European Journal of Internal Medicine 21 (2010) 389–392

Contents lists available at ScienceDirect

European Journal of Internal Medicine

journal homepage: www.elsevier.com/locate/ejim

Original article

The prevalence of celiac disease in patients fulfilling Rome III criteria for irritable bowel syndrome

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ARTICLE INFO

Article history:
Received 22 March 2010
Received in revised form 30 May 2010
Accepted 9 June 2010
Available online 14 July 2010

Keywords:
Celiac disease
Irritable bowel syndrome
Rome III criteria

ABSTRACT

Background and aims: Celiac disease shares several symptoms which constitute some of the ROME criteria used for the diagnosis of irritable bowel syndrome (IBS), and as such many patients with underlying Celiac disease may be mistakenly diagnosed as having IBS. The aim of the present study was to determine the prevalence of Celiac disease in patients with IBS fulfilling ROME III criteria.
Materials and methods: Patients who fulfilled ROME III criteria for irritable bowel syndrome were screened for Celiac disease using the Biocard™ Celiac Disease Stick test, and patients who tested positive had their serum samples analyzed for antigliadin IgA and IgG, and anti-tissue transglutaminase IgA antibodies. Patients with detectable antibody levels underwent endoscopic duodenal biopsy to confirm a diagnosis of Celiac disease.
Results: Two of 100 patients who were diagnosed as having irritable bowel syndrome as per the Roma III criteria were found to have elevated levels of serum antigliadin IgA and IgG, and anti-tissue transglutaminase IgA antibodies, with histological evidence of Celiac disease on examination of duodenal biopsy. Both patients were started on a gluten-free diet, showing significant improvement in their symptoms on follow-up.
Conclusions: Celiac disease is a common finding among patients labeled as IBS. Celiac disease must be considered in differential diagnosis of IBS especially in the therapy refractory group.

1. Introduction

Irritable bowel syndrome (IBS) is a functional bowel disorder characterized by symptoms of abdominal pain or discomfort that is associated with disturbed defecation. IBS is one of the common problems that a gastroenterologist encounters in daily practice [1]. Reported prevalence rate for IBS was above 15% in western society [2,3]. A diagnosis of IBS is mainly symptom based, since there is no objective physical examination, laboratory or radiological findings specific to this disorder. Many of the symptoms on the list, including diarrhea, abdominal cramps, and symptom relief after defecation and bloating, are also shared by Celiac disease (CD). Despite this, serologic testing for CD and duodenal biopsy are not routinely obtained in patients with suspected IBS, which may easily result in a missed diagnosis, particularly in case of an atypical presentation of CD. Many gastroenterologists support the inclusion of CD screening tests as part of routine testing for IBS; however this has yet to become a universally accepted recommendation. The aim of this study was to establish the frequency of CD in investigated patients diagnosed with IBS based on the Rome III criteria.

2. Materials and methods

All patients presenting to the Gastroenterology clinic of Ankara University Hospital between October 2006 and January 2007, regardless of their complaints, where approached for enrollment in this study. After informed consent was obtained, patients fulfilling the Roma III criteria for IBS were evaluated for inclusion in the study. Exclusion criteria were advanced age (≥65 years), presence of one or more alarming symptom (weight loss, onset at advanced age, having a family history of inflammatory bowel disease or cancer, fever, abnormal physical examination findings, arthritis, dermatitis, malabsorption, anemia, leucocytosis, high sedimentation rate, presence of occult blood in stool), abnormal upper and lower gastrointestinal system endoscopic studies, presence of any kind of gastrointestinal system malignancy, having concomitant metabolic or endocrine diseases (diabetes mellitus, hyper-and hypo-thyroidism, adrenocortical disorders) heart failure, chronic obstructive pulmonary disease, liver cirrhosis, renal failure, severe depression, having history of continuous drug use.

Laboratory tests conducted for each patient were a complete blood count, erythrocyte sedimentation rate, fasting blood glucose, urea,

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0953-6205/$ – see front matter
doi:10.1016/j.ejim.2010.06.004

creatinine, aminotransferases, thyroid hormones (free T4, free T3 and thyroid-stimulating hormone), microscopic stool examination, occult blood test in stool, digestion tests in stool and serum IgA levels. Patients with selective IgA deficiency were also excluded from the study.

Of the 1380 patient approached, some of which were previously evaluated and treated in primary and secondary clinics, 100 were deemed suitable for inclusion in the final analysis (Fig. 1). All 100 patients were screened for CD using the commercially available *Biocard* ™ Celiac test. Capillary fingertip blood is first diluted with a blood buffer (0.09% sodium azide) after which three drops of blood are applied onto the test card. After a waiting period of 3–5 min as per manufacturer instructions, the appearance of red line in both of the control and test fields indicates a positive result, while a red line in the control field alone indicates a negative one (Fig. 2).

Test-positive patients would be subject to further testing to confirm a diagnosis of CD, including serum antigliadin IgA, IgG and tissue transglutaminase Ig G and after confirmation total of four biopsies taken from the second part of the duodenum were sent to for histopathological examination in formaldehyde solution. All specimens were evaluated by a designated pathologist. Findings were interpreted based on the MARSH criteria (Stage 0–4) based on the presence of intraepithelial lymphocytes, crypt hyperplasia and villous atrophy [4]. Those found to have CD would be started on a gluten-free diet and followed-up in our department. This study was conducted with approval by the local ethics committee at Ankara University.

