Epidemiological Profile of Patients with Crohn's Disease and Ulcerative Colitis in the Last 6 Years

Perfil Epidemiológico de Pacientes com Doença de Crohn e Colite Ulcerativa nos Últimos 6 Anos

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Abstract

Inflammatory bowel diseases, Crohn's Disease and Ulcerative Colitis, are two relevant changes in the intestinal microbiota of individuals who are subject to environmental and genetic changes. With the social development and, mainly, the spread of industrialization, the increase in gastrointestinal diseases was observed on a large scale. Therefore, the study permeated to relate and obtain its results according to ethnicity, sex, phenotypic alterations of PID and gender, which are risk factors for these diseases. To characterize the epidemiological profile of patients with Crohn's Disease and Ulcerative Colitis in Brazil in the last 6 years. This is a time series epidemiological study with the objective of collecting data from patients who were diagnosed with Crohn's Disease and Ulcerative Colitis, in all Brazilian regions from 2014 to 2019. Data will be collected in the System of SUS Hospital Information (SIH/SUS), within a period of 6 years and for the analysis of these data, sociodemographic variables will be used, namely: ethnicity, sex, region, age group and admissions number, being accessed on 09/22/2020. The panorama presented shows high rates of hospitalization in the Southeast and Northeast regions, the diagnosis for the two diseases predominate in the South region, females, ethnicity/white race and age group between 20 and 29 years highlighted. Thus, the intervention of public policies that improve the population's health condition is of paramount importance.

Keywords: Hospitalization. Epidemiology. Inflammatory Bowel Diseases.

Resumo

As doenças inflamatórias intestinais, Doença de Crohn e a Colite Ulcerativa, são duas alterações pertinentes na microbiota intestinal de indivíduos que estão sujeitos a mudanças do ambiente e genéticas. Com o desenvolvimento social e, principalmente, alastramento da industrialização o aumento das doenças gastrintestinais foi observado em larga escala. Sendo assim, o estudo permeou em relacionar e obter os seus resultados de acordo a etnia, sexo, alterações fenotípicas de IDP e gênero, que são fatores de riscos para essas doenças. O objetivo desse estudo foi caracterizar o perfil epidemiológico de pacientes com doença de Crohn e colite ulcerativa, no Brasil, nos últimos 6 anos. Trata-se de um estudo epidemiológico de serie temporal com o objetivo de coletar dados de pacientes que foram diagnosticados com doença de Crohn e colite ulcerativas, em todas as regiões brasileiras no período de 2014 até 2019. Os dados serão coletados no Sistema de Informações Hospitalares do SUS (SIH/SUS), dentro do período de 6 anos e para a análise desses dados, serão utilizadas as variáveis sociodemográficas, que são: etnia, sexo, região, faixa etária e números de internações, sendo acessado no dia 22/09/2020. O panorama apresentado demonstra altas taxas de internação nas regiões sudeste e nordeste, o diagnóstico para as duas doenças predominam na região sul, o sexo feminino, etnia/raça branca e faixa etária entre 20 e 29 anos em destaque. Desta forma, é de suma importância a intervenção de políticas públicas que melhorem a condição de saúde da população.

Palavras-chave: *Hospitalização. Epidemiologia. Doenças Inflamatórias Intestinais.*

1 Introduction

The Inflammatory Bowel Diseases encompass two major pathologies, namely: Crohn's Disease (DC) and Ulcerative Colitis. They can develop on account of a changed microbiota of the patient, being acquired throughout life by external factors or by genetic alterations. By evaluating the location of these alterations, Crohn will be specified in the bowel extension, and colitis, usually established in the large intestine and the rectum. It is observed that the stages of the inflammation cascades designate similar invasive symptoms, such as: diarrhea, hematochezia, nausea, vomiting, injuries and fistulas. That is, the clinical sign s similar, but the differential core will be the intensity and duration of these recurrent symptoms[1].

The historical designation of these gastrointestinal diseases permeates the appearance related to the socioeconomic development of some regions around the world, especially the localities in which industrialization was established. A study conducted in Japan and accepted by the Japanese Society of Gastroenterology found that the regions most affected by these changes would be those of Western, Eastern, North America and Japan, that is, regions where the economic arsenal is concentrated[2]. In contrast to the initial findings, the mapped conclusion is that some world localities began to develop with the establishment of industries and metropolises, thus consolidating the underdeveloped countries.

This level curve that increases the Gross domestic Product (GDP) is perceived in the countries of South America has obtained its growing population of patients with chronic inflammatory gastrointestinal diseases, thereby increasing to the state of São Paulo[3].

