



ARAŞTIRMA / RESEARCH

Prevalence of irritable bowel syndrome in primary health care

Birinci basamakta irritable barsak sendromu prevalansı

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Cukurova Medical Journal 2017;42(2):216-222

Abstract

Purpose: Irritable Bowel Syndrome includes a group of functional bowel diseases without organic pathology. The prevalence changes between 0.5% to 39% according to diagnostic criteria. In this study, we aimed to investigate the prevalence and characteristics of IBS in primary health care by using Rome III criteria.

Material and Methods: This population-based cross-sectional study was carried out among 500 adults applying to primary healthcare facilities in Çanakkale, Turkey. Data were collected with a data form designed by the researchers, including the Bristol Stool Scale to evaluate defecation characteristics and the ROMA III criteria for the diagnosis of IBS during face-to-face interviews.

Results: Of 500 participants, 64 (12.8%) had a previous diagnosis of Irritable Bowel Syndrome who among these were 38 women (59.4%) and 26 men (40.6%). According to the ROMA III criteria no new case was identified. The male: female ratio in Irritable Bowel Syndrome diagnosed patients was 1.46. 34.3% of the patients were diagnosed at a primary healthcare facility, and 62.5% of the patients with Irritable Bowel Syndrome were followed by family practitioners.

Conclusion: The prevalence of Irritable Bowel Syndrome found similar with North America and the southern of Europe. Irritable Bowel Syndrome affects mostly females, begins 30 - 45 age, and constipation-predominant subtype was the most frequent. ROMA III diagnostic criteria is not seem to be appropriate to recognize Irritable Bowel Syndrome cases with mild and moderate severity in primary healthcare.

Key words: Primary health care, irritable bowel syndrome, prevalence, Turkey

Öz

Amaç: İrritabl Barsak Sendromu, organik bozukluğu olmayan bir grup fonksiyonel bağırsak hastalıklarını içerir. Prevalansı tanı kriterleriyle ilişkili olarak %0,5 ile %39 arasında değişmektedir. Bu çalışmada, Roma III kriterlerini kullanarak birinci basamakta İrritabl Barsak Sendromu prevalansını ve özelliklerini araştırmayı amaçladık.

Gereç ve Yöntem: Bu toplum tabanlı kesitsel çalışma, aile sağlığı merkezlerine başvuran 500 erişkin ile yapılmıştır. Veriler araştırmacılar tarafından tasarlanan bir anketle alınmış; dışkılama özelliklerini değerlendirmek için Bristol Dışkı Ölçeği ve İrritabl Barsak Sendromu tanısı için ROMA III kriterleri yüz-yüze görüşmelerde doldurulmuştur.

Bulgular: 500 katılımcıdan 64'ü (%12,8) önceden İrritabl Barsak Sendromu tanılı olmakla beraber, bunlardan 38'i (%59,4) kadın ve 26'sı (%40,6) erkekti. ROMA III tanı kriterlerine göre yeni tanı alan vaka olmadı. İrritabl Barsak Sendromu tanılı hastalarda kadın/erkek oranı 1,46 idi. Hastaların %34,3'üne aile sağlığı merkezlerinde tanı konulmuş, hastaların %62,5'i aile hekimleri tarafından takip edilmişti.

Sonuç: İrritabl Barsak Sendromu prevalansı Kuzey Amerika ve Avrupa'nın güneyi ile benzerdir. İrritabl Barsak Sendromu çoğunlukla kadınları etkilemiş, 30-45 yaşlarda başlamış ve kabızlık-baskın alt tipine daha sık rastlanmıştır. ROMA III tanı kriterleri, hafif ve orta şiddet İrritabl Barsak Sendromu olgularının birinci basamakta tanınması için uygun görünmemektedir.

Anahtar kelimeler: Aile sağlığı merkezi, huzursuz bağırsak sendromu, prevalans, Türkiye

INTRODUCTION

Irritable bowel syndrome (IBS), characterized by discomfort in the abdomen, irregular defecation accompanied by bloating or pain and changes in bowel habits, is comprised of a group of functional bowel diseases without any organic disorder¹. It has a high burden mainly depending on the time loss during diagnosis, and chronic nature of the disease. Patients' quality of life is also negatively affected.

