Journal of Crohn's and Colitis (2013) 7, e580–e587

Available online at www.sciencedirect.com

ScienceDirect

Anxiety is associated with impaired tolerance of colonoscopy preparation in inflammatory bowel disease and controls☆,☆☆,★,★★

Talat Bessissow[a,b,*], Ciska-Anne Van Keerberghen[a], Lukas Van Oudenhove[c], Marc Ferrante[a], Séverine Vermeire[a], Paul Rutgeerts[a], Gert Van Assche[a,d]

[a] *Department of Gastroenterology, University Hospital Leuven, Leuven, Belgium*
[b] *Department of Gastroenterology, Royal Victoria Hospital, McGill University Health Center, Montreal, Canada*
[c] *Translational Research Centre for Gastrointestinal Disorders (TARGID) & University Psychiatric Centre, Liaison Psychiatry, University of Leuven, Leuven, Belgium*
[d] *Department of Gastroenterology, University of Toronto, Toronto, Canada*

Received 2 February 2013; received in revised form 4 April 2013; accepted 10 April 2013

KEYWORDS
Abdominal pain;
Bowel cleansing;
Inflammatory bowel disease;
Gastrointestinal-specific anxiety

Abstract

Background and aim: Pain and nausea are often reported during bowel cleansing (BC) for ileocolonoscopy (IC). We aimed to explore putative mechanisms associated with impaired tolerance to BC.
Methods: A 1:1 (100 IBD and 100 controls) sex and age matched case–control study was performed. Patients completed the hospital anxiety and depression scale (HADS-A/HADS-D), visceral sensitivity index (VSI) and state-trait anxiety inventory, state scale (STAI-S), in addition to self-assessment of BC and abdominal pain and nausea ratings during BC. Endoscopists reported the Mayo score, Harvey Bradshaw index (HBI), simple endoscopic score for Crohn's disease, and Boston bowel preparation scale (BBPS).
Results: Higher VSI and depression scores were observed in IBD patients. VSI ($P < 0.0001$) and age ($P = 0.008$) showed a positive and negative association with abdominal pain during BC,

Abbreviations: IBD, inflammatory bowel diseases; IC, ileocolonoscopy; BC, bowel cleansing; HADS, hospital anxiety and depression scale; VSI, visceral sensitivity index; STAI-S, state-trait anxiety inventory, state scale; HBI, Harvey Bradshaw index; BBPS, Boston bowel preparation scale; GI, gastrointestinal; VAS, visual assessment scale; SES-CD, simple endoscopic score for Crohn's disease; OR, odds ratio; CI, confidence interval; IQR, interquartile range.

☆ Grant support: None.
☆☆ Ethics approval: This study was conducted with the approval of the University of Leuven Hospital Ethics Committee (S53520) and the Belgian Health Authority (health.belgium.be/eportal, B322201112169).
★ The manuscript, including related data, figures and tables has not been previously published and that the manuscript is not under consideration elsewhere than the JCC.
★★ Conference presentation: Poster presentation UEGW 2012, Amsterdam, NL.

* Corresponding author at: McGill University Health Centre, 687 Pine Avenue West, Montreal, Quebec H3A 1A1, Canada. Tel.: +1 514 843 1616; fax: +1 514 843 1421.
E-mail address: talat.bessissow@mcgill.ca (T. Bessissow).

http://dx.doi.org/10.1016/j.crohns.2013.04.011

respectively. HADS-A (P = 0.009) and female sex (P = 0.02) were positively associated with nausea during BC, while age (P = 0.02) showed a negative association. Disease activity was not associated with worse BBPS or nausea during BC, while a higher HBI was associated with more pain during BC (P = 0.0006). Nausea (P = 0.007) and abdominal pain (P = 0.003) during BC, and less previous ICs (P = 0.03) were independently associated with anxiety prior to IC (STAI-S). Significant correlations were found between VSI and STAI-S and disease activity.
Conclusion: Higher gastrointestinal-specific anxiety and co-morbid anxiety are associated with increased pain and nausea during BC, respectively. Pain and nausea during BC were in turn associated with higher anxiety levels at the moment of IC, potentially creating a "vicious circle". Measures taken to reduce anxiety could improve BC and IC tolerance.

