A Retrospective Analysis on the Pharmacological Management of Irritable Bowel Syndrome

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ABSTRACT

Objectives: To analyze the pattern of drugs prescribed to treat irritable bowel syndrome among patients admitted in a tertiary care teaching hospital. **Materials and Methods:** A retrospective study was carried out among 120 inpatients of the general medicine department for a period of eight months from August 2019 to April 2020. The data of the patients admitted to the hospital over a period of five years was collected from the medical records department in a specially designed data collection form. The prescription pattern of the drugs used in the management of irritable bowel syndrome was analyzed using descriptive statistics. **Results:** Among 120 patients, n=68 were diagnosed with inflammatory bowel syndrome (IBS)-D, n=30 with IBS-M and n=22 diagnosed with IBS-C. The occurrence of irritable bowel syndrome was higher in males (55%) than in females (45%). The most common clinical presentation was found to be abdominal pain, reported among 63.33% of the total patients. Probiotics were the most widely prescribed medications n=73(14.39%),

followed by pantoprazole n=65 (12.82%). **Conclusion:** In the study, movement modulators followed by adjunctive gastrointestinal agents, psychoactive substances and antibiotics were commonly prescribed for the management of irritable bowel syndrome.

Key words: IBS, Pharmacotherapy, Abdominal pain, Colonoscopy, Probiotics.

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INTRODUCTION

Irritable Bowel Syndrome (IBS) is a mix of abdominal discomfort or pain and trouble with altered bowel habits; either diarrhea or constipation. IBS is one among the many diseases which drastically affect the quality of life of patients.[1] The etiology of IBS is still unclear, but psychological, social and biological factors may play a role in the progression of this disease.[2] The availability of limited medications in the treatment of IBS has resulted in several trends in its treatment. Drug utilization in IBS differs with geography, prescriber's preferences and economic considerations due to the lack of standard guidelines to direct therapy. A physician's prescription is based basically on his level of knowledge, experience, and the perspective towards the disease as well as the availability of resources.[3,4] An evaluation of the trend in the prescribing pattern helps us in understanding the practice being followed in any institution. These studies may contribute in effective hospital formulary preparation, designing of the essential drugs list, as well as in framing guidelines for an institution. In several instances, the hospital may not follow the global trends; in such cases, the prescribing pattern analysis is an essential element to determine the course and outcome of the prescribed therapies.[5-8] It also promotes the rational use of drugs and enables us to monitor the therapy to minimize or to prevent drug-related problems. Prescription pattern studies are the clinical feedback for the prescribers, dispensers and for the general public on the appropriateness of the usage of drugs.[9-11] With the background of unsolicited therapy of IBS and the need for prescription pattern studies, we aimed to analyze the pattern of prescription of drugs used for the treatment of IBS.

MATERIALS AND METHODS

A retrospective observational study of eight months was conducted by collecting the data from the medical records department of a

multispecialty teaching hospital in Dakshina Kannada district of South India. Research ethics committee approval was obtained before the initiation of the study. The data of patients admitted to the hospital over a period of five years was collected. A total of 120 patients of either gender, aged above 18 years, diagnosed with IBS and those who received treatment in the department of general medicine were enrolled in the study. The cases with incomplete or missing information were excluded. A data collection form was designed to obtain the socio-demographics, disease-related and therapy-related details of the patients. All relevant information was collected from the concerned patient case files including treatment charts. The different types of IBS, corresponding signs and symptoms as well as diagnoses were studied. Based on the predominance of symptoms, IBS was classified into three major categories, namely IBS–D (Diarrhoea predominant), IBS–C (Constipation predominant) and IBS–M (Mixed bowel habits). Details of the therapy such as the name of the drug, its dosage form, frequency, route of administration, duration of treatment, length of hospital stay, and the number of drugs per prescription were recorded in the data collection sheet. Descriptive statistical analysis was performed to summarize the outcomes at the end of the study.

