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The Management of Irritable Bowel Syndrome in Primary Health Care and the Effect of Residency Training: A Cross-Sectional Study

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ABSTRACT

Objectives: This study aims to evaluate the management of irritable bowel syndrome (IBS) by family physicians (FPs) and the effect of residency training on it.

Methods: FPs who attended the FP training program including academic courses and conferences designed for them between December 2018 and May 2019 were included in the study. Before the training session, all FPs completed a questionnaire to assess their management of IBS in the primary health-care services.

Results: The mean age of the 901 FPs included in the study was 40.8±13.8 years and 707 (79.8%) FPs reported that they managed IBS patients. It was found that 134 (87.6%) of the specialist FPs, 446 (83.8%) of the general practitioner FPs, and 134 (62.6%) of the resident FPs managed the IBS patients (p<0.001). The first pharmacological agents preferred by FPs were found that 816 (90.6%) of the physicians preferred antispasmodics, 69 (7.7%) antidepressants, 31 (3.4%) laxatives, and 9 (1.0%) antidiarrheals. Furthermore, it was found that the duration of prescription of antispasmodic therapy by FPs was 4.0 [2.0] weeks. When IBS management of FPs was evaluated, resident FPs (OR=0.281, 95% CI=0.123–0.640, p=0.003) and use of Rome criteria in diagnosis (OR=0.274, 95%CI=2.027–5.924, p<0.001) were found to be significant.

Conclusion: This study revealed that the FPs who did not manage IBS patients used a defensive medicine strategy due to a lack of training. In addition, this study also highlights the training needs of the FPs, particularly the resident FPs, on IBS.

Keywords: Continuing medical education, family health, graduate medical education, practice management

INTRODUCTION

Irritable bowel syndrome (IBS), which is classified as a functional bowel disease according to the Rome criteria IV, is manifested by complaints such as recurrent abdominal pain during defecation or changes in bowel habits.[1,2] In a meta-analysis, IBS was found to be one of the most common reasons for applying to the primary health-care services among gastrointestinal system diseases.[1,3-5] Family physicians (FPs) play an important role in the management

of IBS, and only 5% of IBS patients are diagnosed by a gastroenterologist.[2-4,6-8] Physicians' educational backgrounds influence their approaches to disease management, which is especially important for FPs who manage IBS patients regularly.[8,9] Difficulties in diagnosing and treating IBS can arise due to these variations in IBS approaches, which highlight the importance of standard diagnosis and treatment protocols.[2,9] Therefore, it is important to evaluate the attitudes and behaviors of physicians to develop standard guidelines. The studies suggest meeting the training needs and developing skills of physicians, especially during residency training.[8,10] This study aims to evaluate the management of IBS by FPs and the effect of residency training on it.

METHOD

FPs who attended the FP training program including academic courses and conferences designed for them between December 2018 and May 2019 were included in this cross-sectional study. Before the training session, all FPs completed a questionnaire designed by the researchers to assess their management of IBS in the primary healthcare services. The questionnaire form developed by the researchers consists of 19 questions in total and, more than one option could be marked for the questions "methods used in diagnosis" and "pharmacological agents of the first choice in treatment."

Family Medicine Residency training has been offered in Turkey since 1983, and a new model has been implemented in the primary health-care services since 2005.[11] In this new model, the people in the district have been registered as the patients of the family health center (FHC), and the preventive, therapeutic, and rehabilitative health services of the individuals in the community are provided by the FPs.[11] Both specialist FPs who have completed family medicine residency training and general practitioner FPs who have not received residency training after medical school education are employed in FHCs.[12] In addition, family medicine residents also work in the training FHCs as part of their residency training with the establishment of the training FHCs in 2014.[13] These three family medicine groups were included in our study population.

There are a total of 23,213 FPs in Turkey and the sample size was calculated using a prevalence of 50%, margin of error of 5%, a confidence level of 95%, and missing data of 20%.[14] The target sample size was found to be 454 FPs, and it was achieved.

FPs working outside of the primary care, such as community health centers, state hospitals, FP outpatient clinics, and emergency services, were excluded from the study.

Statistical Analysis

The collected data were analyzed using the SPSS 22.0 statistical software package. Frequency, percentage, mean, standard deviation, median, and interquartile range (IQR) were used as descriptive statistics methods. The ANOVA test and the Student's t-test were used for continuous variables with normal distribution among groups, while the Kruskal–Wallis test and the Mann–Whitney U-test were used for continuous variables with non-normal distribution. The categorical variables were investigated using the Chi-square test. In addition, the logistic regression analysis was used to predict the status of monitoring IBS patients by FPs. According to the results of all analyses, p-value lower than 0.05 was accepted as significant.

