The prevalence and clinical characteristics of atopic manifestations in patients with irritable bowel syndrome in a Brazilian urban community

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Abstract

Irritable bowel syndrome (IBS) is a common chronic disorder characterized by recurrent abdominal pain, bowel movement changes, diarrhea, constipation, and both or affect and evidence approximately 10-20% of the general population. Today, IBS is considered a disorder of dysregulation of the so-called brain-gut axis and there is evidence to also suggest that inflammation with the gastrointestinal tract may play a role in the pathogenesis of at least a subpopulation of IBS patients.

Introduction

Irritable bowel syndrome (IBS) affects 10-20% of the general population and is the most common reason for patients to consult a gastroenterologist. It is often accompanied by gastrointestinal intestinal and extra-intestinal symptoms.14 The extra-intestinal symptoms associated to IBS may be correlated with an increase in seeking medical advice, a worse prognosis, and a reduced quality of life.24 The high prevalence of extra-intestinal symptoms or comorbidities in IBS patients has led investigators to develop a hypothesis regarding underlying pathophysiological mechanisms of these disorders.12-14

IBS has been associated with female gender, psychological distress, food intolerance (reproducible adverse reaction to a specific food or food ingredient which is not immune mediated or psychologically based), enteric infections, and previous abdominal surgery.15-21 Today IBS is considered a disorder of dysregulation of the so-called brain-gut axis and there is evidence to also suggest that inflammation with the gastrointestinal tract may play a role in the pathogenesis of at least a subpopulation of IBS patients.14-27

In recent studies, excess prevalence of bronchial hyper-responsiveness has been verified among patients with irritable bowel syndrome.25 Tobin et al. reported that adults with such atopic symptoms have a high incidence of IBS, suggesting a link between atopy and IBS.26 Studies of atopic symptoms or comorbidities are of great scientific interest. Such studies can contribute to the experimental development of a new pathogenesis of IBS.14-16 Assessment and improved understanding of atopic somatic symptoms in IBS patients might allow new sub-groups of IBS patients with special characteristics to be identified and thereby lead to the creation of new therapeutic concepts.12,13 Distinguishing atopic IBS from non-atopic IBS could help design more appropriate clinical interventions.14-16 This paper aims to study the prevalence of atopic manifestations in volunteers with IBS in a Brazilian urban community.

Materials and Methods

Adult volunteers aged 18 and over, residents in Niterói, RJ, Brazil were enrolled during a 2-year period from January 2006 to January 2008. The study was approved by the local ethical committee (n. CAE 01090258000007) and by our institutional review board (IRB) at the Faculty of Medicine. The volunteers were selected from students and employees of the Federal Fluminense University, Faculty of Medicine, Computer Science and Social Sciences, Niterói, RJ, Brazil. They were recruited through a poster affixed on the door of the Group of Study of Intestinal Diseases (Outpatients Unit), Hospital Universitário Antonio Pedro. This approach was used in order to obtain a population sample that would not consist of ambulatory or hospital patients and that would represent the population in general. The exclusion criteria included: those with the diagnostic suspicion of organic disease of the gastrointestinal tract (including positive stool examination for ova and parasites) and those unable to complete the questionnaire. All participants were provided with an IRB-approved information sheet that described the purpose of the study, the voluntary nature of the study, the study aims, methods, and population, and were given opportunities to ask questions. The volunteers were evaluated in our outpatient’s clinic at the University Hospital Antonio Pedro (HUAP). After obtaining informed consent, the volunteers went through a complete clinical evaluation. Diagnosis of IBS was based on the Rome III criteria for IBS. These were recurrent abdominal pain or discomfort at least three days per month in the last three months associated with two or more of the following: relief of pain with defecation, worsening of symptoms during stress, improvement with bowel movements, and onset associated with a change in frequency of stools. The presence of atopic manifestations was based on a structured questionnaire for atopy. Three investigators were evaluated to determine if patients without symptoms compatible with IBS (Group I) and 105 (41.0%) in Group II. Atopic manifestations were present in 46 (23.6%) of the volunteers had symptoms compatible with the diagnosis of IBS based on Rome III criteria. The identification of the atopic manifestations was based in a structured questionnaire for atopy. Three hundred and fifty volunteers were enrolled. Of them, 330 volunteers were evaluated: 78 (23.6%) of the volunteers had symptoms compatible with IBS (Group I) and 252 (76.3%) without symptoms compatible with IBS (Group II). Atopic manifestations were present in 46 (65.3%) in Group I and 105 (41.0%) in Group II (P=0.0107, OR-2.01 95%CI -1.20-3.37). The association between atopic manifestations and the presence of IBS was relevant in patients in this Brazilian urban community. This fact may have implications for diagnosis and treatment of patients with IBS.
Results

