

Abstract

Diarrhea and constipation are two of the most common gastrointestinal symptoms presenting in both inpatient and outpatient settings. In a subset of patients that suffer from constipation, liquid stool from more proximal colonic segments may bypass impacted feces and result in diarrhea, thus creating a confusing clinical picture and potentially misleading treatment plan. The study aims to quantify the number of patients who present with diarrhea with evidence of increased stool burden and compare this number to other etiologies of diarrhea in patients with diagnosis code K52.9. We hypothesize that a subset of adults presenting with non-infectious diarrhea exhibit increased stool burden when assessed on radiographic imaging indicating that a portion of patients have diarrhea secondary to hidden constipation. The data obtained from this study increased occurrence of diarrhea secondary to constipation. In later studies, we hope to explore potential treatment options for diarrhea secondary to hidden constipation with a laxative protocol.

Introduction

Diarrheal infection is the leading cause of outpatient visits and lost quality of life occurring in both domestic settings and those traveling abroad. The center for Disease Control and Prevention estimates 47.8 million cases occurring annually with an estimated cost at approximately \$150 million. Diarrhea presents as loose, watery stool often with increased frequency while constipation often presents as hard stool, decreased frequency, and increased straining. In a subset of patients that suffer from constipation, liquid stool from more proximal colonic segments may bypass impacted feces and result in diarrhea, thus creating a confusing clinical picture and potentially misleading treatment plan.

We believe it is possible that many patients coming in for acute diarrhea may be suffering from Irritable Bowel Syndrome-Constipation, also known as hidden constipation, presenting with an increased stool burden resulting in the diarrhea. If this is the case, many patients may be participating in a treatment plan that will be of no help. We believe that something as simple as an abdominal radiograph, when paired with the correct history and physical examination, can dramatically improve the treatment plan. For example, a study examining the usage of abdominal radiographs in the management of pediatric constipation found that nearly one half of the providers changed their management based on imaging findings and they overall showed improved confidence in their treatments. Ultimately this may prevent patients from being placed on anticholinergics for what is thought to be a predominately diarrheal problem, only to be of no help and eventually make the patient feel worse.

In this retrospective study we plan to radiographically analyze the stool burden of patients presenting with noninfectious diarrhea. We aim to assess the frequency of hidden constipation in patients presenting with diarrhea in the outpatient office of GI Consultants.

Methods and Materials

This will be a retrospective study evaluating the frequency of diarrhea secondary to increased stool burden. The study will focus on patients from GI Consultants of Dover, Delaware and will be conducted through chart review on EPIC. Investigators use the date of diagnosis and read through notes, imaging, and reports based solely on that encounter. We will also review other work up diagnostics including colonoscopy, endoscopy, fecal esterase, Complete Metabolic Panel, fecal calprotectin, stool testing for giardia (via antigen detection or nucleic acid amplification assay), serologic testing for celiac diseases, and C-reactive protein. Simultaneously we will evaluate the use, if any, of laxatives for prior symptomatic relief via chart review on EPIC. Each patient who has the outpatient diagnosis code of K52.9 will be studied. If obstruction series were obtained at time of diagnosis these will be reviewed and graded as mild, moderate, or severe along with specifying location of stool burden as right, left, transverse, or mixed by the principal investigators of this study to quantify and specify level and location of stool burden in patients with diarrheal symptoms. The information is then recorded in a chart that outlines each item mentioned above for future analysis. As this is a pilot study simply trying to see if any relationship exists, there will be very little in depth statistical work done, rather looking at the larger picture, which is presentation versus actuality.

Results

A total of 51 patients were reviewed that presented with the diagnosis of K52.9, noninfectious diarrhea. Twelve patients received an obstruction series, with ten of those patients (83.3%) having constipation visualized on imaging. 19.61% (n=10) of the total patients had diarrhea secondary to hidden constipation. Bile associated diarrhea (n=10), Irritable Bowel Syndrome (n=5), Colitis (n=5), and medication-induced diarrhea (n=3) made up most of the other etiologies of diarrhea. Eleven patients had unknown etiology or were lost to follow up. A chart breaking down the diagnosis and patient percentage has been included.

Discussion

As shown by the data presented, hidden constipation was the etiology of diarrhea in a relatively noticeable percentage of the patient population in this small retrospective study. The obstruction series, when paired with good clinical correlation and speculation, acted a strong tool to diagnose hidden constipation. By using obstruction series, this may in fact help change future treatment protocols depending on the patients' etiology of diarrhea.

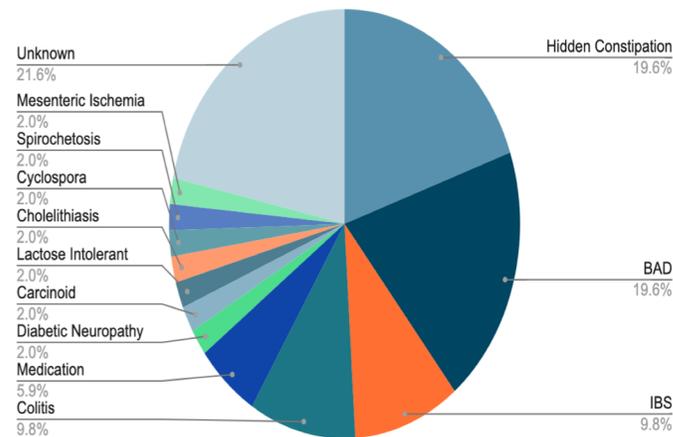
It is worth noting that eleven patients were lost to follow up. In future studies, further investigation into patients such as these should be warranted to increase the generalizability of the study. However, as this study was done through the chart review of a single gastroenterologist in Dover, DE, the sample size was limited. As the practice is primarily an adult practice, none of the patients were under the age of 18. If this study were to be repeated, it would be beneficial to increase both sample size as well as increasing the number of patients included in the study for better generalizability.

This study could help open new pathways for therapy and greatly increase the quality of life of many patients. In our proposed study, we hope to look further into the relationship between patients suffering from constipation and its subsequent presentation as diarrhea. Currently, protocol for diarrhea includes anti-muscarinic treatment, which would in fact worsen the constipation these patients already have. Further research will be conducted on the efficacy of laxative treatment to treat diarrhea secondary to hidden constipation. Although it may seem counterintuitive to treat diarrhea with a laxative, we believe that relieving the stool burden may also relieve the diarrheal symptoms.

Conclusions

This is a small retrospective study focusing on patients presenting to an outpatient setting with the initial complaint of diarrhea. Initial data shows increased occurrence of hidden constipation in patients presenting with diarrhea. 83% (n=12) of the patients who received obstruction series did in fact have obstruction visualized despite being diagnosed with diarrhea. Future studies will attempt to assess treatment plans for diarrhea secondary to hidden constipation. These studies will assess if treatment of the constipation with laxatives would provide resolution of the diarrhea.

Diagnosis



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