/20.76%) and 20 and 29 years (119/19.76%). Of the total cases reported according to race/color, it was demonstrated that the highest concentration was among browns with 371 (61.62%). Regarding the macro-region of the reported cases, 544 (90.36%) are from the Mid-North macro-region, 23 (3.82%) and in relation to the spatial distribution of the reported cases, Teresina (531/88.20%) and Parnaíba (14/2.32%) presented the highest number of cases in the time interval of the study according to place of intention. **CONCLUSION:** knowledge of the epidemiological and spatial profile of IBD can provide a broader basis and more elements to elucidate the natural history of the disease in the State, its main complications and therapeutic failures. On the whole, this information can support strategies to cope with the disease and minimize its impacts on the affected population.

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INTRODUCTION

Inflammatory bowel diseases (IBD) correspond to a group of chronic immune-mediated inflammatory diseases of the gastrointestinal tract of unknown causes in genetically predisposed individuals (POCHARD *et al.*, 2018). This group includes heterogeneous diseases that affect the mucosa of the gastrointestinal tract, with Crohn's disease and ulcerative colitis being the most common (KHORSHIDI *et al.*, 2020). They can be triggered by the interaction of epigenetic and environmental factors, resulting from abnormal intestinal immunity and altered intestinal microbiota, due to the interaction of environmental factors, such as diets and infections, in susceptible subjects (RODA *et al.*, 2020). Because they have a common pathophysiological basis, centered on the relationship

between external factors and the patient's immune system, CD and UC share

symptoms such as abdominal pain and discomfort, hematochezia and diarrhea. However, location, depth and complications of injuries differ (RODA *et al.*, 2020). In CD, environmental, genetic and factors related to the intestinal microbiota and the individual's immune response can trigger the involvement of areas of the mucosa and possible appearance of lesions or fistulas. These lesions are typically discontinuous and transmural, involving all layers of the intestine, and can affect any part of the gastrointestinal tract, from the mouth to the anus; however, they are more common in the small and large intestines (FERREIA; DEDeus; JUNIOR, 2021). On the other hand, the inflammatory process generated by UC occurs continuously and is typically restricted to the superficial mucosa and submucosa of the GIT, limited to the colon and rectum (FERREIA; DEDeus; JUNIOR,

2021). Patients with IBD often have negative impacts on quality of life, since both diseases are more prevalent in young people, evolve with intestinal symptoms of chronic progression and frequent cycles of relapse and remission (SEYEDIAN; NOKHOSTIN; MALAMIR, 2019). Some patients develop severe forms of the disease, requiring multiple hospitalizations and with serious implications for their work capacity and affective and social relationships. Patients with IBD also have a higher risk of developing colorectal cancer (CRC). Studies point to a higher risk after 30 years of disease for patients with IUCR (18%) compared to CD (8%) (POCHARD *et al.*, 2018). The highest incidence of CD occurs in young adults aged 20 to 40 years. On the other hand, IUCR has a characteristic bimodal pattern of age distribution, with peak incidence between 20 and 30 years and between 60 and 80 years (MAK *et al.*, 2020). Most patients with IBD meet criteria for the diagnosis of UC (70.6%), followed by DC (29.4%) (DURANTE *et al.*, 2022). Although studies point to an increase in the incidence of IBD in several places in the world and in Brazil, the country still has a low incidence and prevalence of this disease (ZALTMAN *et al.*, 2021). Based on the presented factors, IBD represents an important public health problem in Brazil. Both due to their epidemiological characteristics, affecting the economically active population, their chronic course and the great impact on the individual's quality of life and socio-affective relationships, as well as the development of potentially fatal severe forms, these diseases have a strong impact on health services, requiring the development of specific coping strategies (SUN *et al.* 2021).

METHODOLOGY

This is a descriptive, cross-sectional, documental study. By taking hold of clear standards and scientific rigor, data were collected from the SUS Hospital Mortality System (SIH/SUS) available at the SUS Information Department (DATASUS), tabulated by TABNET, referring to the place of hospitalization of patients with ulcerative colitis and Cohn's disease (ICD-10 code K51 and K50) between 2018 and 2022. The variants used are color/race, sex, age group, ICD-10, year of hospitalization, deaths and mortality rate, UF and area of residence of the patient diagnosed with IBD.