IBS is diagnosed according to the patients' history by using diagnostic criteria. In 1978 for the first time the Manning criteria were described, and most recently the Rome III diagnostic criteria was accepted for use².

The difference in the prevalence of IBS linked to the developmental level of the country, socio-cultural factors, clinical or community based of the study and diagnostic criteria used. The prevalence is reported between 0.5% and 24% in Asia, between 33 - 39% in Africa, between 1.2 - 14% in Europe and North America and varies between 6.2% and 19.1% in Turkey³⁻¹⁰. In a study based on the Rome II criteria the population prevalence was 1.1 - 13.3%, while according to Manning the prevalence is 2.3 - 21.6%¹¹.

Clinical characteristics of IBS include variations in bowel habits, abdominal pain, abdominal gas, distension, changes in stool shape, increased mucus, gastrointestinal symptoms outside the colon, chronic pelvic pain and extraintestinal symptoms¹². The disease is divided in three subtypes based on severity as mild, moderate and severe IBS. Patients with mild severity IBS are most common and mostly apply to primary care.

In Turkey, there is a need for community based studies on the characteristics and prevalence of IBS. This cross-sectional descriptive study was designed to determine the IBS prevalence and characteristics in the Canakkale, Turkey.

MATERIAL AND METHODS

Study population includes all adults between 18 - 65 years of age applying to a primary healthcare facility in Canakkale city centre. Participants accepted to the study between 01 September 2011 and 22 December 2011. Sampling size was calculated using the sampling size formula for known study population

characteristics. Using the population of Canakkale city as 120000 people, the disease prevalence as 12%¹³, deviation 3%, $\alpha=0.05$ and confidence interval 95%, the recommended sampling size was calculated to be 450 people. Five out of thirteen primary health centres (PHC) present in the city were chosen for study. Participants were recruited until the sampling number was reached. Patients between 18 - 65 years applying to the determined PHC were included in the study after written consent. Cases with known cancer, lactose intolerance, inflammatory bowel disease with disability (such as bedridden, psychiatric diseases that disrupt assessment of reality, dementia) were excluded from the study.

Ethical approval was obtained for the study from Canakkale 18 Mart University Medical Faculty Clinical Research Ethics Committee decision no. 050.99-194. Information was given and consent granted of the family practitioners at the PHC where the study was to be performed.

Data collection

Data for the study was collected using a questionnaire included questions on the participants' demographic characteristics, presence of IBS complaints, history of diagnosis of IBS, used treatments, habits and lifestyle characteristics. Bristol Stool Scale were included to evaluate the defecation characteristics of participants for IBS subgroup determination. The ROME III criteria were used for diagnosis of IBS.

A room was prepared at the chosen PHC for interviews. Patients were invited to participate and those appropriate to the study were brought to the prepared location after giving consent. The study population comprised of patients aged 18 to 65 years who has not a disagreement or restriction for study method such as being bedridden, psychiatric disorder. According to these criteria, none of the 500 cases were excluded for any reason. The questionnaires were read to the participants by the same family physician assistant and answers were recorded.

Bristol Stool Scale. To differentiate the clinical subgroups of IBS the shape of stools is accepted as more reliable criteria than frequency of defecation. The Bristol Stool Shape Scale, which describes the consistency of IBS stools, is used to distinguish 4 subgroups; predominant constipation (IBS-C),

predominant diarrhoea (IBS-D), unidentified (IBS-U) and mixed (IBS-M). Hard or solid faeces forming more than 25% of bowel movements or watery, mushy stools less than 25% are IBS-C; the exact opposite is accepted as IBS-D. If both types of bowel movements are observed more than 25% of the time, IBS-M is diagnosed and if none of these criteria are met IBS-U is diagnosed¹⁴.

