JKBMS, Vol.6, No.1, P.115-121, 2020 https://doi.org/10.56056/amj.2020.129

Prevalence of Irritable bowel syndrome among medical students in Erbil city

Rawand Hamza*
Sinan Butrus**

Abstract

Background and objectives: Irritable bowel syndrome is a type of functional bowel disease characterized by recurrent abdominal pain associated with a change in stool frequency or consistency without evidence of organic pathology. The objective of this study was to determine the prevalence and risk factors associated with irritable bowel syndrome among medical students in the college of medicine at Hawler medical university. **Methods:** This is a cross-sectional study. The target population is medical students, eighteen-to-twenty-six years old. The sample was collected from a convenience population of medical students from all the six stages at college. Data was collected using questionnaire with informed consent from the participants. Rome III criteria was used to ascertain the diagnosis of irritable bowel syndrome. **Results:** A total of 250 students participated in the study with 149 from female students and 101 from male students. The prevalence of irritable bowel syndrome was 35.2%. The prevalence of irritable bowel syndrome was significantly higher among those with family history of irritable bowel syndrome (47.3%) compared with those with no family history of the disease (21.8%). **Conclusions:** The prevalence of irritable bowel syndrome was high among medical students. Positive family history of irritable bowel syndrome is the most important risk and predictor of suffering from irritable bowel syndrome.

Key words: Irritable bowel syndrome, Medical students, Prevalence, Risk factors, Rome III criteria.

Introduction

Irritable bowel syndrome (IBS) is a functional gastrointestinal disease. It is the most common gastrointestinal disease in clinical practice[1]. It is characterized by recurrent abdominal pain and changes in bowel habits without evidence of organic pathology. Additional symptoms of IBS include abdominal distention, relief of abdominal pain with bowel movement, increased frequency of stools with pain, loose stools with pain, mucus in stools and a sense of incomplete bowel evacuation[1]. IBS is more prevalent among adolescents and declines with age[2]. The odds of having IBS are higher among those younger than 50 years compared to those older than 50 years of age[3,4,5]. The disease is more prevalent in females than males with a 2:1 ratio[6]. The global prevalence of IBS is estimated to be 11.2 %[7]. However, the prevalence of IBS has been shown to be higher among medical students in different countries[8,9,10-12]. It ranges from 28.3% in three medical colleges in Pakistan in a study conducted by Naeem et al.[8] to 31.8% among medical students and interns in Kingdom of Saudi Arabia as reported by Ibrahim et al.[9] Recently there has been increased interest in the study of IBS among medical students. Medical students are a group of people with a lot of stress from their hard studies and continuous examinations. IBS has been associated with psychological factors such as stress and anxiety[13]. Genetics have a significant role in IBS where 33% of patients with IBS report a positive family history[14]. Irritable bowel syndrome is not a life-threating condition. Yet, people with IBS have a reduced quality of life that may affect their educational, social and occupational achievements[15]. There is no confirmative investigation for IBS diagnosis. It is diagnosed only clinically.

The criteria for IBS diagnosis have changed over time. Rome III criteria[16,17] is most commonly used. Which describes abdominal pain or discomfort at least three days in a month for the last three months with two or more of the following: improvement of abdominal pain or discomfort with defecation, onset associated with a change in frequency of stools and onset associated with a change in form of stool. The above criteria must be fulfilled for at least three months with onset of the symptoms at least six months before the diagnosis.

* M. B. Ch. B. Candidate of internal medicine, KHCMS
**F.I.C.M.S. Assist. Prof. Consultant Physician in internal medicine. KHCMS
Corresponding author: Rawand Hamza. Email: rawand.doctor@gmail.com

The aim of this study was to determine the prevalence and risk factors associated with IBS among medical students in college of medicine at Hawler medical university in Erbil city, Iraq.

Patients and methods

In this cross-sectional study, the target population is medical students from both genders in the medical college at Hawler medical university. The students were eighteen-to-twenty-six years of age. The data collection extended from January 2019 to April 2019. All the participants were informed of the study. No invasive investigation was required throughout the study and the study was approved by the ethical committee of Kurdistan Higher Council of Medical Specialties(KHCMS). A total of 250 students participated in the study voluntarily consisting of 149 female students and 101 male students. The participants were from all the six stages of college as following: 41 students form the first, third, fourth and fifth stages, 40 students from the second stage, and 46 students from the sixth stage.

The data collected using questionnaire distributed in a convenience sample of student population.