The question that guided this study was: what is the clinical and epidemiological profile of reported cases of patients with Ulcerative Colitis and Cohn's disease in the state of Piauí from 2018 to 2022. The bibliographic survey to compose this study was carried out between August and October 2022 and the search was conducted in the Virtual Health Library (VHL), in which the following databases were searched: Latin American and Caribbean Literature in Health Sciences (LILACS), National Library of Medicine (NLM-PubMed) and Scientific Electronic Library OnLine (SCIELO) and in the interactive support for *clinical* decisions *UpToDate*. To search for indexed articles, the following descriptors were used: inflammatory bowel disease, Crohn's disease, and idiopathic ulcerative colitis. To systematize the research, the *Boolean operator* "AND" was applied. As inclusion criteria, articles published in the period from 2010 to 2022 were used; written in Portuguese, Spanish or English and made available in full in the database. Exclusion criteria were duplicate articles, reviews, conference proceedings, opinion articles, literature reviews, reflection articles, editorials, theses, dissertations and articles that did not directly address the subject of this study.

RESULT

Between 2018 and 2022 there were 602 cases of hospitalization for Crohn's Disease and Ulcerative Colitis in the State of Piauí, with an average of 120.4 hospitalizations/year. Of these, 52.16% (N = 314) are male and 47.84% (N = 288) are female. As for hospitalization due to care, 88.8% (N=535) were urgent and only 11.13% (N=67) were elective care. According to Table 1, the years 2018, 2019 and 2022 had the highest rates of hospitalizations, respectively 4.15/100,000 inhab., 4.30/100,000 inhab. and 4.25/100,000han. As for the hospital mortality rate, a higher mortality rate was recorded in 2018 with 0.15/100,000 inhabitants. and 2019 with 0.15/100,000 inhab. When considering the age group as an analysis variable, the ages ranged from 1 to 80 years or more, a large part of the population was between 30 and 39 years (N=125; 20.76%) and 20 and 29 years (N=119; 19.76%).

Table 1. Characterization of hospital morbidity in the State of Piauí according to year of notification

Year of Diagnosis	No	%	Hospital admission rate (per 100,000)	N deaths from the injury	Hospital mortality rate (per 100,000)
2018	134	22.25	4.15	5	0.15
2019	139	23.08	4.30	5	0.15
2020	91	15.11	2.81	3	0.09
2021	100	16.61	3.08	3	0.09
2022	138	22.92	4.25	two	0.06
Total	602	100.0	18.59	18	0.54

Source: Hospital Information System

Table 2. Characterization of Crohn's Disease and Ulcerative Colitis cases according to age group and race in the State of Piauí between 2018-2021

Variables	No	%
age group		
1-4	3	0.49
5-9	11	1.82
10-14	12	1.99
15-19	48	7.97
20-29	119	19.76
30-39	125	20.76
40-49 107		17.77
50-59	99	16.44
60-69	27	4.48
70-79	33	5.48
80+	18	2.99
race/color		
White	18	2.99
black	9	1.49
brown	371	61.62
Yellow	29	4.81
Not applicable	175	29.06

Source: Hospital Information System

Of the total number of cases notified according to race/color, it showed that the highest number of hospitalizations was of the mixed race/color (N=371; 61.62%) and yellow (N=29; 4.81%). It should be noted the large number of blank cases or without information regarding this variable (N=175; 29.06) (Table 2). As for the macro-region of notified cases, most (N=544; 90.36%) are from the Mid-North macro-region, 23 cases are from the Coast (3.82%), 20 cases are from the Semi-arid region (3.32%) and 15 cases are from the Cerrados region (2.49%). With regard to the spatial distribution of notified cases, Teresina (N=531; 88.20%) and Parnaíba (N=14; 2.32%) had the highest number of cases in the time interval of the study, according to the place of intention (Table 3).