RESULTS

A total of 901 FPs participated in the study, and the mean age of the FPs was found to be 40.8±13.8 years, the duration of their medical practice was 11.0 [19.0] years, and the affiliated population was 3700.0 [645.0] individual/FP.

It was found that 858 (96.0%) FPs used only symptoms for diagnosis, 50 (5.6%) used laboratory tests, and 26 (2.9%) used radiological imaging. Furthermore, it was determined that 59 (6.7%) of the physicians used upper gastrointestinal system endoscopy for diagnosis, 62 (7.1%) used colonoscopy, and 393 (44.9%) of the FPs used Rome criteria in the diagnosis of IBS. It was found that 69 (7.7%) of FPs refer their patients to a gastroenterology specialist for diagnosis. Considering the first pharmacological agents preferred by FPs in the treatment of IBS, it was found that 816 (90.6%) FPs preferred antispasmodics, 69 (7.7%) FPs preferred antidepressants, 31 (3.4%) FPs preferred laxatives, and 9 (1.0%) FPs preferred antidiarrheals. In addition, the recommended duration for the use of antispasmodic drugs was found to be 4.0 [2.0] weeks. It was observed that 552 (76.1%) FPs called their IBS patients for the follow-up examination in the 1st month, 158 (21.8%) in the 3rd month, and 15 (2.1%) in the 6th month.

While 707 (79.8%) FPs reported that they managed IBS patients, the number of IBS patients examined was 7.0 [12.0] patients/week. The approaches followed by the FPs who manage and do not manage IBS patients are summarized in Table 1. Considering the follow-up examination time of the FPs who managed IBS patients and those who did not manage IBS patients, the frequency of calling for a follow-up examination at 1 month was found to be 543 (77.0%) versus 5 (33.3%), while these figures at 3 months were 150 (21.3%) versus 7 (46.7%), and those at 6 months were 12 (1.7%) versus 3 (20.0%) ($p<0.001$).

Table 1. The approaches followed by the FPs who manage and do not manage IBS patients

	FPs who do not manage IBS patients	FPs who manage IBS patients	p
Age (years)	37.5±10.9	41.7±14.4	<0.001†
Professional time of the FPs (years)	8.0 [17.5]	13.0 [18.0]	0.001‡
Residency training			
Specialist FP	19 (10.6)	134 (19.0)	<0.001§
General Practitioner FP	86 (48.1)	446 (63.4)	
Resident FP	74 (41.3)	124 (17.6)	
Methods used in the diagnosis*			
Based on symptoms only	159 (90.3)	689 (92.1)	<0.001§
Laboratory examinations	11 (6.3)	39 (5.2)	0.709§
Radiological imaging methods	6 (3.4)	20 (2.7)	0.686§
Using Rome criteria in the diagnosis of IBS	48 (27.6)	342 (49.6)	<0.001§
Use of upper gastrointestinal endoscopy in the diagnosis	21 (12.1)	36 (5.1)	0.001§
Use of colonoscopy in the diagnosis	20 (11.6)	41 (5.9)	0.008§
Referral to gastroenterology specialist	29 (16.5)	38 (5.4)	<0.001§
First choice pharmacological agents in treatment*			
Antispasmodics	151 (84.4)	654 (92.5)	0.001§
Antidepressants	16 (8.9)	52 (7.4)	0.477§
Laxatives	13 (7.3)	17 (2.4)	0.001§
Antidiarrheics	2 (1.1)	7 (1.0)	0.881§
Others	13 (7.3)	52 (7.4)	0.966§
Recommended antispasmodic treatment duration (weeks)	4.0 [2.0]	4.0 [2.0]	0.024‡
Participation in the training meetings	64 (40.3)	399 (61.2)	<0.001§
The need for training	161 (92.0)	617 (89.2)	0.269§

*Multiple choices are marked.
FP: Family physicians; IBS: Irritable bowel syndrome.
Data are presented as mean±SD, median [IQR] and n (%).
†Student t-test, ‡Mann–Whitney U-test, §Chi-square test.

