Acta Scientific Gastrointestinal Disorders (ISSN: 2582-1091)

Volume 4 Issue 10 October 2021

Review Article

Inflammatory Bowel Disease in the Elderly in the Context of COVID-19. What do we know so?

Carlos Henrique Rodrigues Castro[1,2]*, Caroline Rodrigues Castro[1], Jackson Santos dos Reis[1,2], Ewerton Naves Dias[1], Claudio Roberto Tavares Pereira[3], Camila Neto da Silveira[4] and Luiz Ronaldo Alberti[5]

[1]Postgraduate Program in Professional Degree in Psychogerontology, Educatie School, Brazil

[2]Technical School Educare, Brazil

[3]Clinimage, Image Clinic, Brazil

[4]OSID - The Charitable Works Foundation of Sister Dulce, Brazil

[5]PhD. MSc. Doctor in Medicine, School of Medicine, Department of Surgery, Federal University of Minas Gerais, Brazil

***Corresponding Author:** Carlos Henrique Rodrigues Castro, Department of Gerontology, Postgraduate Program in Professional Degree in Psychogerontology, Educatie School, Brazil.

Received: August 25, 2021

Published: September 08, 2021

Abstract

Over the last few decades, several authors have demonstrated the relationship of the interaction of the immune system in a pathway called the "gut-brain axis," with implications both for the local immune response and for the systemic modulation of inflammatory mediators. The hypothesis that the underlying inflammatory disease contributes to the pathogenesis of SARS-CoV-2, and consequently patients with inflammatory bowel disease (IBD) may theoretically be at increased risk of infection and mortality, is still controversial. With the increase in the diagnosis of IBD in patients over 60 years of age, the increased concern in the context of the SARS-CoV-2 pandemic was evident, as elderly patients have comorbidities that could raise the risk of worsening the progression of the infection and unfavorable clinical outcomes. Thus, a survey of the literature to date was carried out to understand the implications of IBD in the context of the SARS-CoV-2 pandemic.

Keywords: Elderly; Inflammatory Bowel Disease; SARS-CoV-2; COVID-19

Introduction

The prevalence of inflammatory bowel diseases (IBD) has grown over the last decade throughout the world. Between 1990 and 2017, it nearly doubled (3.7 million to over 6.8 million) [1], yet the incidence is quite variable, while showing a pattern of increase in all regions. Recent studies have indicated that whereas most initial diagnoses still occur in adulthood (20 to 50 years), there is an increasing rate of initial diagnosis in individuals over 60 years of age [2]. And these individuals have a higher risk of treatment-related complications as they age, as well as being associated with a higher risk of infections, development of cancer and increased infection-related hospitalizations [2,3].

These data, added to an aging population, have made IBD in the elderly an important public health problem. Mortality rates, prevalence, years of life lost due to premature death (YLLs), years lived with disability (YLDs), and disability-adjusted life years (DALYs) have nearly doubled over the past 30 years [1].

The pathophysiology of IBD involves an overactive response against intestinal microorganisms in genetically susceptible indi-

viduals, leading to a chronic inflammatory condition, characterized by clinical conditions displaying diverse symptoms, including abdominal pain and diarrhea. Management in most patients includes medical therapies that modulate the immune response to control IBD, but this modulation can augment the risk of infection. Consequently, patients with IBD on immunosuppressive drug therapy may face a higher risk of COVID-19 infection [2-14].

Given the above, the aim of this study was to analyze publications since the emergence of COVID-19 involving patients with IBD. The survey was conducted in the PERIODICOS.CAPES and PUBMED databases, using the descriptors: COVID-19; INFLAMMATORY BOWEL DISEASE; ELDERLY; 2019; 2020; 2021.

Results and Discussion

Adverse, abrupt and unexpected conditions, such as the COVID-19 pandemic, pose a great challenge in several fields of medicine, especially those involving patients with a cross-response to this infection, as is the case of patients with IBD [12,13,15]. So far, we have been dealing with this public health emergency for more than two years, but data are still scarce to answer the many questions related to the metabolic pathways that span infection and the interaction of the immune response with other pathologies [14].

However, there is evidence that gastrointestinal symptoms, such as diarrhea, nausea and vomiting, are increasingly frequent in patients infected with SARS-CoV-2, especially in the severe phase of the disease. Studies have shown that the prevalence of these symptoms ranges from 10% to 12%, and in approximately 40% of patients, the RNA of SARS-CoV-2 was identified in the feces. In IBD patients, unlike the general population, the prevalence of symptoms was higher [5].

Immunohistochemical studies showed that the ACE2 protein is abundantly expressed in enterocytes of the GI tract, facilitating virus entry and replication, since this protein is the starting point for instituting SARS-CoV-2 infection. On the other hand, immunosuppressive medication used in individuals with IBD can suppress not only mucosal inflammation, but also the systemic inflammatory immune response induced by SARS-CoV-2 [9,12,16].

