Predictors of irritable bowel syndrome (IBS) and non-ulcer dyspepsia (NUD) in patients - a non-hierarchical cluster analysis model

G.D. Eslick[*1], S.C. Howell[1], J. Hammer[2], N.J. Talley[S1].

[1]Department of Medicine, University of Sydney, Nepean Hospital, Penrith, New South Wales, Australia; [2] Universitätsklinik für Innere Medizin IV, Abteilung für Gastroenterologie und Hepatologie, Vienna, Austria.

Introduction

Symptom discrimination and group membership for the functional gastrointestinal disorders (FGIDs) remain poorly defined. Traditionally, a number of distinct functional gastrointestinal disorders have been identified based on the symptom patterns. Thus, the irritable bowel syndrome (IBS) is diagnosed when unexplained abdominal pain and bowel symptoms coexist, while functional dyspepsia is identified when unexplained upper abdominal pain or discomfort is present. The diagnostic criteria for functional gastrointestinal disorders were initially developed for the irritable bowel syndrome and since then there have been a number of adaptations and revisions made by different groups around the world, with the Rome symptom-based criteria being the most recent and widely accepted. However, the approach of using symptoms to identify distinct functional gastrointestinal disorders has recently been challenged on epidemiological grounds (because of symptom overlap) and clinical grounds (because of similar responses to certain therapies). Moreover, the sub-division of IBS in diarrhea and constipation predominant sub-groups is controversial and not endorsed by the Rome Committee, although many clinical trials have only evaluated one or other sub-groups. The aim of this study was to determine if cluster analysis can be used to determine if the symptom-based diagnostic criteria of functional disorders produces clinically meaningful subject groups.

Methods

All patients who attended a gastroenterology practice (NJT) at Nepean Hospital in the Western Sydney Area between June 1994 and December 1998 were admitted to the study. All patients received the previously validated Bowel Symptom Questionnaire (BDQ), and were assessed on a case by case basis. Independent symptom constructs were identified using factor analysis while patient clusters were formed using non-hierarachical cluster analysis.

Results

898 (320 males: 577 females (64%)) patient (aged 18-90, mean 57, SD: 14) records were collected. The prevalence of the two functional groups of irritable bowel syndrome and non-ulcer dyspepsia was 24.5% (n=212) and 7.1% (n=62) respectively. Factor analysis identified nine independent symptom constructs; 1) diarrhea, 2) constipation, 3) dysmotility, 4) dyspepsia/reflux, 5) nausea/vomiting, 6) bowel, 7) meal-related pain, 8) weight loss, and 9) abdominal pain. Patients clustered into seven distinct groups that can be characterized as follows; 1) diarrhea, 2) meal-related pain, 3) abdominal pain, 4) bowel, 5) nausea/vomiting and weight loss, 6) undifferentiated, and 7) constipation. The majority of IBS patients fitted into two cluster groups, diarrhea (25%) and constipation (20%), while those with NUD made up predominantly the undifferentiated (34%) and the nausea/vomiting and weight loss (18%) cluster groups.

Discussion

This is the first patient-based study to document gastrointestinal symptom groupings and clustering of individuals. We found that nearly half the IBS patients had either diarrhea or constipation as their predominant symptom however, the remainder of IBS patients had mixed symptoms. The results suggest that distinct upper and lower gastrointestinal disorders exist in this patient sample however, the current international consensus-based classification of upper and lower functional gastrointestinal disorders explains only a small proportion of patients.

In summary, this study demonstrates that the current classification system for IBS only describes a small proportion of patients. Further studies need to be conducted in larger or multiple physician practices', and in other countries, to confirm the results and determine if any cultural differences exist among those with functional gastrointestinal disorders.