ROME III Criteria. In 2006 the ROME III criteria were developed to distinguish IBS from organic pathologies and to provide standardization of the diagnosis. The ROME III diagnostic criteria are given below in comparison with ROME II².

Table 1. Irritable Bowel Syndrome diagnostic criteria

ROME III	ROME II
<p>Diagnostic criterion* Recurrent abdominal pain or discomfort** at least 3 days/month in last 3 months associated with two or more of the following:</p> <ol style="list-style-type: none"> 1. Improvement with defecation 2. Onset associated with a change in frequency of stool 3. Onset associated with a change in form (appearance) of stool <p>* Criterion fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis **“Discomfort” means an uncomfortable sensation not described as pain. In pathophysiology research and clinical trials, a pain/discomfort frequency of at least 2 days a week during the screening evaluation is recommended for subject eligibility.</p>	<p>At least 12 weeks, which need not be consecutive, in the preceding 12 months of abdominal discomfort or pain that has two out of three features:</p> <ol style="list-style-type: none"> 1. Relieved with defecation; and/or 2. Onset associated with a change in frequency of stool; and/or 3. Onset associated with a change in form 4. (appearance) of stool. <p>Symptoms that Cumulatively Support the Diagnosis of Irritable Bowel Syndrome</p> <ul style="list-style-type: none"> - Abnormal stool frequency (for research purposes “abnormal” may be defined as greater than 3 bowel movements per day and less than 3 bowel movements per week); - Abnormal stool form (lumpy/hard or loose/ watery stool); - Abnormal stool passage (straining, urgency, or feeling of incomplete evacuation); - Passage of mucus; - Bloating or feeling of abdominal distension.

RESULTS

Of the 500 cases who participated in the research 277 were women (55.4%) and 223 were men (44.6%). Of them 38 women (59.4%) and 26 men (40.6%), a total of 64 (12.8%), had previous diagnosis of IBS. No new case was identified using the ROME III criteria. The distribution of IBS patients in subgroups according to the Bristol Stool Scale of defecation characteristics is given in Table 2. There was no significant difference between the IBS patients and other participants in terms of socio-demographic characteristics (Table 3). There was a significant negative correlation between

Statistical analysis

A commercial software (SPSS, ver. 19.0; SPSS, Inc., Chicago, IL) was used in the data analysis. The means, standard deviations, and percentages were calculated for descriptive purposes. Pearson’s chi-square for comparison of dependent and independent variables, and Mann Whitney u tests for comparison of two independent samples were used to assess the statistical significance. Kendall’s Tau was used to assess statistical associations based on the ranks of the data. A p value of less than 0.05 (two-sided) was accepted as statistically significant.

having IBS and duration of education (Kendall’s Tau b= -0.107, p=0.009).

The lifestyle characteristics of non-IBS and IBS patients are given in Table 4. Eleven (17.5%) IBS patients reported no discomfort in the last 3 months. The majority of patients (85.9%) reported pain spreading to different abdominal regions, most frequently hypogastric (92.2%) and left inguinal region (81.3%). Of these 64 patients, 55 (87.3%) reported their complaint began during times of stress or emotional disorder. The distribution of the variety of discomfort related to defecation in participants is given in Table 5.

Table 2. Irritable Bowel Syndrome (IBS) subgroups according to the Bristol Stool Scale

	n	%
IBS-C (Constipation subtype)	34	53.2
IBS-D (Diarrhoea subtype)	3	4.6
IBS-M (Mix subtype)	14	21.9
IBS-U (Undetermined subtype)	13	20.3
Total	64	100