Some studies point out that the course of the disease and risk factors have worse outcomes for patients with IBD and others note that the risks are similar to the general population [8]. Some studies show a prevalence of approximately 2.97% of SARS-CoV-2 infection in individuals with IBD [17].

We need to be aware of methodological issues in the majority of the articles, as they are mostly papers with selection bias, small samples, and do not contain incidence data or pairings by epidemiological and clinical strata, especially articles on the elderly. Historically, the elderly population is excluded from most clinical trials. Comorbidities and use of various medications are largely the reason for these exclusions. In IBD studies, this is no different. Data from elderly patients are lacking, and most of the published studies have not performed age-matched analyses.

It is well established in the literature that the aging process induces chronic oxidative stress and the production of pro-inflammatory cytokines, with a decline in the immune response capacity. In the elderly, the T cell-mediated immune response is suboptimal, contributing to the progression of the SARS-CoV-2 infection. Another important point is the endothelial injury mediated by SARS-CoV-2, inducing a cascade of pro-inflammatory mediators derived from the endothelium, a factor that adds even more risk in this group, since cardiovascular conditions are quite prevalent [12]. These factors could explain the worse outcomes in elderly people with IBD [9].

The role of IBD as a risk factor for hospitalization for COVID-19 in the elderly is still unclear. The risk of hospitalization of elderly people with IBD is still controversial [7,13] while advanced age is significantly associated with more severe conditions of the disease, but mortality in patients with IBD infected with SARS-CoV-2 was not significantly higher than in the general population [5,8,12,13,18].

The impact of immunosuppressants on COVID-19 is still under debate. Elderly patients with IBD treated with biological products were at increased risk of developing serious infections and opportunistic infections [4,19]. Advanced age and anti-TNF therapy have been associated with an increased risk of infection [20]. Initiation of treatment with an anti-TNF agent had higher therapeutic failure rates. Medications that exacerbate lymphopenia, such as thiopurine and corticosteroids can exacerbate the disease and should be used with caution [14,18]. Some studies have shown that immunomodulators can present attenuated serological responses to SARS-CoV-2 [21] and the late development of antibodies seems to

be more frequent in older patients or on therapy with combined immunosuppressants. The researchers suggest performing the SARS-CoV-2 antibody test before restarting the immunosuppressant [11]. The need for IBD patients to maintain their medication routine during the COVID-19 pandemic should be reinforced, pursuant to their physicians' instructions [22].

One interesting finding during the review was that patients with advanced-onset IBD who were treated by gastroenterologists compared with care networks that had little or no access to gastroenterologists had better results in a number of outcomes, including the risk of hospitalization within 5 years [23]. This finding reinforces the need to understand the peculiarities of patients with IBD, especially in the context of infections that have a biological interrelationship with the pathophysiology of the underlying disease. There are many aspects, especially in the elderly, that can compromise the clinical outcome.

Patients with IBD who recover from the COVID-19 disease should be closely monitored for a long time. This is because some authors suggest that infection of the GI tract by a viral pathogen can result in alpha-synuclein aggregation. This can reach the central nervous system through the vagus nerve, leading to neurodegenerative disease. In order to monitor these patients, the International Organization for the Study of IBD has created a database (https://covidibd.org) so that in the future we can better understand the progression of this pathology.

Finally, although the elderly area risk group for SARS-CoV-2, they still prefer in-person care. In a survey, regarding routine follow-up, it was observed that a greater proportion of patients aged ≥ 50 years preferred face-to-face consultation when compared to the telephone service option [24].

Considerations or Conclusion

The growing number of elderly people in the population offers us important reflections on the increasing prevalence of diseases whose pathophysiology we only learned about in the adult phase of individuals. The natural history of the diseases, as well as their progression, present very distinct behavior patterns in the elderly, due to the innumerable organic alterations and associated comorbidities. These factors represent a real challenge for physicians in the management and treatment of various pathologies.

In the search for answers, we are faced with a picture of uncertainty, as the impact of immunosuppression on the severity of the disease is not entirely clear, and the management of patients under immunosuppressive treatment remains controversial. The biologically shared characteristics between IBD and SARS-CoV-2 make it imperative that attention be paid to these patients. The increase in hospital visits as a consequence of IBD alterations, in situations where the immune system is compromised, can lead to increased permeability and exacerbation of the symptoms. Therefore, it is necessary for a specialist to carefully analyze each case to ensure the best possible clinical outcomes.

In addition, researchers should be careful to include individuals over 60 years of age in their studies, and carry out separate analyses for this age group, allowing future understanding of outcomes in these patients to provide more evidence for the many unanswered questions.

Bibliography

1. Collaborators GBDIBD. "The global, regional, and national burden of inflammatory bowel disease in 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017". *The Lancet Gastroenterology and Hepatology* 5.1 (2020): 17-30.

2. Mak WY., *et al*. "The epidemiology of inflammatory bowel disease: East meets west". *Journal of Gastroenterology and Hepatology* 35.3 (2020): 380-389.

3. Rozich JJ., *et al*. "Disease- and Treatment-related Complications in Older Patients With Inflammatory Bowel Diseases: Comparison of Adult-onset vs Elderly-onset Disease". *Inflammatory Bowel Disease* 27.8 (2021): 1215-1223.