The questionnaire included a written consent as its first page. The date collected included information on the participant's age, gender, stage at college, socioeconomic status, smoking habits, alcohol consumption, exercise performance, sleep problem, family history of irritable bowel syndrome among first-degree relatives, and medical, surgical and medication histories.

Rome III criteria is used in the study to ascertain the diagnosis of irritable bowel syndrome.

Eligibility criterion was any student from the college of medicine. Any student with history of organic pathology of colon was excluded from the study as well as any student with family history of colon cancer.

A scale of 12 points was used by the researchers to classify the students according to the socio-economic status (SES). Four scores were given for each of the father and mother educational level, two scores for house ownership, and one score for each of personal car and family car.

Then the 12 points was divided into three equal categories (4 scores in each), low, medium, and high SES.

The sample size calculated based on the probability that the prevalence of IBS among medical students is 31.8%5 and in a population size of students around 1000 at college of medicine required a sample size of 250 individuals with the accepted margin of error of 5% and with a confidence interval of 95%. This calculation was performed using Epi infoTM 7.1.5 (Center for Disease Control and Prevention; Atlanta, Georgia, USA).

Data were analyzed using the Statistical Package for Social Sciences (SPSS, version 22). Chi-square test of association was used to compare proportions. Fisher's exact test was used when the expected count of more than 20% of the cells of the table was less than 5. A p value of ≤ 0.05 was considered statistically significant.

Results

The total number of the students was 250. Their mean age + SD was 21.21 + 1.89 years, and the median was 21 years. The age range was 18 to 26 years. Table (1) shows that more than half (53.2%) were in the age range 21-23 years, and more than half (59.6%) of the sample were females. The majority (80.4%) of the sample were living with their families. The sample was recruited (evenly) from the six stages of the college as presented in the table, which shows that two thirds of the students were of high socio-economic status, Table (1).

https://doi.org/10.56056/amj.2020.129

Table (1): Basic characteristics of the study sample.

	No.	%
Age		
18-20	89	35.6
21-23	133	53.2
≥ 24	28	11.2
Gender		
Female	149	59.6
Male	101	40.4
Residency		
With family	201	80.4
In dormitory/rented apartment	49	19.6
Stage		
S1	41	16.4
S2	40	16.0
S3	41	16.4
S4	41	16.4
S5	41	16.4
S6	46	18.4
SES		
Low 1-4	17	6.8
Medium 5-8	67	26.8
High 9-12	166	66.4
Total	250	100.0

We found that around half (52.8%) of the students complained from abdominal pain or discomfort at least 3 days/month in the last 6 months, and this abdominal pain improves with defecation in 38% of the students. As is evident in this table that in more than one third (35.6%) of the students, the abdominal pain or discomfort was associated with a change in the frequency or form of stool. The table shows also that 57.6% of the students were complaining from symptoms of bloating or gases in the last 6 months, in addition to other symptoms like belching (22%), rectal bleeding (4.4%), and weight loss (4.4%), Table (2).

https://doi.org/10.56056/amj.2020.129

Table (2): Characteristics of studied group by symptoms related to IBS.

Characteristics	No.	(%)
Abdominal pain or discomfort at least 3 days/month in the last 6 months		
Yes	132	(52.8)
No	118	(47.2)
Abdominal pain or discomfort that improves with defecation		
Yes	95	(38.0)
No	155	(62.0)
Abdominal pain or discomfort associated with a change in frequency or form of stool		
Yes	89	(35.6)
No	161	(64.4)
Symptoms of bloating or gases in the last 6 months		
Yes	144	(57.6)
No	106	(42.4)
Belching		
Yes	55	(22.0)
No	195	(78.0)
Rectal bleeding		
Yes	11	(4.4)
No	239	(95.6)
Weight loss		
Yes	11	(4.4)
No	239	(95.6)
Total	250	(100.0)

Table (3) shows that the prevalence of IBS in the whole sample was 35.2%. The prevalence among females was 39.6% and that among males was 28.7%, but the difference was not significant (p-value = 0.077). The prevalence among students living in the dormitory was 42.9% and that among those living with their families was 33.3% (p-value = 0.211). It is evident that the study revealed the prevalence was higher among students of the higher stages of the study but again the differences were not significant (p-value = 0.363). No significant (p-value= 0.847) association was detected between the socio-economic status and the prevalence of IBS, Table (3).

https://doi.org/10.56056/amj.2020.129

Table (3): Prevalence of IBS by the basic characteristics of the students.