Table 3 Socio-demographic characteristics

		non-IBS	IBS	P
Gender	Woman	239 (54.8%)	38 (59.4%)	X ² =0.469; p=0.493
	Man	197 (45.2%)	26 (40.6%)	
Mean age		48.5 ± 14.4 [18 - 65]	52.3 ± 11.7 [21 - 65]	u*=11996; p=0.069
Marital status	Single	49 (11.2%)	3 (4.7%)	X ² =2.725; p=0.256
	Married	329 (75.5%)	53 (82.8%)	
	Widow	58 (13.3%)	8 (12.5%)	
Educational status	Illiterate	10 (2.3%)	2 (3.1%)	X ² =4.777; p=0.311
	Primary	197 (45.2%)	37 (57.8%)	
	Secondary	51 (11.7%)	7 (10.9%)	
	High school	103 (23.6%)	12 (18.8%)	
	University	75 (17.2%)	6 (9.4%)	
Working	Employee	115 (26.4%)	19 (29.7%)	X ² =0.312; p=0.576
	Non-employee	321 (73.6%)	45 (70.3%)	
Mean of total income (TL)		1674 ± 885 [500 - 10000] TL	1561 ± 283 [900 - 2000] TL	u=13422; p=0.621
Number of people living in the family		3.1 ± 1.3 [1 - 11]	3 ± 0.9 [1 - 4]	u=13630; p=0.758
Per capita income (TL)		631 ± 410 [116 - 5000] TL	570 ± 197 [325 - 1300] TL	u=13450; p=0.641

*X²;chi-square, u; Mann Whitney u, TL; Turkish Lira

Table 3 Lifestyle characteristics

		non-IBS	IBS	P
Smoking	Never smoked	281 (64.4%)	40 (62.5%)	X ² =3.744; p=0.154
	Still smoking	99 (22.4%)	13 (20.3%)	
	Quitted	49 (13.2%)	11 (17.2%)	
Alcohol Use	Never used	337 (77.3%)	48 (75.0%)	X ² =0.159; p=0.924
	User	99 (22.7%)	16 (25.0%)	
Regular physical exercise		186 (42.6%)	31 (48.4%)	X ² =0.673; p=0.412

*X²;chi-square

The IBS diagnosis of these 64 patients was given on average 8.3 ± 7.9 [2 - 32] years previous. The average age of patients at diagnosis was 44.0 ± 12.9 [16 - 63]. The diagnosis of patients was given by primary healthcare facilities for 34.3%, by secondary health care for 40.6%, by tertiary health care for 18.8%, by private clinics for 6.3% of patients. The routine follow up of the IBS-diagnosed patients

carried out by family practitioners for 62.5%.

There were no patients complained of not receiving information about their disease from their physician. Five patients (7.8%) evaluated the information they received as very insufficient, 18 (28.1%) reported receiving some information, and 41 (64.1%) reported they received satisfactory information.

Ten of the patients (15.6%) did not use any treatment. The most populous group in terms of treatment consisted of those who used dietary regulation. Of patients 64.0% used dietary

treatment, 28.1% used alverine citrate and simethicone, 17.2% used trimebutine maleate, 15.6% used simethicone and 9.3% used pinaverium bromide.

Table 5. The distribution of the variety of discomfort related to defecation

	non-IBS	IBS	p
Mucus in faeces	24 (5.5%)	19 (29.7%)	$\chi^2= 41.521; p<0.001$
Blood in faeces	47 (10.8%)	28 (43.8%)	$\chi^2= 47.581; p<0.001$
Straining needs	108 (24.8%)	57 (89.1%)	$\chi^2= 104.303; p<0.001$
Discomfort after defecation	104 (23.9%)	60 (93.8%)	$\chi^2= 123.699; p<0.001$
Abdominal gas	110 (25.2%)	59 (92.2%)	$\chi^2= 111.822; p<0.001$
Bloating	109 (25%)	59 (92.2%)	$\chi^2= 112.919; p<0.001$

DISCUSSION

In present study, prevalence of IBS were 12.8% and constipation subtype was the most frequent. All 64 IBS patients had previous diagnosis of IBS and according to the ROME III criteria no new case was identified.