It was determined that 155 (17.3%) FPs were specialist FPs, 543 (60.5%) were general practitioners FPs, and 200 (22.3%) were resident FPs. It was found that 134 (87.6%) of the specialist FPs, 446 (83.8%) of the general practitioner FPs, and 134 (62.6%) of the resident FPs managed IBS patients (p<0.001). The IBS approaches according to the residency training of the FPs are summarized in Table 2. Considering the diagnostic methods used, it was found that 129 (96.3%) specialist FPs, 438 (98.4%) general practitioner FPs, and 119 (96.0%) resident FPs relied solely on symptoms (p=0.158). Furthermore, the frequencies of the use of laboratory testing and radiological imaging methods in diagnosis were found to be 8 (6.0%) and 7 (5.2%) in specialist FPs, 25 (5.6%) and 10 (2.2%) in general practitioner FPs, and 6 (4.8%) and 3 (2.4%) in resident FPs, respectively (p=0.919 and p=0.183, respectively).

According to the results of the regression analysis, the use of Rome criteria in the diagnosis was found to be significant (OR=2.317, 95% CI=1.462–3.673, p<0.001). The results of the logistic regression analysis of managing IBS patients by FPs are summarized in Table 3 (–2 Log-likelihood=528.918 and p<0.001).

DISCUSSION

This study aimed to assess the management of IBS by the FPs and the effect of residency training on it. The study revealed that the FPs managed IBS patients with a high frequency (80%). Furthermore, it has been found that antispasmodic drugs are the first pharmacological agent preferred by the FPs in the treatment of IBS, but these medications are only recommended for up to 4 weeks. In our study, it was found that the FPs who managed IBS patients used the Rome criteria more frequently in the diagnosis. In

Table 2. The IBS approaches according to the residency training of the FPs

	Specialist FP (n=134)	General practitioner FP (n=446)	Resident FP (n=124)	p
Age (years)	40.2±24.6	45.7±8.8	29.0±4.2	<0.001†
Professional time of the doctor(years)	5.0 [10.6]	18.0 [15.0]	2.5 [2.8]	<0.001‡
Use of Rome criteria in the diagnosis	96 (72.7)	168 (39.1)	77 (62.1)	<0.001§
Use of upper gastrointestinal endoscopy in the diagnosis	7 (5.3)	23 (5.2)	6 (4.8)	0.983§
Use of colonoscopy in the diagnosis	8 (6.1)	26 (5.9)	7 (5.6)	0.988§
Referral to a gastroenterologist for the diagnosis	9 (6.7)	24 (5.4)	5 (4.0)	0.635§
First choice pharmacological agent in treatment*				
Antispasmodics	124 (92.5)	414 (92.8)	113 (91.1)	0.818§
Antidepressants	10 (7.5)	35 (7.8)	7 (5.6)	0.708§
Laxatives	2 (1.5)	13 (2.9)	2 (1.6)	0.523§
Antidiarrheics	1 (0.7)	4 (0.9)	2 (1.6)	0.739§
Recommended antispasmodic treatment duration (weeks)	4.0 [4.0]	4.0 [2.0]	4.0 [2.0]	0.190‡
Time of the follow-up examination				
1 month later	103 (76.9)	362 (81.5)	76 (77.1)	<0.001§
3 months later	31 (23.1)	79 (17.8)	39 (31.5)	
6 months later	0 (0.00)	3 (0.7)	9 (7.3)	
Participation in training meetings	82 (68.9)	273 (66.7)	43 (35.5)	<0.001§

*Multiple choices are marked.
FP: Family physicians.
Data are presented as mean±SD, median [IQR] and n (%).
†ANOVA test, ‡Kruskal–Wallis test, §Chi-square test.

addition, it was found that FPs who managed IBS patients attended more training meetings compared to the FPs who did not manage. The assessment of the effect of residency training on IBS management indicated that resident FPs practiced IBS management less frequently during their residency training. Moreover, resident FPs' frequency of attending training meetings was found to be lower than that of specialist FPs and general practitioner FPs. Considering the effect of residency training on the diagnosis of IBS, it was found that specialist FPs used the Rome criteria for the diagnosis at a higher rate.

IBS is one of the most common functional gastrointestinal disorders, and its diagnosis, treatment, and management are often performed by the FPs.[4-8] However, the studies reported that FPs followed different approaches to IBS patients.[3,7] The reason for this may be different perceptions and practices regarding the importance of the primary health-care services in different countries.[8] The present study revealed that almost 80% of FPs managed patients with IBS in their daily clinical practices. The ease of access to the primary health-care services in Turkey may explain the high prevalence of management of IBS patients by FPs in our study.

