



Management of severe diarrhea in an AIDS patient with inflammatory bowel disease with Short Bowel Syndrome

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Abstract

Introduction: The human immunodeficiency virus (HIV) can lead to a loss of lymphoid tissue through the intestinal mucosa, making the intestine susceptible to infections and inflammation. As a result, the patient may present with Crohn's Disease (CD), a chronic inflammatory bowel disease (IBD). Short Bowel Syndrome (SBS) results from loss of bowel absorption capacity after extensive bowel resection and is associated with several complications. **Objective:** To report the case of a patient presenting with acute chronic diarrhea, of probable multifactorial etiology, secondary to HIV, CD, and SBS. **Methods:** The information contained in this report was obtained through a review of the medical record and a review of the literature. **Case Report:** This is the report of E. F. C, male, 49 years old, who was admitted to the ICU of Hospital Ernesto Dornelles, in Porto Alegre, from 12/04/2020 to 01/07/2021, with HIV, CD, and SBS. The patient was admitted complaining of diarrhea that had started 15 days ago, which had worsened in the last 7 days, with loss of appetite, vomiting episodes, and mental confusion. Using empirical Lamivudine, Zidovudine, Tenofovir, Ciprofloxacin and Metronidazole, Methotrexate and Prednisone. On physical examination, he was sleepy, afebrile, with a normotensive abdomen, severe dehydration, and edema 3+/4+. From anthropometry, the measured weight of 50 kg, reported height of 1.70 m, and BMI of 17 kg/m². On laboratory tests, he had severe pancytopenia and electrolyte disturbances. Although the cause of diarrhea was not clarified, bowel rest and the use of glutamine and enteral symbiotic were chosen, while treating HIV and

CD, to improve enterocyte nutrition and reduce bacterial translocation capable of causing septic conditions. Despite this, diarrhea was untreatable, mean greater than 1,000 ml/day, with indication, but without the possibility of total parenteral nutrition, due to thrombocytopenia. On 12/06, E. F. C was in poor general condition, anasarca, tachycardic, hypotensive, treating septicemia caused by *Candida tropicalis*. On 12/07, he presented no spontaneous breathing, absence of central pulses and pupillary reflexes, opted not to institute invasive measures, and died. **Final Considerations:** The report highlights the need to cover IBD and opportunistic infections in the differential diagnosis of diarrhea in AIDS patients with CD and SBS. It also demonstrates the challenge of nurturing the patient who does not have conditions for enteral and/or parenteral nutrition, with a high risk of malnutrition due to the catabolism of such pathologies.

Keywords: Human Immunodeficiency Virus. Diarrhea. Crohn's Disease. Glutamine.

Introduction

The human immunodeficiency virus (HIV) can lead to a loss of lymphoid tissue through the intestinal mucosa, making the intestine susceptible to infections and inflammation [1,2]. As a result, the patient may present with Crohn's Disease (CD), a chronic inflammatory bowel disease (IBD) [3,4]. Short Bowel Syndrome (SBS) results from loss of bowel absorption capacity after extensive bowel resection and is associated with several complications [5].

In this scenario, the increase in intestinal

permeability is related to disease activity and Crohn's disease (CD) recurrence [2]. In this sense, glutamine, the main fuel for enterocytes, can improve intestinal permeability. Glutamine plays a key role in maintaining intestinal mucosal integrity and has been shown to reduce inflammation and CD activity [3].

Also, recent studies have shown that the immunomodulatory effects of enteral nutrition (EN) are mediated by the blockade of nuclear factor- κ B. Several EN ingredients can contribute to this activity, mainly the amino acids glutamine and arginine. Furthermore, manipulating the composition of EN therapy, altering the concentrations of the main ingredients, may favor a more efficient therapy [1-3].

Thus the present study showed a case report of a patient presenting with acute chronic diarrhea, of probable multifactorial etiology, secondary to HIV, CD and SBS.

Methods

Case Report

The present study was elaborated according to the rules of CARE case report. Available in: <https://www.care-statement.org/>.

Ethical Aspects

This study was analyzed and approved by the Research Ethics Committee (CEP) and obtaining the patient's consent through the Informed Consent Form (TCLE) according to CNS/CONEP Resolution 466/12.