The prevalence of IBS varies according to many factors in the world. The prevalence of IBS shows difference based on stage of health care facility and geographical region. In recent years the prevalence in countries with developed socioeconomic level in Europe and North America varies between 1.2 - 15% while the rates were 5.0% in China, 14% in Singapore and 4.4% in Taiwan^{3 4 7 8,15}. The studies in Turkey reported rates between 6 - 19%^{9,10}. The differences observed in these studies may be linked to differences in race, culture and diagnostic criteria used, access to healthcare facilities, and stage of healthcare centres. In our country every patients can access all of the healthcare centres with paying lower contribution share. So they usually prefer the secondary or tertiary healthcare centres. Also Turkey provides a bridge between Europe and Asia both geographically and culturally. Community based prevalence in our study was approximate to rates of both continents.

In ROME III the stool changes are important and some studies mentioned that ROME III criteria is only diagnosed with the cases with IBS-D makes abdominal pain or discomfort during three months^{16,17}. In a variety of studies have questioned the internal compliance and appropriateness for use of diagnostic criteria^{3,18}. In a tertiary health care facility in China Wang A.J et al. identified rates of IBS patients at 97.5% according to Rome III, 67.6% according to Rome II criteria, and 65.3% according

to both diagnostic criteria¹⁹. They concluded that Rome III diagnostic criteria were more sensitive and more practical. Kok et al. concluded that Rome III is not suitable for determining the patients with IBS in primary care because of not assigning the alarm symptom²⁰. Dang Won Park et al. concluded that Rome III is suitable and accordance rate of ROME II and ROME III is 73.5%¹⁶. In our study no new IBS case was identified only those with previous IBS diagnosis were reached. The lack of identification of new cases may be due to people with severe complaints applying to second and tertiary healthcare facilities, easily accessed in our region, or may be due to the participating patients having mild symptoms. As ROME III criteria require many patients at first-stage to have symptoms for 6 months or more the study period was insufficient to identify the patient group without complaints. So the criteria is not enough for determining the mild and moderate severity illness in primary care.

In Asian countries in terms of prevalence of IBS the dominance of women could not be proved^{4, 21-23}. Studies in Sweden, Spain, Austria and Canada based on Rome II diagnostic criteria the ratio of women to men was 2:1, different than Asia^{7 24-26}. In our study the ratio of women to men was 1.46. In Asia IBS is more frequently observed at young ages. It is more frequently seen 30 - 50 years of age^{3,4,21,27}. In North America and Europe the average starting age for IBS varies between 20 - 39 years^{7,21}. In our study the average age for IBS diagnosis was 44.0 ± 12.9 , similar with the European region.

Abdominal pain or abdominal discomfort is a frequently recurring complaint of IBS patients. In a study of first-stage services in Bangladesh the rate of abdominal pain was 79% and abdominal gas was 45%³. In North America abdominal pain was the

most frequently observed symptom and in its absence IBS diagnosis was excluded²¹. While half of patients in Singapore had pain in the upper part of the abdomen, 1/3 of American patients described pain in the epigastrium^{3,28}. In our study 92.2% described pain in the epigastric area.

While in Singapore 77% of patients had normal bowel habits in the last 3 months, 50% described constipation and 25% had diarrhoea, in Europe 16% were constipation, 21% diarrhoea and 63% were both of them according the ROME II criteria^{3,29}. In our study constipation type is higher than the others. It may due to our cultural diet factors.

Different methods are used to treat IBS patients. Guidelines advise inquiring about the diet and nutrition habits of IBS patients and making recommendations^{30,31}. Harkness and et al. mentioned that the patients mostly used antispasmodics, and after than the SSRI and tricyclic antidepressants³².

While the study has some limitations due to restricted sample size and lack of further investigation methods diagnosing IBS, it provides an insight into the utility of diagnosing IBS cases in primary care.

Prevalence of IBS that we have detected is similar with North America and the southern of Europe. We suggest that ROME III diagnostic criteria is not appropriate to recognize IBS cases with mild and moderate severity in primary healthcare. IBS affects mostly females, begins 30 - 45 age and IBS-D is more frequently seen in Turkey. We recommend further studies to researchers about other diagnostic methods that compared IBS.

Acknowledgements

We would like to thank to our statistical analyst of this research, Assist. Prof. Dr. Sibel Cevizci department of Public Health, for guidance, advice and also statistical analysis.

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