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The Lifetime Prevalence of Anxiety Disorders Among Patients with Irritable Bowel Syndrome*

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A – research concept and design; **B** – collection and/or assembly of data; **C** – data analysis and interpretation; **D** – writing the article; **E** – critical revision of the article; **F** – final approval of article; **G** – other

Abstract

Background. The prevalence of irritable bowel syndrome (IBS), the most common functional gastrointestinal disorder, ranges from 10% to 20% in the general population. It is estimated that from 40% to 90% of persons with a diagnosis of IBS suffer from mental disorders, mainly anxiety and depressive disorders.
Objectives. The aim of the study was to assess the lifetime prevalence of anxiety disorders in IBS patients and to compare it with the prevalence of these disorders in a control group of patients with gastroesophageal reflux disease (GERD).
Material and Methods. The study included 106 patients with IBS and 53 patients with GERD. IBS was diagnosed according to the Rome II criteria after a basic evaluation to exclude an organic disease. Anxiety disorders were diagnosed using the Composite International Diagnostic Interview (CIDI) in accordance with ICD-10 diagnostic criteria.
Results. Anxiety disorders during the patient's lifetime were diagnosed in 50 IBS patients (47%). Specific phobias occurred in 23.5% of them, social phobias in 10.4 %, generalized anxiety disorder in 10.4%, panic disorder in 3.8% and agoraphobia in 8.5%. In the control group with GERD, anxiety disorders during the subject's lifetime were diagnosed in 30% of the group. The difference in the prevalence of anxiety disorders between patients with IBS and GERD was statistically significant ($p < 0.05$).
Conclusions. The lifetime prevalence of anxiety disorders in IBS patients was higher than in the control group with GERD (47% vs. 30%). The prevalence rate of anxiety disorders in the control group with GERD was similar to the prevalence rate in the general population (**Adv Clin Exp Med 2014, 23, 6, 987–992**).

Key words: anxiety disorders, irritable bowel syndrome, CIDI.

Irritable bowel syndrome (IBS) is a functional gastrointestinal disorder characterized by chronic abdominal pain, discomfort, bloating and alteration of bowel habits [1–3]. The prevalence of IBS in the general population is estimated to be around 10–20% [1, 4]. Depending on the predominant symptoms, 3 types of IBS can be distinguished: IBS with constipation, with diarrhea, or with alternating constipation and diarrhea. The highest morbidity is observed between the ages of 20 and 50 [3–5]. In western countries, IBS occurs twice as often among women as among men, and according to some studies performed in specialist centers, IBS shows as much as 3 or 4 times greater prevalence among women in comparison to men [6–9].

It has repeatedly been shown that among IBS patients the prevalence of psychiatric disorders is higher than in the general population. Psychiatric disorders are diagnosed among around 40–60% of IBS patients, and according to some sources the rate among IBS patients is as high as 90% [10–13]. The most prevalent psychiatric disorders among

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IBS patients are affective disorders (depression, dysthymia) and anxiety disorders (mainly panic attacks and general anxiety disorder).

There have been no studies in Poland so far assessing the prevalence of psychiatric disorders among patients with IBS. There have been only 2 studies discussing the issue of psychiatric comorbidity with IBS. In the first study depressive symptoms were assessed using the Zung Self-Rating Depression Scale [14]; in the second study the personality profile of patients with IBS was described [15].

The aim of the present study was to assess the lifetime prevalence of anxiety and depressive disorders among patients with IBS in comparison to a control group – patients with gastroesophageal reflux disease (GERD). The study was approved by the Ethics Committee of Wroclaw Medical University.

Material and Methods

A total of 106 IBS patients admitted to the Department of Gastroenterology and Hepatology were included in the study – 90 women (85%) and 16 men (15%). The mean age was 49.2 ± 14.6 years, ranging from 18 to 73 years. There was no statistically significant difference between the ages of the women and the men ($\chi^2 = 40.7$, $p = 0.87$). The control group comprised 53 patients with a diagnosis of GERD – 43 women (81%) and 10 men (19%), with a mean age of 48.4 ± 12.4 years, ranging from 19 to 69 years. There was no statistically significant difference between the age of the IBS patients and the age of the control group with GERD ($\chi^2 = 51$, $p = 0.48$).

Written informed consent was obtained from all participants after they were provided with full information about the study.

IBS was diagnosed according to the Rome II criteria [16], after excluding alarming symptoms and risk factors for structural disease (such as loss of weight, bleeding from the gastrointestinal tract, anemia, fever, onset of symptoms after the age of 50 years, familial occurrence of inflammatory or neoplastic diseases of intestines). All the patients had gone through colonoscopic examinations in the last 5 years in order to exclude other organic disorders of the large bowel. GERD was diagnosed according to clinical criteria and on the basis of gastroscopic examinations. Patients who had severe cognitive impairment or serious somatic diseases were excluded from the study.

