RESEARCH ARTICLE

Pattern of Irritable Bowel Syndrome and its Symptoms Characteristics: A Study from Tertiary Care Hospital in North India

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ABSTRACT

Introduction: Irritable bowel syndrome (IBS) is a bowel disorder in which chronic abdominal pain is associated with irregularity in the form of stool and passage in the absence of any organic cause. IBS is classified into various subtypes, including IBS-D (Diarrhea predominant), IBS-C (Constipation predominant) and IBS-M (mixed).

Objective: The present study was planned to evaluate the pattern of IBS, its symptoms, characteristics epidemiological profile of patients of IBS from rural area in Haryana, attending a tertiary care hospital.

Materials And Methods: After being selected as the study population, 100 consecutive patients aged 12 to 50 years presenting to the Out Patient Department (OPD) of Gastroenterology were asked about a detailed questionnaire.

Results: The numbers of IBS-D patient were 68 (68%), IBS-M were 26 (26%), and IBS-C were 6 (6%). The number of male patients was 58 (58%), and the number of female patients was 42 (42%). 44% of patients with IBS had a normal body mass index (BMI), 3% were underweight, 42% were overweight, and 11% were obese. Among the obese patients, 72.7% had IBS-D,18.1% had IBS-M and 9% had IBS-C. Most patients in the study were farmers by occupation (38%). 36% patients in the study were educated upto secondary school, while only 28% were graduates and 8% were post graduates. We concluded that IBS-D was the most common subtype observed in our study population. Majority of individuals in this study had a BMI >25 kg/m^2. Majority of patients in our study had a low level of education.

Conclusion: Further studies which include a larger population are required which can elaborate the differences in clinical profile of patients with IBS in urban and rural population

Keywords: Body Mass Index (BMI), Irritable Bowel Syndrome, Out Patient Department (OPD).

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INTRODUCTION

Irritable bowel syndrome(IBS) is a bowel disorder in which chronic abdominal pain is associated with irregularity in the form of stool and passage in the absence of any organic cause[1]. In IBS, dysregulation of the brain gut axis interacts with the visceral hypersensitivity and is associated with micro-inflammation of the gut and digestive motor disturbances, with possibly an imbalance of the intestinal microflora.[2]

The global prevalence of IBS has been estimated to be 11.2%[3] with a wide variation by geographic regions. IBS was seen in 12.27% in a community based study from Mumbai, India.[4] Another study from North India has reported a prevalence of 4% in their studied population.[5]

Symptoms of IBS comprise of diarrhea, constipation, alternating diarrhea and constipation, or normal bowel habits alternating with either diarrhea and/or constipation. In some patients abdominal pain is relieved with defecation, while few report worsening of pain with defecation.[6] Meals and emotional stress may exacerbate the pain. IBS patients frequently complain that there is increased gas production in flatulence or belching and abdominal bloating.

The classification of IBS into its various subtypes as IBS-C (constipation predominant), IBS-D (diarhhea predominant), IBS with mixed bowel habits and unclassified IBS is according to the predominant bowel habit.[7] According to Rome IV, bowel habits are based on stool forms only during days with abnormal bowel movements (more than one-fourth: 25% of bowel movements)[1]. Subtypes can be established confidently only when evaluated on medications used to treat bowel habit abnormalities.

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Irritable bowel syndrome should be suspected in individuals with chronic abdominal pain and altered bowel habits (constipation and/or diarrhea). No definitive diagnostic laboratory test for IBS is present. The aim of laboratory testing is primarily to exclude any alternative diagnosis.

The current study was planned to evaluate the pattern of IBS, its symptoms, characteristics and the clinical subtypes in a tertiary care hospital situated in the rural part of northern India.

MATERIAL AND METHODS

This observational, cross-sectional hospital-based study was carried out in MMIMSR(Maharishi Markandeshwar Institute of Medical Sciences and Research) Mullana, Ambala, a tertiary care hospital situated in rural parts of Northern Haryana.

Any patient who attended the OPD of Medical Gastroenterology department from July 2019 to December 2020, with complaints of abdominal distension, feeling of incomplete defecation, abdominal discomfort or pain relieved by defecation, and one or more of the symptoms (diarrhea, constipation, alternating diarrhea, and constipation) was considered for inclusion in the study. 100 consecutive patients in the age group of 12 to 50 years were selected. Since most studies have shown a high prevalence of IBS in this age group, individuals between 12 to 50 years were only included. Minimum duration of change in bowel habits of 3 months was considered necessary for inclusion in the study protocol.

Exclusion Criteria

- Individuals with alarm symptoms such as weight loss, fever, bleeding per rectum, anemia, nocturnal symptoms, family history of colon carcinoma.
- Patients with previously diagnosed ulcerative colitis, crohn's disease, celiac disease, abdominal malignancy, abdominal tuberculosis, pregnant women, diverticulitis, peptic ulcer, chronic kidney disease.
- Postoperative cases including surgery for hemorrhoids, fissure in ano.
- Patients on antidepressants recently detected hypothyroid state, diabetes mellitus or following radiotherapy.
- Patients who refused to give informed consent.