	Prevalence of IBS						
	Yes		No.		Total		
	No.	(%)	No.	(%)	No.	(%)	p-value
Gender							
Female	59	(39.6)	90	(60.4)	149	(100.0)	
Male	29	(28.7)	72	(71.3)	101	(100.0)	0.077
Residency							
With family	67	(33.3)	134	(66.7)	201	(100.0)	
In dormitory	21	(42.9)	28	(57.1)	49	(100.0)	0.211
Stage							
S1	10	(24.4)	31	(75.6)	41	(100.0)	
S2	13	(32.5)	27	(67.5)	40	(100.0)	
S3	13	(31.7)	28	(68.3)	41	(100.0)	
S4	14	(34.1)	27	(65.9)	41	(100.0)	
S5	19	(46.3)	22	(53.7)	41	(100.0)	
S6	19	(41.3)	27	(58.7)	46	(100.0)	0.363
SES							
Low	7	(41.2)	10	(58.8)	17	(100.0)	
Medium	24	(35.8)	43	(64.2)	67	(100.0)	
High	57	(34.3)	109	(65.7)	166	(100.0)	0.847
Total	88	(35.2)	162	(64.8)	250	(100.0)	

Table (4) shows that there was no significant association between IBS with the following factors: physical activity ($p = 0.930$), smoking (p 0.074), alcohol drinking (0.758), and sleep problems ($p = 0.098$). The prevalence of IBS was significantly higher among those with family history of IBS (47.3%) compared with 21.8% among those with no family history ($p < 0.001$). Table (4).

https://doi.org/10.56056/amj.2020.129

Table (4): Prevalence of IBS by the studied factors.

	Prevalence of IBS						
	Yes		No.				
	No.	(%)	No.	(%)	No.	(%)	p-value
Physical activity							
Yes	32	(35.6)	58	(64.4)	90	(100.0)	
No	56	(35.0)	104	(65.0)	160	(100.0)	0.930
Smoking							
Smoker	2	(12.5)	14	(87.5)	16	(100.0)	
Ex-smoker	5	(50.0)	5	(50.0)	10	(100.0)	
Non-smoker	69	(34.5)	131	(65.5)	200	(100.0)	
Passive smoker	12	(50.0)	12	(50.0)	24	(100.0)	0.074
Alcohol drinking							
Still drinking	4	(50.0)	4	(50.0)	8	(100.0)	
Non-drinker	83	(34.7)	156	(65.3)	239	(100.0)	
Stopped drinking	1	(33.3)	2	(66.7)	3	(100.0)	0.758*
Sleep problems							
Yes	46	(40.7)	67	(59.3)	113	(100.0)	
No	42	(30.7)	95	(69.3)	137	(100.0)	0.098
Family history							
Yes	62	(47.3)	69	(52.7)	131	(100.0)	
No	26	(21.8)	93	(78.2)	119	(100.0)	< 0.001
Total	88	(35.2)	162	(64.8)	250	(100.0)	

*By Fisher's exact test.

Discussion

In this study, the prevalence of IBS was 35.2% which is consistent with three other studies. The study of Okami et al[18]. reported a prevalence of 35.5% among medical students in Japan. Ibrahim et al[9]. reported a prevalence of 31.8% of IBS among medical students and interns in Kingdom of Saudi Arabia. In another study by Mohammed et al. conducted in Kirkuk, Iraq reported a prevalence of 31%[19] of IBS among medical students. In this study, the rate of female students with IBS (39.6%) was higher than that of male students (28.7%) but not to the rate reported in literature with female to male ratio of 2:1. Also the studies of china by Liu et al6. and Kingdom of Saudi Arabia by Ibrahim et al[9]. report that females are two times more likely to have IBS.

We found the sleep problem not to be a factor associated IBS. Liu et al[6]. reported an association between sleep disorders and IBS. We also found no significant association between IBS among medical students and cigarette smoking and alcohol consumption. It should be noted that only a small number of students from studied sample reported smoking and even less reported drinking alcohol.

This study showed no significant association between IBS and socioeconomic status of the participants which is consistent with the study of Ibrahim et al[9]. conducted among the medical students and interns in Kingdom of Saudi Arabia.