Depressive and anxiety disorders were diagnosed in accordance with the ICD-10 diagnostic criteria (The ICD-10 Classification of Mental of Mental and Behavioral Disorders) [17], based on the computer version of the Composite International Diagnostic Interview (CIDI). The CIDI is a highly structured diagnostic instrument for the diagnosis of mental disorders in accordance with the ICD-10 and DSM-IV classification systems [18–20]. It was developed by the World Health Organization (WHO) for epidemiological research purposes. It is widely used to assess the prevalence of mental disorders in the general population, as well as among individuals with various medical conditions. It has a modular structure and consists of 16 parts that cover all mental disorders. The modules can be used separately, depending on the aim of the study. Moreover, the CIDI makes it possible to exclude psychopathological symptoms that may be a reaction to medical condition, trauma, pharmacological treatment, or due to the use of alcohol or other psychoactive substances.

Statistical Analysis

The statistical analysis was performed using the STATISTICA software package (version 9.0, StatSoft, Warsaw, Poland).

Pearson's χ^2 test and Fisher's exact test were used to compare prevalence between the groups. A $p < 0.05$ was considered statistically significant.

Results

On the basis of the predominant symptoms, constipation-predominant IBS was diagnosed in 34 patients (32.1%), the diarrhea-predominant form was found in 35 patients (33%), and 37 (34.9%) had the alternating form.

Among the IBS patients, 47 subjects (44%) did not meet the diagnostic criteria for either anxiety disorders or depressive disorders during their lifetimes. Lifetime depressive or anxiety disorders were diagnosed in 59 patients (56%). In the control group these disorders were diagnosed in 19 individuals (35.8%). The difference between the lifetime prevalence of depressive and anxiety disorders in patients with IBS and in those with GERD was statistically significant ($\chi^2 = 5.5$, $p = 0.018$; Fisher's exact test $p = 0.014$).

At least 1 anxiety disorder was diagnosed in 50 IBS patients (47%). There were 12 individuals (11%) who met the diagnostic criteria for more than 1 anxiety disorder. The most common disorders were specific phobias (mainly the animal type, blood type, environment type and situational type), which were diagnosed in 35 patients (23.6%). General anxiety disorder was diagnosed in 11 patients with IBS (10.4%). Similarly, social

phobia was found to have occurred during the lifetime of 11 patients (10.4%). Other phobic anxiety disorders were diagnosed in 10 individuals (9.4%), agoraphobia in 9 subjects (8.5%) (including 5 patients with a lifetime diagnosis of agoraphobia with panic attacks and 4 patients without panic attacks), and anxiety disorder with panic attacks in 4 patients (3.8%).

In the control group with GERD, anxiety disorders were diagnosed in 16 patients (30%). Among these, 6 subjects (11.6%) met the criteria for specific phobias, 2 (3.8%) for general anxiety disorder, 3 participants (5.6%) were diagnosed with lifetime social phobia, 3 (5.6%) with other phobic anxiety disorders, and 2 patients (3.8%) were found to have agoraphobia with panic attacks. None of the patients with GERD met the diagnostic criteria for lifetime anxiety disorders with panic attacks. Furthermore, in the control group with GERD, no comorbidity of anxiety disorders was found.

The difference in the frequency of anxiety disorders between the two groups was statistically significant ($\chi^2 = 4.2$, $p = 0.04$; Fisher's exact test $p = 0.03$). There was no statistically significant difference in the frequency of anxiety disorders between women and men with IBS ($\chi^2 = 0.088$, $df = 1$, $p = 0.76$), nor between women and men with GERD ($\chi^2 = 0.61$, $df = 1$, $p = 0.43$). The prevalence rates of anxiety disorders in IBS and GERD patients are shown in Table 1.

Comorbidity of depressive and anxiety disorders was found in 24 patients with IBS (22.6%) and 6 subjects in the control group (11.3%).

In the IBS group, in 28 subjects (26%) a mental disorder was diagnosed in the past. Mental disorders were diagnosed most often by a general practitioner, a gastroenterologist or a psychiatrist. Among the patients with a previous diagnosis, 13 subjects had depressive disorder, 12 had anxiety disorders and 3 had some other diagnosis (chronic sleep disorder and eating disorders). In the control group with GERD, there were no patients with a past diagnosis of mental disorders.

Discussion

According to the available literature, there is a higher prevalence of anxiety disorders among patients with IBS than in the general population (47% vs. 26%) [24, 25]. Data showing that depressive disorders are also more prevalent in the group of patients with IBS in comparison to general population (33% vs. 16%) were published in an earlier article [26].