Patient Information and Clinical Findings, Timeline, Diagnostic Assessment, Therapeutic Intervention and Follow-up

This is the report of E. F. C, male, 49 years old, who was admitted to the ICU of Hospital Ernesto Dornelles, in Porto Alegre, from 12/04/2020 to 01/07/2021, with HIV, CD, and SBS. The patient was admitted complaining of diarrhea that had started 15 days ago, which had worsened in the last 7 days, with loss of appetite, vomiting episodes, and mental confusion. Using empirical Lamivudine, Zidovudine, Tenofovir, Ciprofloxacin and Metronidazole, Methotrexate and Prednisone. On physical examination, he was sleepy, afebrile, with a normotensive abdomen, severe dehydration, and edema 3+/4+. From anthropometry, the measured weight of 50 kg, reported height of 1.70 m, and BMI of 17 kg/m². On laboratory tests, he had severe pancytopenia and electrolyte disturbances. Although the cause of diarrhea was not clarified, bowel rest and the use of glutamine and

enteral symbiotic [6] were chosen, while treating HIV and CD, to improve enterocyte nutrition and reduce bacterial translocation capable of causing septic conditions [7]. Despite this, diarrhea was untreatable, mean greater than 1,000 ml/day, with indication, but without the possibility of total parenteral nutrition, due to thrombocytopenia. On 12/06, E. F. C was in poor general condition, anasarca, tachycardic, hypotensive, treating septicemia caused by *Candida tropicalis*. On 12/07, he presented no spontaneous breathing, absence of central pulses and pupillary reflexes, opted not to institute invasive measures, and died.

Discussion

Based on the present case report, it can be said that CD is a chronic condition that affects the intestine and has adverse effects on growth and development. There is a global increase in incidence and prevalence rates, and several factors are believed to contribute to this increase, particularly dietary habits. In this regard, EN is increasingly becoming the preferred induction treatment of pediatric patients with CD. However, EN therapy is considered less effective in adults with CD. It is increasingly evident that the therapeutic utility of EN is partly due to the reversal of microbial changes and the direct immunomodulatory effects, by blocking the nuclear factor- κ B. In this aspect, the use of glutamine and arginine has been shown to contribute to the management of EN to improve CD [8].

In this scenario, the intestinal microbiota, together with predisposing genetic factors, significantly contribute to the immunopathogenesis of inflammatory bowel disease, reflected by immunological dysregulation of the mucosa. The use of nutraceutical therapies including probiotics, prebiotics, and synbiotics and dietary interventions with a low carbohydrate diet, omega-3 polyunsaturated fatty acids, and glutamine are being tried to down-regulate the intestinal inflammatory response, reducing gastrointestinal symptoms. Furthermore, enteral nutrition in the presence of glutamine has been widely used as induction and maintenance therapy in the management of CD [9,10].

In this sense, glutamine supplementation has been applied in clinical practice to treat inflammatory bowel diseases. A systematic review study looked at the effects of glutamine supplementation on inflammatory bowel disease, based on evidence from randomized controlled trials. Seven research articles were selected. In these studies, glutamine was administered to participants orally (21-30g or 0.5g per kg of participant body weight), enteral (7.87g-8.3g/100g of enteral formula), and/or parenterally (0.3 g/kg of participant body

weight). No changes were observed in anthropometry or biochemical parameters. However, in one study, reduced intestinal permeability and morphometry were reported. In two other studies, a mild effect of glutamine was observed on inflammation and oxidative stress. In addition, two other studies reported an effect of glutamine supplementation on disease activity [11].

Final considerations

The report highlights the need to cover IBD and opportunistic infections in the differential diagnosis of diarrhea in AIDS patients with CD and SBS. It also demonstrates the challenge of nurturing the patient who does not have conditions for enteral and/or parenteral nutrition, with a high risk of malnutrition due to the catabolism of such pathologies.

Acknowledgement

Nil.

Ethics approval

This study was analyzed and approved by the Research Ethics Committee (CEP) and obtaining the patient's consent through the Informed Consent Form (TCLE) according to CNS/CONEP Resolution 466/12.

Informed consent

Those responsible for the patient signed the consent form.

Funding

Not applicable.

Data sharing statement

No additional data are available.

Conflict of interest

The authors declare no conflict of interest.

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