Due to the lack of a specific biomarker for IBS diagnosis, clinicians typically use symptom-based diagnostic criteria.[5,6] Many studies reported that FPs place importance on the presence of symptoms when diagnosing IBS; however, they tend to perform one or more additional tests to confirm the diagnosis or rule out organic disorders.[2,4-6,9,15] The FPs use different diagnostic tests to diagnose suspected IBS patients in the primary care.[2,6] The studies in the literature reported that laboratory tests were used by the FPs for 21–75% of the cases, abdominal ultrasound for 4–41%, and radiological imaging such as barium enema for 11–37%.[3,9,15] In this study, it was determined that almost all FPs diagnosed IBS based on symptoms; however, it was found that laboratory tests and radiological imaging were very rarely used. Compared to other studies, the inaccessibility to perform certain laboratory tests and radiological imaging methods that may be needed in the differential diagnosis of IBS in the primary health-care services may be the reason for the low rate of test use in diagnosis. In addition, the frequency of symptom-based diagnosis was found to be more frequent in FPs who managed IBS patients compared to FPs who did not manage IBS patients.

Table 3. Logistic regression analysis of managing IBS patients for FPs

	β	Standard error	p	Exp (β)	95% CI
Age (years)	0.012	0.024	0.613	1.012	0.966–1.061
Professional time of the doctor(years)	−0.007	0.023	0.744	0.993	0.949–1.038
Residency Training					
Specialist (ref)					
General Practitioner	0.041	0.383	0.914	1.042	0.492–2.209
Resident	−1.270	0.421	0.003	0.281	0.123–0.640
Use of symptoms solely in the diagnosis					
Yes/No (ref)	0.324	0.623	0.603	1.383	0.408–4.691
Use of laboratory tests in the diagnosis					
Yes/No (ref)	0.040	0.524	0.938	1.041	0.373–2.906
Use of radiological methods in the diagnosis					
Yes/No (ref)	−0.037	0.749	0.961	0.964	0.222–4.185
Use of upper gastrointestinal endoscopy in the diagnosis					
Yes/No (ref)	−0.289	0.558	0.605	0.749	0.251–2.237
Use of colonoscopy in the diagnosis					
Yes/No (ref)	−0.257	0.534	0.630	0.773	0.271–2.203
Use of Rome criteria in the diagnosis					
Yes/No (ref)	1.234	0.274	<0.001	3.465	2.027–5.924
Use of antispasmodic in treatment					
Yes/No (ref)	0.882	0.629	0.161	2.416	0.704–8.287
Use of antidepressants in treatment					
Yes/No (ref)	0.041	0.435	0.924	1.042	0.444–2.444
Use of laxative in treatment					
Yes/No (ref)	−0.812	0.647	0.209	0.444	0.125–1.578
Use of antidiarrheic in treatment					
Yes/No (ref)	−0.154	0.991	0.876	0.857	0.123–5.973
Use of other medications in treatment					
Yes/No (ref)	0.732	0.695	0.292	2.079	0.533–8.118
Referral to gastroenterology specialist					
Yes/No (ref)	−0.342	0.489	0.485	0.710	0.272–1.853
Participation in training meetings					
Yes/No (ref)	0.369	0.237	0.120	1.447	0.909–2.304
The need for training					
Yes/No (ref)	−0.064	0.398	0.873	0.938	0.430–2.047

CI: Confidence interval; FP: Family physicians; IBS: Irritable bowel syndrome
Logistic regression analysis.

According to the studies, 3–67% of the FPs used colonoscopy, and 6–9% of the FPs used endoscopy to rule out organic pathologies in the diagnosis of IBS.[4,9,10,16,17] Similarly, 6.7% of the FPs stated that upper gastrointestinal system endoscopy was necessary for the diagnosis, while 7.1% of the FPs stated colonoscopy was required for the diagnosis in the present study. However, the use of upper gastrointestinal system endoscopy and colonoscopy was found to be less frequent among FPs who managed IBS patients compared to those who did not manage IBS patients. This result may be due to their defensive medicine approaches and a lack of confidence in the diagnostic skills of the FPs who do not manage IBS patients.