After fulfilling the criterias mentioned above, selected patients were enquired about the detailed history and a thorough clinical examination was done in all cases. Laboratory investigations and endoscopies were carried out as indicated, primarily to rule out any organic disease. Every patient was given a questionnaire on their first visit. Each item of this questionnaire was explained to the patients.

The questionnaire was divided into two parts. The first part was to assess patient's socio-economic, demographic and clinical parameters. The second part was for diagnosis and subtype of IBS.

Rome IV diagnostic criteria were used to diagnose and sub classify IBS.

RESULTS

In our study, a total number of 100 cases were taken for analysis. 58 patients were male and 42 were females.

44% patients with IBS had a normal BMI, 3 persons were underweight, 42 were overweight while 11 patients were obese. Among the obese patients, 72.7% had IBS-D,18.1% had IBS-M and 9% had IBS-C. Also, 52.9% patients having IBS-D subtype had BMI >25kg/m^2.

Most patients in the study were farmers by occupation (38%), followed by housewives (33%), in private jobs (16%), and students (13%). Further, 81% of the patients in the current study were married and the rest were unmarried.

36% patients in the study were educated upto secondary school, while only 28% were graduates and 8% were post graduates.

Duration of the symptoms ranged from 3 months to 14 years with a mean of 3.3 ± 3.4 years. Frequency of stools in the given population ranged from 2 per week to 10 per day.

Fatigue was the most common reported non GI (gastrointestinal) symptom in the study population, seen in 61%. Incomplete evacuation of stools was reported by 58% of the patients. 52% patients also reported of upper abdominal discomfort or pain. Bloating and heartburn were the next most commonly reported symptoms seen in 36% and 34% patients respectively.

Table 6 shows that maximum cases in the current study were of IBS-D while minimum of IBS-C. The numbers of IBS-D patients were 68 (68%), IBS-M were 26 (26%) and IBS-C were 6 (6%).

DISCUSSION

This study was conducted in a tertiary care hospital situated in rural parts of Northern India. The aim was to study the

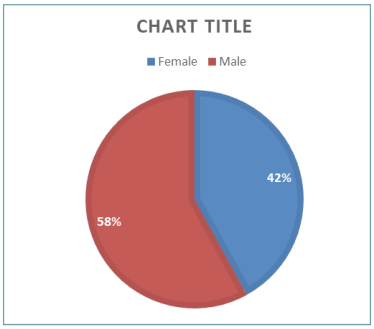

Figure 1: Male-female distribution in the study

Table 6: Distribution of subtype of IBS of study subjects.

Subtype of IBS	*Frequency*	*Percentage*
IBS – C	6	6.00%
IBS – D	68	68.00%
IBS – M	26	26.00%

Table 2: Occupation of patients in the study

Occupation	*Farmer*	*38*	*38.00%*
	Housewife	33	33.00%
	Job	16	16.00%
	Student	13	13.00%

Table 3: Education status of patients in the study

Education	Illiterate	8
	Primary school	20
	Secondary school	36
	Graduate	28
	Postgraduate	8

Table 4: Descriptive statistics of duration (in years) and frequency (in days) of study subjects

Variable	*Mean ± SD*	*Range*
Duration of symptoms(in years)	3.3 ± 3.4	0.33–14
Frequency of stools(in days)	4.55 ± 2.18	0.28–10

Table 5: Distribution of symptoms of subjects

Symptoms	*Number of patients*	*Percentage*
Urgency	29	29.00%
Straining	19	19.00%
Incomplete evacuation	58	58.00%
Mucus	20	20.00%
Bloating	36	36.00%
Upper abdominal discomfort/pain	52	52.00%
Heartburn	34	34.00%
Fatigue	61	61.00%
Back pain	21	21.00%
Headache	18	18.00%

clinical profile and epidemiological features of patients with presenting with IBS.

In our study, 58% of the patients were males and 42% females. In various other studies reported from our sub-continent on IBS, male patients predominate. In a study by Uma sinharoy[8] *et al.* in West Bengal, 59% of the patients in the study group were males. Although IBS is more prevalent in females, our study did not show these findings. In a metanalysis done by Lovell *et al.*[9], the prevalence of IBS was not significantly higher in women than with men in the South Asian population. However, in IBS-C subtype, there was a female preponderance in our study. This finding was similar to that seen in the metanalysis mentioned above. Also, diarhhea predominant IBS was more common in males. Increased prevalence of constipation in females might be attributed to female hormones. Also, some studies have suggested worsening of IBS symptoms with menstrual cycle. Further studies are required to establish a relationship between these findings.