4. De Jong ME., *et al*. "Increased Discontinuation Rates of Anti-TNF Therapy in Elderly Inflammatory Bowel Disease Patients". *Journal of Crohn's and Colitis* 14.7 (2020): 888-895.

5. Taxonera C., *et al*. "2019 novel coronavirus disease (COVID-19) in patients with inflammatory bowel diseases". *Alimentary Pharmacology and Therapeutics* 52.2 (2020): 276-283.

6. Attauabi M., *et al*. "Prevalence and Outcomes of COVID-19 Among Patients With Inflammatory Bowel Disease-A Danish Prospective Population-based Cohort Study". *Journal of Crohn's and Colitis* 15.4 (2021): 540-550.

7. Calafat M., *et al*. "Impact of immunosuppressants on SARS-CoV-2 infection in elderly patients with inflammatory bowel disease". *Aging Clinical and Experimental Research* 33.8 (2021): 2355-2359.

8. Kjeldsen J., *et al*. "Outcome of COVID-19 in hospitalized patients with chronic inflammatory diseases. A population based national register study in Denmark". *Journal of Autoimmunity* 120 (2021): 102632.

9. Potdar AA., *et al*. "Altered Intestinal ACE2 Levels Are Associated With Inflammation, Severe Disease, and Response to Anti-Cytokine Therapy in Inflammatory Bowel Disease". *Gastroenterology* 160.3 (2021): 809-822.

10. Maconi G., *et al*. "Risk of COVID 19 in patients with inflammatory bowel diseases compared to a control population". *Digestive and Liver Disease* 53.3 (2021): 263-270.

11. Scharrer S., *et al*. "Humoral response to COVID-19 infection in immunosuppressed patients with inflammatory bowel disease". *European Journal of Gastroenterology and Hepatology* 33.3 (2021): 443-447.

12. Willows S., *et al*. "A Canadian perspective on severe acute respiratory syndrome coronavirus 2 infection and treatment: how prevalent underlying inflammatory disease contributes to pathogenesis". *Biochemistry and Cell Biology* 99.2 (2021): 173-194.

13. Xu F., *et al*. "COVID-19 Hospitalizations Among U.S. Medicare Beneficiaries With Inflammatory Bowel Disease, April 1 to July 31, 2020". *Inflammatory Bowel Disease* 27.7 (2021): 1166-1169.

14. Neurath MF. "COVID-19 and immunomodulation in IBD". *Gut* 69.7 (2020): 1335-1342.

15. Mak JWY., *et al*. "Epidemiology and Natural History of Elderly-onset Inflammatory Bowel Disease: Results From a Territory-wide Hong Kong IBD Registry". *Journal of Crohn's and Colitis* 15.3 (2021): 401-408.

16. Suarez-Farinas M., *et al*. "Intestinal Inflammation Modulates the Expression of ACE2 and TMPRSS2 and Potentially Overlaps With the Pathogenesis of SARS-CoV-2-related Disease". *Gastroenterology* 160.1 (2021): 287-301.

17. Fernandez Alvarez P., *et al*. "Views of patients with inflammatory bowel disease during the COVID-19 pandemic: ACCU survey results". *Revista Espanola de Enfermedades Digestivas* 113.2 (2021): 92-97.

18. Berte R., *et al*. "Seroprevalence of SARS-CoV2 in IBD Patients Treated with Biologic Therapy". *Journal of Crohn's and Colitis* 15.5 (2021): 864-868.

19. Piovani D., *et al*. "Systematic review with meta-analysis: biologics and risk of infection or cancer in elderly patients with inflammatory bowel disease". *Alimentary Pharmacology and Therapeutics* 51.9 (2020): 820-830.

20. Khan N., *et al*. "Risk of Infection and Types of Infection Among Elderly Patients With Inflammatory Bowel Disease: A Retrospective Database Analysis". *Inflammatory Bowel Diseases* 26.3 (2020): 462-468.

21. Kennedy NA., *et al*. "Anti-SARS-CoV-2 antibody responses are attenuated in patients with IBD treated with infliximab". *Gut* 70.5 (2021): 865-875.

22. Mak JWY., *et al*. "Zero COVID-19 infection in inflammatory bowel disease patients: Findings from population-based inflammatory bowel disease registries in Hong Kong and Taiwan". *Journal of Gastroenterology and Hepatology* 36.1 (2021): 171-173.

23. Kuenzig ME., *et al*. "Variation in care of patients with elderly-onset inflammatory bowel disease in Ontario, Canada: A population-based cohort study". *The Journal of the Canadian Association of Gastroenterology* 4.2 (2021): e16-e30.

24. Moum KM., *et al*. "Patients with inflammatory bowel disease on immunosuppressive drugs: perspectives' on COVID-19 and health care service during the pandemic". *Scandinavian Journal of Gastroenterology* 56.5 (2021): 545-551.

Volume 4 Issue 10 October 2021