

DOI: 10.36648/2471-805X.6.2.44

Pediatric Inflammatory Bowel Disease in the Setting of Obesity: A Paradigm Shift?

Archana Lingannan* and Carolina S Cerezo

Division of Pediatric Gastroenterology, Nutrition and Liver Diseases, Hasbro Children's Hospital, The Warren Alpert Medical School of Brown University, Rhode Island, USA

*Corresponding author: ArchanaLingannan, Division of Pediatric Gastroenterology, Nutrition and Liver Diseases, Hasbro Children's Hospital, The Warren Alpert Medical School of Brown University, Rhode Island, USA, Tel: 401 444 8306; E-mail: archana_lingannan@brown.edu

Citation: Lingannan A, Cerezo CS (2020) Pediatric Inflammatory Bowel Disease in the Setting of Obesity: A Paradigm Shift? J Pediatr Care Vol.6 No. 2:44.

Received date: June 29, 2020; Accepted date: July 13, 2020; Published date: July 20, 2020

Copyright: © 2020 Lingannan A, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

The percentage of IBD patients who are obese at diagnosis is steadily increasing. Malnutrition in IBD is associated with increased morbidity and therefore prompt nutritional management is essential to improve outcomes. Obesity, a form of malnutrition and an inflammatory state in itself, may affect diagnosis, treatment and prognosis. We present two obese pediatric IBD patients to demonstrate how obesity may negatively impact diagnosis and clinical course. In one case, the presence of obesity, despite significant weight loss, led to delayed diagnosis. In the other, obesity may have complicated the patient's overall clinical course. Nutritional assessment based on BMI alone may be challenging and inaccurate in overweight or obese patients.

Keywords: Inflammatory bowel disease; Obesity; Pediatrics

Background

Studies have shown that there is an increase in the percentage of IBD patients who are obese at the time of diagnosis [1]. IBD is usually associated with underweight and protein calorie malnutrition [2]. Underweight IBD children have clear signs of malnutrition which can be evaluated on exam, with lab parameters and anthropometric data. In patients with BMI in the normal, overweight or obese range, it may not be as straightforward to assess for malnutrition. Two patients with the same BMI may have different degrees of malnutrition and hence the diagnostic work-up and response to treatment in chronic diseases may not be the same.

Case 1

A 15-year-old obese female presented to the GI clinic with a 10-month history of an erythematous, indurated and tender draining lesion on her shin which was initially diagnosed as chronic suppurative granulomatous panniculitis. This rash was refractory to multiple treatments including antibiotics. She did

not complain of gastrointestinal symptoms until 1 month before the initial gastroenterology evaluation. She complained of nausea, cramping abdominal pain with meals, unintentional weight loss and had a BMI z-score of 2.56 (99.48 percentile) at the time of evaluation. On further analysis of her growth chart, she was found to have lost 10 kg in the preceding 5 months. Extensive work-up confirmed a diagnosis of Crohn's disease. Treatment with infliximab, an anti-TNF alpha agent, improved her rash and abdominal symptoms.

Case 2

A 14 year old obese female presented with a 1 month history of worsening lower abdominal pain, bloody diarrhea, poor oral intake, weight loss, elevated inflammatory markers and anemia. She had a BMI Z-score of 1.79 (96.32th percentile) on presentation. Endoscopy and biopsy confirmed a diagnosis of ulcerative colitis. She failed multiple treatments including anti TNF alpha, steroids and $\alpha 4\beta 7$ integrin inhibitors. Voluminous bloody diarrhea required complete bowel rest necessitating prolonged parenteral nutrition. Clinical course was complicated with multiple surgeries including diversions. In addition, she had multiple post-op complications including abscess formation, requirement for multiple transfusions and stenosis of ileoanal anastomosis. Review of her anthropometric data revealed that she remained obese during her entire illness.

Discussion

There is an increase in the prevalence of obesity overall and an increase in the prevalence of obesity among newly diagnosed IBD patients. When an obese patient presents with abdominal pain in the absence of overt signs of malnutrition, IBD may not be immediately considered which can lead to a delay in the diagnosis. A history of weight loss may be considered as intentional and may be thought of as desirable for an obese patient, once again delaying work up for IBD. It is also well known that obesity is an inflammatory state [3]. In the setting of another inflammatory state such as IBD, it is possible that clinical presentation, disease course and response to therapy may be different compared to normal weight patients.

Increasing awareness of the rise of obesity in IBD is essential to prompt diagnosis and management and prevention of disease complication which increases morbidity.

Sarcopenic obesity becomes an important concept in this setting. Sarcopenia is the loss of muscle mass and sarcopenic obesity is the loss of muscle mass in obese patients [4]. Two patients with the same BMI can have different levels of muscle mass and fat mass based on their level of nutrition. The presence of malnutrition in any disease state has been well established as a major predictor of morbidity and mortality. Obesity is a form of malnutrition. Adequate nutrition rehabilitation therefore remains an important aspect of management of any disease state.

Using the usual anthropometric data such as height, weight, body mass index (BMI), body circumferences (waist, hip, and limbs), and skinfold thickness to measure nutritional status may not be useful for obese IBD patients, hence a different modality needs to be used to measure malnutrition in this population. Many modalities can be used to measure sarcopenia such as Dual energy X-ray absorptiometry (DEXA) scan, Bio-electrical Impedance analysis (BIA), US, Computerized tomography (CT) and (MRI) [5]. However, there are no current guidelines requiring the measurement of lean mass and fat mass in treatment of obese patients.

Conclusion

Therefore, the nutrition plan of care is solely dependent on age and gender references on energy requirements. This

practice may lead to either over or under estimation of a patient's nutrition status and will lead to potentially prescribing inappropriate calorie intake. Future studies in this area should focus on more accurate estimation of an obese child or adolescent's energy requirements and the ability to detect sarcopenia early in the disease state to prevent complications of malnutrition.

Conflict of Interest

The authors declare that they have no competing interests.

References

1. Long MD, Crandall WV, Leibowitz IH, Duffy L, del Rosario F, et al. (2011) Prevalence and epidemiology of overweight and obesity in children with inflammatory bowel disease. *Inflamm Bowel Dis* 17: 2162-2168.
2. Scaldaferrri F, Pizzoferrato M, Lopetuso LR, Musca T, Ingravalle F, et al. (2017) Nutrition and IBD: Malnutrition and/or Sarcopenia? A Practical Guide. *Gastroenterol Res Pract* 2017: 8646495.
3. Kreuter R, Wankell M, Ahlenstiel G, Hebbard L (2019) The role of obesity in inflammatory bowel disease. *Biochim Biophys Acta Mol Basis Dis* 1865: 63-72.
4. Stenholm S, Harris TB, Rantanen T, Visser M, Kritchevsky SB, et al (2008) Sarcopenic obesity: Definition, cause and consequences. *Curr Opin Clin Nutr Metab Care* 11: 693-700.
5. Pahor M, Manini T, Cesari M (2009) Sarcopenia: Clinical evaluation, biological markers and other evaluation tools. *J Nutr Health Aging* 13: 724-728.