3. Results

Of the 100 patients who fulfilled the Rome III criteria for IBS, 75 were female (mean age 40.65 ± 12.49) and 25 were male (mean age 37.5 ± 13.69) (Table 1). While 59 of the patients had at least 3 of the described symptoms, 41 of them only had 2 symptoms. Duration of symptoms ranged from 6 months to 20 years (mean 63 months). Based on stool consistency as described in the Rome III criteria, patients were subdivided into 3 groups: 63 as IBS with constipation, 21 as IBS with diarrhea and 16 as mixed IBS.

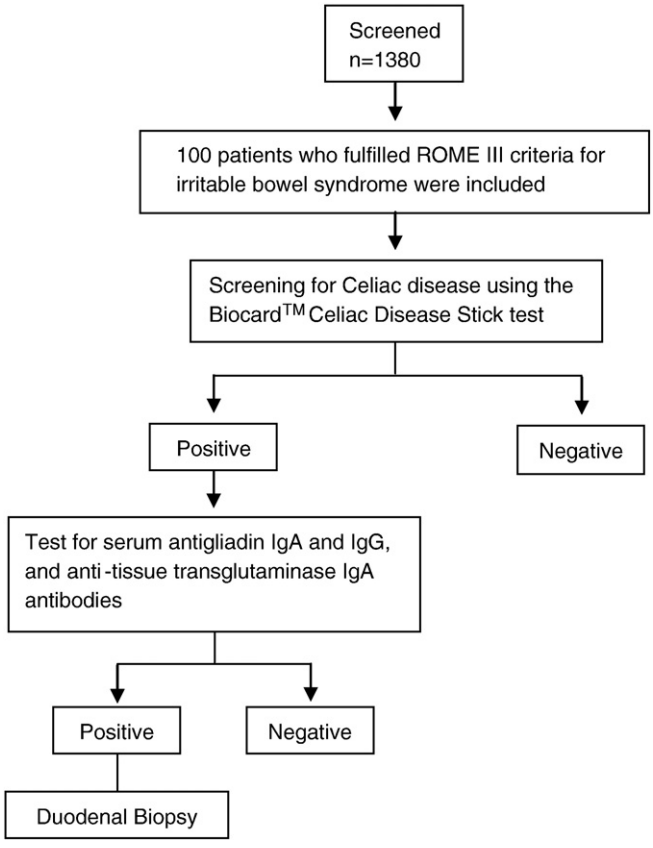

Fig. 1. Disposition of patients.

Fig. 2. *Biocard* ™ coeliac test a) negative, b) positive.

Two patients, both female, tested positive for CD using the *Biocard* ™ Celiac test. Subsequent serological testing confirmed the presence of high titers of antigliadin and tissue transglutaminase antibodies. Histopathological examination of duodenal biopsy specimens revealed typical findings consistent with CD (both patients with Marsh type 3a histology). While one of the patients predominantly had diarrhea, the other mainly complained of constipation. Both patients responded well to a gluten-free diet and are currently under follow-up.

4. Discussion

IBS symptoms have been reported in 10–20% of adolescents and adults worldwide, with the disorder more prevalent in women [5]. Studies from Turkey utilizing the Rome II criteria have estimated the prevalence of IBS in the general population as ranging from 7.4–19.1% [6,7]. IBS is best viewed as an interaction of biological and psychosocial factors. Disturbance of brain-gut interaction, abnormal central processing, altered motility, visceral hyperalgesia, autonomic and hormonal events, genetic and environmental factors, postinfectious sequela, and psychosocial disturbance are variably involved, depending on the individual [8]. In light of all the different mechanisms implicated in the pathophysiological process, it is no surprise that the treatment of IBS poses a great challenge to clinicians, as well as resulting increased treatment costs [9,10].

In our study we preferred to utilize the Rome III criteria for IBS. Core differences from the Rome II criteria include a redefinition of the duration and frequency of symptoms required for a diagnosis of IBS, as well as the inclusion of relief of symptoms after defecation as a diagnostic criterion. Subtypes of IBS were also updated [5]. The main aim of the Rome III study group was to offer a more comprehensive

Table 1
Demographic and clinical characteristics of the study population.

	Female (n = 75)	Male (n = 25)
Age	40.65 ± 12.49	37.5 ± 13.69
IBS subtypes		
IBS with constipation (IBS-C)	54 (72.0%)	9 (36.0%)
IBS with diarrhea (IBS-D)	10 (13.3%)	11 (44.0%)
Mixed IBS (IBS-M)	11 (14.7%)	5 (20.0%)
Duration of IBS symptom (years)		
<1	11 (14.7%)	1 (4.0%)
1–5	29 (38.7%)	14 (56.0%)
5–10	18 (24.0%)	5 (20.0%)
>10	17 (22.6%)	5 (20.0%)
Biocard™ celiac disease stick test		
Positive	2[a]	–
Negative	73	25

[a] One patient had IBS-C, other had IBS-D.