Therefore, the study permeated to relate and obtain its results according to ethnicity, sex, phenotypic alterations of PID and gender, which are risk factors for these diseases. In addition to these factors, the industrialized areas are major areas of migration, therefore, the population that migrates corroborates to the increase in the incidence of the place of adoption, and not of its place of origin, thus expanding the epidemiological framework of the research area[4]. Despite a significant increase, these diseases are not considered prevalent in Brazil, but there are regions more frequently according to epidemiological characteristics[5].

Given this epidemiological context that changed its global contextualization, the present article aims to characterize the epidemiological profile of individuals from different regions of Brazil in the last six years, involving the variables gender, ethnicity, gender, age group and especially if these patients were hospitalized, thus confirming the severity of the disease. If the prognosis is negative, it will be related to the number of deaths during these last six years of data analysis.

2 Material and Methods

This is a time series epidemiological study with the objective of collecting data from patients who were diagnosed with Crohn's Disease and Ulcerative Colitis, in all Brazilian regions from 2014 to 2019. Data will be collected in the System of SUS Hospital Information (SIH/SUS), within a period of 6 years and for the analysis of these data, sociodemographic variables will be used, namely: ethnicity, sex, region, age group and admissions number, being accessed on 09/22/2020.

Chapter XI 189 of the list of morbidity tabulation in which CID K50-K51 was used to access hospital admissions due to Crohn's disease and ulcerative colitis.

All the information considered in this study was compiled in tables and graphs from each region of Brazil, from the DATASUS/Ministry of Health - SUS Hospital Information System (SIH/SUS) database. Later they were validated by double typing, the third being exported to Excel in the Microsoft version 2013, resulting in a structured database for statistical analysis of variables. The variables were initially explored by descriptive statistics in Excel and the results compiled in different tables and graphs.

3 Results and Discussion

Between January 2014 and December 2019, 26,851 patients were hospitalized in hospitals in SUS throughout the Brazilian regions due to Crohn's disease and ulcerative colitis. According to Q 1, the highest prevalence of hospitalized patients per region in Brazil, from 2014 to 2019, will be the Northeast (5512) and Southeast (12590) region. Regions with decay of inpatients culminate in the North (1300) and Central-West (2086) region.

Table 1 - Hospital morbidity, of patients with Crohn's disease and ulcerative colitis, of SUS by place of hospitalization, in Brazil between 2014 and 2019

Region	2014	2015	2016	2017	2018	2019	Total
North Region	298	246	190	174	213	153	1300
Northeast Region	784	706	870	949	1035	1099	5512
Southeast Region	1720	1964	2072	2144	2347	2230	12590
South Region	807	927	880	889	978	816	5363
Central-West Region	317	323	351	333	350	387	2086
Total	3926	4166	4363	4489	4923	4685	26851

Source: Research data.

The region of the country that presents more cases of Crohn's disease and ulcerative colitis is the Southeast, this is due to the fact that this region has more inhabitants in the years 2014 to 2019, when compared to others. However, when it comes to the prevalence of diseases, the South region has proved to be the most prevalent in relation to the same years, which shows us that this region deserves special attention at the level of public policies. The determination of epidemiological data in patients with inflammatory bowel diseases, such as: Crohn's disease and ulcerative colitis in the main regions of Brazil for six years has the main function of analyzing the distribution of factors determining diseases, health damage and events associated with collective health. This axis merges measures of prevention, control, and mainly planning public actions in the regions most affected by these diseases.

According to Table 2, the highest prevalence of patients diagnosed with Crohn's disease and ulcerative colitis in the period from 2014 to 2019 will be in the Southeast and South regions, the lowest index being the North region.

Table 2 - Prevalence of Crohn's disease and ulcerative colitis, by region, in Brazil between 2014 and 2019

Region	2014	2015	2016	2017	2018	2019
North Region	1.73	1.41	1.07	0.97	1.17	0.83
Northeast Region	1.40	1.25	1.53	1.66	1.80	1.90
Southeast Region	2.02	2.29	2.40	2.47	2.68	2.53
South Region	2.78	3.17	2.99	3.00	3.28	2.72
Central-West Region	2.08	2.09	2.24	2.10	2.18	2.38
Total	1.94	2.04	2.12	2.16	2.35	2.22

Source: Research data.

It was observed that in the South region, from 2014 to 2019, there is a higher prevalence of patients with Crohn's disease and ulcerative colitis, even the region not possessing a higher number of inhabitants when compared to others. The pathogenesis of Inflammatory Bowel Diseases (IBD) is not well known yet. What is known is that it comes from an inadequate immune response in individuals who are genetically susceptible, together with complex interactions with environmental, microbial and enteric immune factors[6,7]. Thus, even if the reason for the onset of IBDs is not known, risk factors are known that predispose the development of these IBDs, and these factors are related to this high prevalence in the South region, such as smoking, diet, social and geographic status, stress, enteric flora, alterations in intestinal permeability, appendectomy, oral contraception and the use of non-steroidal anti-inflammatory drugs [6,7].