Three hundred and fifty volunteers (177 women and 173 men) were enrolled in the study. Twenty volunteers who had diagnostic suspicion of organic disease of the gastrointestinal tract (including positive stool examination for ova and parasites) were excluded because they presented the diagnostic suspicion of organic disease of the gastrointestinal tract (including positive stool examination for ova and parasites).

Statistical analysis

Analysis of categorical data was carried out using $\chi^2$ or Fisher’s exact test, and continuous data were analyzed using independent sample t-test. Odds ratios (OR) with 95% confidence intervals (CI) were used to measure the associations between the comorbid conditions. P<0.05 was considered significant. The analysis was performed using SAS version 9.1 (SAS Institute, Inc., Cary, NC, USA).

Discussion

Irritable bowel syndrome is a common disorder worldwide and estimates of prevalence ranged from 9-22% depending upon the population group studied. The prevalence of symptoms consistent with IBS in the present study, the female predominance and mean age were similar to that reported in the literature. IBS appears to be equally common in the Third World, and we suggest that it can be considered a transcultural functional disorder.

In the present study, we investigated the prevalence of atopic manifestations in volunteer non-patients with IBS. We have shown that volunteers with IBS had a higher percentage of allergic symptoms when compared with those without IBS. This finding suggests that there is an association between IBS and allergy history.

The exact IBS pathophysiology remains unknown and the role of allergic reactions in the pathophysiology of IBS remains controversial. However, recent interest has been directed to the possible participation of intestinal inflammatory mediators in the pathophysiology of IBS. Mucosal abnormalities such as colonic mastocytosis have been reported in some recent studies.

Tobin et al. reported that adults with atopic symptoms report a high incidence of IBS suggesting a link between atopy and IBS. They proposed a new IBS subgroup of patients with food-induced abdominal cramping, but the food intolerance was not specifically associated with IBS crises in any of them (Table 1).

Sixteen (76.1%) of the 21 volunteers with IBS diarrhea predominant (D-IBS) and 11 (73.3%) of the 15 IBS constipation predominant (C IBS) volunteers had atopic manifestations. Seven (70%) of the 10 mixed IBS (m-IBS) volunteers had allergic complaints. The presence of atopic manifestations was similar between IBS sub-type groups (P>0.05).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>BS-GI (n=78) (23.6%)</th>
<th>Controls-GII (n=252) (76.3%)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex, female</td>
<td>60 female (77%)</td>
<td>106 female (42%)</td>
<td>P&lt;0.05*</td>
</tr>
<tr>
<td>Mean age (SD)</td>
<td>27.6±8.7 years</td>
<td>32.4±10 years</td>
<td>P&gt;0.05</td>
</tr>
<tr>
<td>Personal history of allergies</td>
<td>46 (65.3%)</td>
<td>105 (41%)</td>
<td>P&lt;0.05*</td>
</tr>
<tr>
<td>Respiratory allergy</td>
<td>30 (65.2%)</td>
<td>65 (61.9%)</td>
<td>P&gt;0.05</td>
</tr>
<tr>
<td>Cutaneous allergy</td>
<td>16 (34.7%)</td>
<td>45 (42.8%)</td>
<td>P&gt;0.05</td>
</tr>
</tbody>
</table>

*All statistical hypotheses were tested at 0.05 level of significance, and P<0.05 was considered significant.
association between IBS and asthma has also been reported by Ozol et al.6 These investigators hypothesized a shared respiratory and gastrointestinal pathophysiological mechanism which produced smooth muscle hyperactivity. In our study, the number of IBS volunteers with asthma was not significantly higher than that of volunteers without IBS.

In summary, the present results confirm the association between allergy and IBS and add new information about the possible participation of intestinal inflammatory mediators in the pathophysiology of IBS. Further studies are needed to clarify this association. The identification of IBS patients with different clinical sub-types could improve therapeutic options and prevention strategies of IBS.

References