Table 3. Characterization of Crohn's Disease and Ulcerative Colitis cases according to macro-region and the four cities with the highest number of cases of digestive system disease. Second place of hospitalization in Piauí-BR, 2018-2021

Variables	No	%
Macroregion		
Mid North	544	90.36
Coast	23	3.82
semi-arid	20	3.32
closed	15	2.49
Spatial distribution		
Teresina	531	88.20
Parnaíba	14	2.32
floriano	9	1.49
Oeiras	9	1.49

Source: Hospital Information System

DISCUSSION

Cases of inflammatory bowel disease deserve special attention not only because of their hospital morbidity, but because they represent an important public health problem, with impacts on education, performance, social interaction and quality of life. Based on the results presented, 2020 and 2021 were the years with the lowest hospital admissions for IBD compared to previous years, with an increase in 2022, when it was possible to observe not only a high number of hospitalizations but also a higher number of hospital deaths. The drop in the number of hospitalizations in 2020 and 2021 may be related to the beginning and peak of the SARS-COV-2 pandemic, when access to health services in general and, more specifically, to hospital services was restricted, leading to moments of underdiagnosis, undertreatment and underreporting. The historic moment experienced during the COVID pandemic had impacts on all health sectors. If, on the one hand, new cases of IBD became increasingly difficult to diagnose and treat during the pandemic, cases already diagnosed had precarious follow-up, with more frequent relapses at a time of reduced capacity to ensure quality health for the most seriously ill patients. This prism may justify the large growth in the number of hospitalizations and hospital deaths due to IBD in 2022, concomitant with the reduction in Covid cases in the country. In agreement with other studies on the subject, this work demonstrated a greater number of IBD cases among people aged 20 to 39 years. Thus, IBD has a great economic and social impact, while affecting the economically active population in the productive phase (SOUSA; BELASCO; AGUILAR-NASCIMENTO, 2018; DA SILVA VALNIYO; SANTOS; FERRAZ, 2022; DA ROSA; DA SILVAR JUNIOR; DA ROSA, 2014; DE BRITO *et al.*, 2020). As in other series, IBD has a second peak of incidence between 40 and 59 years. Arantes *et al.* (2017) points out that this second peak of incidence is directly related to the recurrence of the disease and the clinical forms of high severity. Despite the predominance of national IBD studies in white people (SALVIANO; BURGOS; SANTOS, 2007; DE BRITO *et al.*, 2020), the present study demonstrated a different profile in the State of Piauí, with a higher prevalence among brown patients during the study period. It is important to highlight that IBD are difficult to differentiate from each other and from other pathologies of the gastrointestinal tract. Often, there is a late

diagnosis. Consequently, most hospitalizations take place in the active phase or after complications of the disease. Corroborating this fact, there was a predominance of emergency care in Piauí, with implications for hospital mortality (DA SILVA *et al.*, 2022; DE BRITO *et al.*, 2020). According to Oliveira *et al.* (2010), the average length of stay in Brazil is approximately 7 days, with significant morbidity and biopsychosocial changes in both the patient and the family, in addition to the large public expenditure during the hospitalization period. Thus, the speed of diagnosis and institution of appropriate therapy, especially in neglected groups, would enable effective treatment and cost reduction. As for the gender variable, there is a similar distribution for both sexes with a higher prevalence among males. The literature, however, presents the female gender as having a higher incidence of IBD (SOUSA; BELASCO; AGUILAR-NASCIMENTO, 2018; DA SILVA *et al.*, 2022; DA ROSA; DA SILVAR JUNIOR; DA ROSA, 2014). The highest number of cases reported in Teresina, the state capital, can be justified by the higher population density and live births in Greater Teresina, made up of the capital and nearby cities. In addition, Teresina concentrates high complexity hospitals in the State, places where patients with specialized demands from other municipalities converge.

CONCLUSION

Knowledge of the epidemiological and spatial profile of IBD can provide a broader base and more elements to elucidate the natural history of the disease in the State, its main complications and therapeutic failures. As a whole, this information can support strategies for coping with the disease and minimizing its impacts on the affected population. In addition, the hospital profile of reported cases of IBD is important as a marker of health and care for a population. Thus, this knowledge can support the development of public policies for outpatient diagnosis and treatment with possible impacts on hospital morbidity, costs and quality of life of the assisted population. Indeed, the lack of assistance observed during times of crisis, such as the COVID pandemic, had important impacts on the population with IBD in Piauí.

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