In a model epidemiological study using the CIDI – the National Comorbidity Survey, that was conducted in 1990–1992 and again in 2001–2003 and comprised a group of 9000 persons from the general population in the USA, the following lifetime prevalence rates were reported: major depressive disorder (according to DSM-IV criteria) – 16.5%; general anxiety disorder – 5.7%;, anxiety disorder with panic attacks – 4.7%;, agoraphobia – 1.4%;, social phobia – 12.1%,; and specific phobias – 12.5% [23, 24]. In comparison with these data, in patients with IBS the prevalence of specific phobias, general anxiety disorder and agoraphobia was higher than in the general population, whereas social phobia and anxiety disorder with panic attacks occurred in individuals with IBS less frequently than in the general population. The higher prevalence of general anxiety disorder among IBS patients was pointed out by Lee et al. [25]. In a random sample from the general population general anxiety disorder was 5 times more frequent in

Table 1. Lifetime prevalence of anxiety disorders among patients with IBS and GERD

Diagnosis	Patients with IBS			Patients with GERD		
	the total number of patients	all patients (%)	anxiety disorders (%)	the number of all patients	all patients (%)	anxiety disorders (%)
Without diagnosis	56	53	–	37	70	–
Social phobia F40.1	11	10.4	22	3	5.6	19
Specific phobia F40.2	25	23.8%	50	6	11.3	38
Other phobic anxiety disorder F40.9	10	9.4	22	3	5.6	19
Agoraphobia F40.0	9	8.5	18	2	3.8	12.5
Anxiety disorder with panic attacks F41.0	4	3.8	8	0	0	0
General anxiety disorder F41.1	11	10.4	20	2	3.8	12.5

subjects with a diagnosis of IBS than in people without IBS. It was also shown in this study that there were more significant functioning disturbances among people with comorbid IBS and general anxiety disorder.

In the current study, lifetime prevalence rates of anxiety and depressive disorders in the control group with GERD are similar to the prevalence rates obtained from epidemiological studies in the general population (anxiety disorders 30% vs. 25%, depressive disorders 16% vs. 16%;) [24–26], whereas in the group with IBS the prevalence rates ranged from 15% to 52% with respect to depressive disorders and from 22% to 44% with respect to anxiety disorders [13, 27–33].

The prevalence rates of anxiety disorders in our study are lower than those shown in previous studies that did not use structured diagnostic instruments. Higher prevalence rates of mental disorders among IBS patients were reported in studies employing simple screening diagnostic tools for depressive disorders or anxiety disorders (such as the Hospital Anxiety and Depression Scale [HADS], the Beck Depression Inventory [BDI] or the General Health Questionnaire [GHQ]) or psychopathological scales (such as the Hamilton Rating Scale for Depression [HDRS]). Screening tools assess only the probability of mental disorders, which requires verification using more complex diagnostic methods. The majority of studies assessing the prevalence of mental disorders in IBS patients had only a one-stage design. Similarly, using psychopathological scales for depressive and anxiety symptoms in IBS patients does not permit a diagnosis of mental disorders. Such tools only estimate the severity of depressive or anxiety symptoms which could occur, among patients with medical conditions as a reaction to the illness, and are commonly related to the suffering or limitations caused by a medical condition. The results of the current study are similar to the data presented in recent years in studies that employed modern, highly structured diagnostic instruments (such as the CIDI or the Schedules for Clinical Assessment in Neuropsychiatry, [SCAN]), allowing mental disorders to be diagnosed according to the current ICD-10 or DSM-IV classification systems. The highest prevalence rates for depressive and anxiety disorders were reported by Jarret et al., whose study group included only women [35]. Based on the Diagnostic Interview Schedule (DIS), lifetime occurrence of depressive disorders according to DSM-III-R criteria was found in 52% out of 165 women in the study, and anxiety disorders in 44% of them. Similar data were obtained in a study by Guthrie et al. [13], in which the diagnosis was established using the SCAN according to ICD-10 criteria. Among 107 patients with IBS (82% women), depressive disorders were diagnosed in 26% of the patients and anxiety disorders in 30% of them [13]. Somewhat lower prevalence rates of depressive and anxiety disorders were reported in a study conducted in China by Hao et al. [36]. Using the CIDI in the group of 83 IBS patients, researchers found that during their lifetimes, 47% of the subjects met the diagnostic criteria for some mental disorder, including depressive disorders, which were diagnosed in 23% of the study group and anxiety disorders in 25% [36].

In the current study, as in the aforementioned study by Guthrie et al. [13], the majority of consecutive patients from the Department of Gastroenterology and Hepatology were women (85%), which is consistent with previous epidemiological studies showing higher prevalence rates of IBS among women [6–8].

The authors concluded that the current study shows higher prevalence rates of anxiety disorders among patients with IBS in comparison to the general population and to the control group of patients with GERD. The authors found that mental disorders had been diagnosed earlier in only 25% of the IBS patients with comorbid depressive or anxiety disorders, in spite of often chronically persisting symptoms of depression and/or anxiety. This suggests that the medical doctors diagnosing and treating IBS patients should devote more attention to the comorbidity of mental disorders, which are sometimes severe. Clinical practice as well as published data indicate that improvement of the mental state during anti-depressive or anti-anxiety treatment is often followed by decreased intensity of bowel symptoms [34, 37]. At the same time, a low dosage of anti-depressive medication has proven analgesic action in IBS patients, even in cases of no comorbid mental disorders [2]. Differential diagnosis between suffering and distress due to a somatic illness and depressive or anxiety disorder is not simple and requires cooperation between the internal medicine specialist and the psychiatrist.

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