In our study, diarrhea-predominant subtype was found to be the commonest (68.0%) and constipation-predominant the least common (6.0%) type of IBS. In the present study, mixed type of IBS was found in 26% of cases. In a large population-based study by Ghoshal *et al.,*[10] 39% had constipation-predominant IBS, 4% had diarrhea-predominant IBS, and 57% had indeterminate symptoms. This difference might be because ours was a hospital-based study compared to their population-based study. In our sub-continent, most patients with symptoms of constipation frequently try home remedies, alternative, and over-the-counter medications before presenting to the hospital. This might cause the increased proportion of diarrhea predominant IBS in our hospital-based study.

In the present study, 44% of patients had a normal BMI, while 42% were overweight and 11% were obese. Among the obese patients, 72.7% patients had IBS-D subtype. Also, 52.9% of patients having IBS-D subtype had BMI >25kg/m^2. This finding has been observed in other studies as well. Sadik *et al.*[11] In their study, have shown that high BMI was associated with accelerated colonic transit leading to high stool frequency. In another study from India, by Bamanikar *et al.*,[12] IBS-D patients were seen to be significantly overweight or obese. Higher BMI was also associated with more severe symptoms and impaired mental health in their study group. In their study, accelerated colonic transit in overweight patients has been postulated due to increased fat intakes in these individuals, which stimulates the gastrocolic reflex. Also, overweight and obese individuals have higher bile acid levels in their stools, leading to accelerated intestinal transit. Thus, while managing patients with IBS-D, special attention should be given to the weight of these patients. These patients should be educated about the relationship between obesity and their symptoms. Weight loss should be an integral part of managing patients of IBS-D who are overweight or obese.

A total of 36% patients in the present study were educated up to secondary school, while only 28% were graduates and 8% were post graduates. As is evident, most cases in our study had a lower level of education. Andrew *et al.*[13] in their study also showed that IBS was more prevalent in individuals with lower income and less education. While in their study, IBS was more prevalent in unmarried individuals, 81% of the patients in our study were married. Mansouri *et al*[14] in their study found that IBS was more prevalent in patients with higher education level than our study.

The population included in our study mainly belongs to a rural background. So, maximum number of patients (38%) were farmer by occupation. A total of 33% of the patients were housewives, while 16% were doing private jobs and 13% were students. Anxiety is a common symptom seen in patients with IBS. IBS is also seen more frequently in individuals with a higher socio-economic status, stressful jobs and physical inactivity.[15] However, in our study, it was mostly seen in farmers with a good amount of physical activity. So, diagnosis of IBS should also be kept in mind even when dealing with individuals with a high level of physical activity.

IBS is associated commonly with other functional GI disorders, including gastro-esophageal reflux disease (GERD) and functional dyspepsia. In our study, 52% patients had upper abdominal discomfort or pain. This could be attributed to dyspepsia. In a community-based survey conducted among 3000 people in rural and urban populations in a district of Bangladesh, 42% of FD (Functional Dyspepsia) subjects had IBS, and 27% IBS subjects had FD.[16] Also, in our study, 34% of patients had retrosternal burning sensation and reflux symptoms, which could be attributed to accompanying GERD.

IBS is also associated with a variety of non-GI complaints. In our study, 61% patients had fatigue, 21% patients had back pain and 18% had a headache. P J Whorwell *et al.*[17] conducted a study on non-colonic features of irritable bowel syndrome. Various non-colonic gastrointestinal complaints like nausea, vomiting, dysphagia and early satiety were very common in IBS patients ($p < 00001$). Back pain, a constant feeling of tiredness, an unpleasant taste in the mouth, incomplete bladder emptying, frequency and urgency of micturition, and in women dyspareunia were particularly prominent. Irrespective of whether the patient had a psychiatric disorder, this symptom diversity was observed in their study. Thus, a thorough history taking and a holistic approach is necessary while dealing with IBS patients.

Our study had a few limitations. The study population was small. This study was a cross-sectional study without follow-up and impact of treatment on the symptoms. Lifestyle changes were not documented in the study. In this study, the population was from a limited region, so it may not be representative of the country's general population. In our study, the study population may be affected by many factors like probable lesser reporting of female patients to hospital and also patients reporting to medicine and surgery department were not included in the study. Patients in our study were included from tertiary centre, so they are more likely to have greater symptoms severity and associated functional disorders and psychiatric symptoms. Also, the age group included in our study was limited and future studies should include patients beyond this age group.

CONCLUSION

Ours was a hospital-based study to observe the clinical and epidemiological spectrum of the patients diagnosed with IBS. IBS was more commonly seen in males as compared to females. IBS-D was the most common subtype observed in our study population seen in 68% cases. The majority of individuals in this study had a BMI>25kg/m^2. The majority of patients in our study had a low level of education. Non GI complaints were seen in most of our patients in which fatigue (61%) and backache (21%) were quite common.

IBS is a common clinical diagnosis seen in Gastrointestinal OPDs. As opposed to what was previously thought, IBS is now more commonly seen in males. Even individuals with good physical activity can have IBS. Patients with IBS generally have several non GI complaints associated with abdominal symptoms. Thus, a holistic approach is necessary while managing such patients. Further studies that include a larger population are required to elaborate on the differences in clinical profile of patients with IBS in urban and rural populations.

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