In addition, it can be seen that the North region was the only one that obtained a reduction in the prevalence rate and in the number of hospitalizations over these years, while the other regions showed an increase in these two aspects (Table 2). This factor brings us the importance of carrying out research in the North region, to analyze which measures have been adopted to contribute to this reduction. It is also known that Crohn's disease and ulcerative recto colitis have no cure, but there are palliative treatments which, due to the high number of secondary and side effects that exist, they end up not producing a satisfactory result[7]. Therefore, following the example of the North region, which is highlighted by the reduction in the prevalence rate and number of hospitalizations over these years, priority should be given to and emphasis should be placed on public policies for prevention, early diagnosis and knowledge about these diseases even to generate greater adherence to treatment, especially in the South region, where we have a higher prevalence, in order to minimize IBSs and provide a higher quality of life for these patients.

In Table 3, the epidemiological profile that most affects Crohn's disease and ulcerative colitis are women, white, between 20 and 29 years old, thus requiring a greater focus on policies to encourage prevention for this group of people.

Table 3 - Admissions of Crohn's disease and ulcerative colitis, by Ethnicity/Race, Sex and Year, in Brazil between 2014 and 2019

Color/race	2014	2015	2016	2017	2018	2019	Total
White	1637	1855	1833	1832	1978	1837	11077
Black	100	119	129	118	141	139	757
Brown	1013	1041	1218	1316	1588	1556	7798
Yellow	22	46	70	64	86	78	367
Indigenous	1	6	1	4	6	4	22
Sex	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total**
Male	1809	1940	2069	2138	2313	2220	12632
Female	2117	2226	2294	2351	2610	2465	14219

Source: Research data.

According to Table 3, there is a higher prevalence of females (14219) of patients diagnosed with Crohn's disease and ulcerative colitis in the period from 2014 to 2019. There is a higher prevalence among white (11077) and brown (7798) ethnic groups, with a lower percentage being black (757), yellow (367) and indigenous (22).

The findings of the present study corroborate with the national and international literature in which it highlights a higher prevalence in females, but the literature is still unclear as to why the female gender is the most affected.[1,8,9]

In Table 4, the age group most affected by inflammatory diseases is between 20 and 29 years old (12380685), with the age range from 10 to 14 years old decreasing (1747188).

Table 4 - Admissions of Crohn's disease and ulcerative colitis, by Age Range and Year, in Brazil between 2014 and 2019

Age Range 1	2014	2015	2016	2017	2018	2019	Total
Less 1 year	565524	571843	575756	604576	629654	600665	3584954
1 to 4 years	557916	515037	526316	518652	518283	503770	3167212
5 to 9 years	366330	343775	341729	339942	345419	338943	2094730
10 to 14 years	309778	296167	287417	283596	283435	269491	1747188
15 to 19 years	897837	876768	824809	812509	786769	716387	4962442
20 to 29 years	2055847	2056198	2004385	2059080	2098205	1998283	12380685
30 to 39 years	1544311	1548865	1538021	1587891	1665612	1611167	9580934
40 to 49 years	1151747	1132425	1124157	1137353	1192125	1171936	6977817
50 to 59 years	1197664	1202232	1213395	1233718	1283284	1253845	7459009
60 to 69 years	1144025	1178374	1212108	1258628	1319100	1309206	7494605
70 to 79 years	928369	946030	946878	987355	1025339	1008711	5902083
80 years and over	634355	657707	661244	699545	710420	704109	4107115

Source: Research data.

The age group that most affects Crohn's disease and ulcerative colitis was 20-29 years after 30-39 years, which is in accordance with the current literature, but the disease may affect any age group. Therefore, it is important that health programs publish invest in population education so that the population is aware of the possible symptoms such as: abdominal pain, fever, weight loss, appetite reduction and urgent need to evacuate for the search of necessary medical care. Diagnosis for the two diseases that need care.

The present study presents as limitation the use of the DATASUS/SIH morbidity list, in which it makes use of the two diseases together (ICD K50-K51): Crohn's disease and ulcerative colitis, which may not confer the same epidemiological profiles of hospitalization if diseases are separated.

4 Conclusion

Crohn's disease and ulcerative colitis are pathologies that have gained focus in recent years due to the increase in prevalence. According to the results of the studies collected and the tables presented, there is a predominance of epidemiological aspects according to each region or characteristic researched, presenting a direct relationship with socioeconomic conditions, policies promoted for a given population, gender, ethnicity/race and age group. The panorama presented shows high rates of hospitalization in the Southeast and Northeast regions, the diagnosis for the two diseases predominate in the South region, females, ethnicity/ white race and age group between 20 and 29 years highlighted. Thus, it is of paramount importance the intervention of public policies that improve the health condition of the population in scenarios where Crohn's and ulcerative colitis diseases present high rates of people affected, mainly by improving health care, protection and promotion services.

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