1. Introduction

Inflammatory bowel diseases (IBD) are chronic relapsing and remitting conditions characterized by inflammation in the entire gastrointestinal (GI) tract with predilection for the small bowel and colon. Complete ileocolonoscopy (IC) is a key diagnostic tool in the diagnosis and management of IBD.[1] IC is considered the gold standard for the diagnosis of Crohn's disease and ulcerative colitis through the endoscopic features and the histologic assessment of biopsy samples collected during endoscopy.[2,3] Moreover, it is the standard investigation to confirm disease activity, document response to medical therapy, detect complications, screen for dysplasia, perform therapeutic interventions, and in the pre- or post-operative evaluation phase.[4–7] A complete colonoscopy requires a full bowel preparation or bowel cleansing (BC) with large volume oral laxatives. A high quality BC is of upmost importance to enable proper assessment of the intestinal mucosa and to facilitate the introduction of the endoscope. Furthermore, it is particularly essential in the context of dysplasia surveillance for longstanding ulcerative colitis or Crohn's colitis to allow a meticulous examination of the surface mucosa for early neoplastic lesions. Poor BC has been associated with a reduced diagnostic yield, incomplete colonoscopy examinations, prolonged procedural duration, and increased procedural difficulty.[8–10]

Most patients undergoing colonoscopy will testify that BC is more demanding than the procedure itself because bowel preparation is usually unpleasant and several complications may occur such as dehydration, renal insufficiency, and electrolyte imbalance with their potential consequences. Therefore, it is not surprising that up to 20% of patients will present to their colonoscopy with a poor BC given its complexity and demanding nature.[8,11,12] Furthermore, patient perception of quality of BC is often unreliable. Patients often overestimate the quality of their bowel preparation. There is scant data assessing the correlation between the endoscopist's observation and the patient's assessment. In a study by Harewood et al.[8], the overall correlation with endoscopists' rating was very low, r = 0.08, with a sensitivity of 75%, a specificity of 34%, and an accuracy of 50%.

Patients in general but IBD patients in particular often complain of nausea, vomiting, bloating, and abdominal cramping during large volume BC, but it remains unclear which factors influence these symptoms. Further, whether these symptoms are more pronounced in IBD patients have not been studied. Several hypotheses have been emitted on the role of active inflammatory disease or luminal obstruction to explain these symptoms. In addition, with data about the putative role of psychological factors being especially sparse, one can only extrapolate from studies on irritable bowel syndrome that psychological comorbidities might be contributory.

The aim of our study was therefore threefold. *First*, we aimed to compare the quality (both endoscopist- and patient-rated) and tolerance (i.e. associated symptoms) of BC between IBD patients and matched non-IBD controls. We hypothesized a poorer quality and tolerance of BC in the IBD group. *Second*, we aimed to study the putative association between psychological factors and the tolerance of BC, controlling for potentially relevant sociodemographic and clinical factors. We hypothesized that higher levels of psychological symptoms would be associated with higher symptom reports (i.e. poorer tolerance) during BC. We also investigated the putative association between disease activity and the quality and tolerance of BC in the IBD group, with the hypothesis that a higher disease activity would be associated with poorer quality and tolerance of BC. *Third*, we aimed to study whether quality and tolerance of BC are associated with anxiety levels immediately prior to IC. We hypothesized that poor tolerance of BC would be associated with higher anxiety levels. *Fourth*, we evaluated the correlation between IBD disease activity parameters and psychological factors, postulating a positive correlation between them.

2. Materials and methods

2.1. Study design and patients

We performed a 1:1 matched case–control study comparing cases with IBD undergoing full IC with complete BC to controls without IBD. Patients in this study were prospectively recruited from the University of Leuven IBD database, a comprehensive database of all IBD patients followed at our tertiary care center. We identified adult IBD patients scheduled for IC and requiring complete BC between October 2011 and March 2012, as well as control patients without IBD who are also undergoing total colonoscopy with full BC. Controls were chosen randomly from our electronic record database to match to the identified cases based on gender and age (within 5 years). Patients and controls received similar BC protocols with reduced volume solutions (Endofalk, Picoprep, MoviPrep, KleanPrep). Standard ICs with or without intubation of the terminal ileum were performed on the entire cohort.