We found no significant association between IBS and exercise in our study which is inconsistent with the study of Basandra et al[20]. in India which reported that IBS was significantly associated with inadequate practicing of physical activities. This study showed significant association between IBS in medical students and positive family history. We found that the rate of IBS was two times more in students who reported a positive family history of IBS which is consistent with the study of Ibrahim et al.9 in Kingdom of Saudi Arabia.

https://doi.org/10.56056/amj.2020.129

Conclusions

The prevalence of irritable bowel syndrome was high among medical students. Positive family history of IBS is the most important risk and predictor of suffering from IBS.

References

1. D. Kasper, Fauci A. Harrison's principles of internal medicine. McGraw-Hill education; 2015.

2. Lovell RM, Ford AC. Global prevalence of and risk factors for irritable bowel syndrome: a meta-analysis. Clinical gastroenterology and hepatology. 2012 Jul 1;10(7):712-21.

3. Endo Y, Shoji T, Fukudo S, Machida T, Machida T, Noda S, Hongo M. The features of adolescent irritable bowel syndrome in Japan. Journal of gastroenterology and hepatology. 2011 Apr; 26:106-9.

4. Park H, Lim S. Frequency of irritable bowel syndrome, entrance examination-related stress, mental health, and quality of life in high school students. Gastroenterology Nursing. 2011 Nov 1;34(6):450-8.

5. Zhou H, Li D, Cheng G, Fan J, Lu H. An epidemiologic study of irritable bowel syndrome in adolescents and children in South China: a school≤ based study. Child: Care, Health and Development. 2010 Nov;36(6):781-6.

6. Liu Y, Liu L, Yang Y et al. A school-based study of irritable bowel syndrome in medical students in china: prevalence and some related factors. Gastroenterol Res Pract. 2014;2014.

7. Chatila R, Merhi M, Hariri E, Sabbah N, Deeb ME. Irritable bowel syndrome: prevalence, risk factors in an adult Lebanese population. BMC gastroenterology. 2017;17(1):137.

8. Naeem SS, Siddiqui EU, Kazi AN, Memon AA, Khan ST, Ahmed B. Prevalence and factors associated with irritable bowel syndrome among medical students of Karachi, Pakistan: a cross-sectional study. BMC research notes. 2012;5(1):255.

9. Ibrahim NK, Battarjee WF, Almehmadi SA. Prevalence and predictors of irritable bowel syndrome among medical students and interns in King Abdulaziz University, Libyan J Med 2013 ;8(1):21287.

10. Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, Spiller RC. Functional bowel disorders. Gastroenterology. 2006;130(5):1480-91.

11. Jafri W, Yakoob J, Jafri N, Islam M, Ali QM. Frequency of irritable bowel syndrome in college students. J Ayub Med Coll 2005;17(4),9-11.

12. Okeke EN, Agaba EI, Gwamzhi L, Achinge GI, Angbazo D, Malu AO. Prevalence of irritable bowel syndrome in a Nigerian student population. Afr J Med Med Sci. 2005;34(1):33-6.

13. Chang FY, Lu CL, Chen TS. The current prevalence of irritable bowel syndrome in Asia. Journal of neurogastroenterology and motility. 2010 Oct;16(4):389.

14. Whorwell PJ, McCallum M, Creed FH, Roberts CT. Non-colonic features of irritable bowel syndrome. Gut. 1986 Jan 1;27(1):37-40.

15. Gralnek IM, Hays RD, Kilbourne AM, Chang L, Mayer EA. Racial differences in the impact of irritable bowel syndrome on health-related quality of life. J Clin Gstroenterol. 2004;38(9):782-9.

16. Wells M, Roth L, McWilliam M, Thompson K, Chande N. A cross-sectional study of the association between overnight call and irritable bowel syndrome in medical students. Can. J. Gastroenterol. Hepatol. 2012;26(5):281-4.

17. Canavan C, West J, Card T. The epidemiology of irritable bowel syndrome. Clinical epidemiology. 2014; 6:71.

18. Okami Y, Kato T, Nin G et al. Lifestyle and psychological factors related to irritable bowel syndrome in nursing and medical school students. J Gastroenterol. 2011;46(12):1403-10.

19. Mohammed DS, Salih AM, Mohammed MM. An Epidemiological Study of Irritable Bowel Syndrome among Students of Medical and Nursing Colleges in Kirkuk University. JKMC. 2013;1(2):68-72.

20. Basandra S, Bajaj D. Epidemiology of dyspepsia and irritable bowel syndrome (IBS) in medical students of Northern India.: JCDR. 2014;8(12): JC13.

https://doi.org/10.56056/amj.2020.129