While guidelines such as the Rome and Manning criteria have been established to facilitate the diagnosis of IBS, sev-

eral studies reported a low frequency of hearing and using the Rome or Manning criteria among FPs.[2,4-6] A study conducted across Europe found that only 23% of the FPs were familiar with any of the diagnostic criteria and only 20% used them in their clinical practices.[16] In the present study, it was found that almost half of the FPs used the Rome criteria in the diagnosis of IBS. This result may be because the data of the study were collected from the FPs who attended the training before the IBS sessions. In addition, the use of Rome criteria in the diagnosis of IBS was found to be more common among the FPs who managed IBS patients compared to those who did not manage IBS patients in this study. It was also determined that the FPs who use the criteria of Rome managed IBS patients 3.4 times more often. Furthermore, general practitioner FPs were determined to use Rome criteria less frequently than specialist FPs and resident FPs. In a study, physicians with a master's degree were found to use "Rome or Manning criteria" more frequently in the diagnosis of IBS compared to physicians with a bachelor's degree.[10]

The frequency of the cases where the FPs refer IBS patients to a gastroenterologist varies greatly in the literature.[2,3,9,10,15,16,18] Studies observed that the frequency of referring IBS patients to secondary health-care services by primary health-care centers was 4–32%.[15,16,18] In this study, the frequency of the FPs referring IBS patients to gastroenterology specialists was found to be 7%, and no difference was found between the frequency of referring to a gastroenterology specialist and resident. The most important reason for the low frequency of referral to a gastroenterology specialist may be that, unlike other European countries, there is no referral chain between the levels of health care in Turkey, and therefore, patients can apply to the gastroenterology specialist with their social health insurance. Furthermore, the FPs who managed IBS patients were found to have a lower frequency of referral to a gastroenterologist, compared to those who did not manage IBS patients. This might be attributed to the FPs who did not manage IBS patients having less confidence in their own diagnostic skills and referring their patients to gastroenterologists more frequently.

Pharmacologic treatments used in the management of IBS are symptom-focused, and FPs usually begin pharmacologic treatment with antispasmodic medications.[2,4-6,17] Studies revealed that 25–89% of the FPs prescribed antispasmodic medications and 7–56% prescribed antidepressant medications.[2,4,10,17] In the present study, similar to the literature, antispasmodics were found to be the most commonly used pharmacological agents in the treatment of IBS. However, as a surprising result, it was found that the frequency of use of laxative drugs, which should be particularly preferred in the treatment of constipation-dominant IBS, was very low. While treatment protocols for IBS subtypes were not evaluated in this study, further research into this result is needed. Antispasmodic medications, which are the most used treatment protocols, should be used for at least three months to show their effect.[19] However, the duration of antispasmodic therapy was found to be only 4 weeks in this study. This result may be interpreted as a lack of information about the treatment duration of FPs.

The need for training on IBS management becomes even more important since a significant frequency of the IBS patients is evaluated by the FPs.[4,8] In a study conducted in Saudi Arabia, significant differences were found between physicians with a bachelor's degree and a master's degree in terms of their approaches to IBS patients, and these differences were attributed to the fact that functional disorders such as IBS were given only a small share compared to other medical subjects in the undergraduate program.[10] In our study, the results of the regression analysis conducted to evaluate the IBS management approaches of the FPs revealed that the resident FPs managed fewer IBS patients compared to specialists FPs. It was also found that the resident FPs had to manage IBS patients in the primary health-care center after their graduation, although they encountered fewer IBS patients during their residency training. Another interesting result of this study was that antispasmodic therapy, which should be prescribed for a treatment period of 8–12 weeks, was recommended for only 4 weeks by three participants in the residency training group. These results suggest that chronic diseases such as IBS should be included more in the training of residents. It is recommended to meet this training need and develop appropriate skills, particularly in the residency training.[8] As a result, addressing a training need during the residency training and making amendments in the residency training curriculum related to the management of chronic diseases such as IBS may be beneficial.

The limitation of this study is that the FPs included in the study consisted of physicians who attended the training sessions. This circumstance precludes the study from being conducted among physicians who demand training and prefer to follow current literature. Therefore, the results cannot be generalizable to all FPs. Moreover, the fact that the study was conducted during the congresses and training sessions where pharmaceutical companies were also present might have caused perceptual selectivity.

CONCLUSION

The present study revealed that FPs managed the majority of IBS patients in the primary health-care service. Although

they prefer antispasmodics most frequently in pharmacological treatment, it was determined that they did not recommend the medication for a sufficient period. Moreover, the use of upper gastrointestinal system endoscopy and colonoscopy for diagnosis and referring the patients to a gastroenterologist was found to be more common among FPs who did not manage IBS patients. This study revealed that the FPs who did not manage IBS patients used a defensive medicine strategy due to a lack of training. This study also highlights the training needs of the FPs, particularly the resident FPs, on IBS. Based on this need, the period scheduled for the training sessions on the management of chronic diseases, such as IBS, should be extended in the FP training program since they manage a significant amount of the IBS cases.

Disclosures

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