RESULTS

Demographic Characteristics of the Study Population

A total of 120 patients were enrolled in the study. Majority were males, n=66 (55%) followed by females, n=54 (45%). A majority of the patients belong to the age group of 21-40 years n=56 (46.66%), followed by the age group 41-60 years n=45 (37.5%), and the age group 61-80 years n=17 (14.16%). Only n=2 (1.66%) were found below 20 years of age.

Distribution of Patients Based on the Types of IBS and their Clinical Presentations

In our study, IBS–D was the most frequently diagnosed $n=68$ (58.7%), followed by IBS–M $n=30$ (25.0%) patients and IBS-C $n=22$ (18.3%) patients. The most common clinical presentations were found to be abdominal pain, reported among 63.33% of the total population, followed by loose stools among 37.50%. Bloating, hard stools and mucus in stools were reported among 22.5%, 20% and 15.5% of the total subjects, respectively. Weight loss was reported only among 15%. The clinical symptoms of the patients had a significant correlation with the diagnosis. 90% of patients with confirmed IBS–D complained of diarrhea and hard stools were reported in 100% IBS-C patients. In this study, the frequency of bowel movements was increased up to 5-6 times per day in $n=28$ (41.17%) patients, 3-4 times among $n=38$ (55.87 %) subjects and only $n=2$ (3.94%) documented episodes more than 7 times.

Distribution of Patients Based on the Diagnostic Tests Performed

Blood tests were performed in all the patients. However, stool examination was performed only among 5% of the study population, $n=6$. Out of 120 subjects, majority $n=65$ (54.16%) were diagnosed with an ultrasonography abdomen, followed by colonoscopy among $n=55$ (45.83%) and only $n=6$ (5%) were subjected to a computed tomography scan.

Distribution of Various Drugs Prescribed Among the Study Population

A total of $n=507$ medications were prescribed among 120 patients with an average of 4.2 drugs per prescription. Probiotics were the most widely prescribed medications $n=73$ (14.39%), followed by pantoprazole $n=65$ (12.82%). The detailed data is summarized in Table 1.

DISCUSSION

The present study was conducted to analyses the pharmacotherapy in the management of IBS. In this study, the mean age of the patients was found to be 42.90 years. The results were found to be comparable with the study conducted by Brun-Strang *et al.* in which the mean age of the patients were 53.9±14.9 years.[12] The study concluded on the high prevalence of IBS among males (55.0%). This aspect of the result was found to be in contradiction with the results of Faresjö A *et al.* in which the statistics of IBS occurrence among females (72.3%) outnumbered the males.[13] As explained in the results section, 68 patients were diagnosed with IBS-D, 30 with IBS-M and 22 with IBS-C. The results were not in agreement with the study conducted by Rusu F *et al.* wherein 60% of the total patients were diagnosed with IBS-C, 34% with IBS-D and only 6% had IBS-mixed.[14] On evaluation, the most common clinical presentation among patients was reported to be abdominal pain (63.33%) and this was similar to the study results of Brun-Strang *et al.* as the main symptoms presented by the patients were abdominal pain (72%) followed by bloating (58%). However, the latter was reported only amongst 22.5% of the subjects.[12] In contradiction to the study conducted by Hillila MT *et al.* blood tests were conducted among 100% of the patients whereas comparable observation was made on the number of colonoscopies performed.[15] On analyzing the pattern of prescription, the study performed by Rusu F *et al.* were in tandem with the results of this study.[14]

CONCLUSION

The study documented a higher occurrence of IBS among males and the mean age of the study population was found to be 42.90 years. The

Table 1: Distribution of drugs prescribed among the study population.

Generic name (In combination with)	No. of prescriptions	Percentage (%)
Probiotics	73	14.39
Pantoprazole	65	12.82
Chlordiazapoxide+clinidium+mebiverine	50	9.86
Clinidium+chlordiazapoxide	38	7.49
Rifaximin	36	7.10
Mebiverine+chlordiazapoxide	21	4.14
Multivitamins	17	3.35
Tramadol+Paracetamol	17	3.35
Pantoprazole+ Domperidone	15	2.95
Rabeprazole	13	2.56
Pinaverium bromide	13	2.56
Ramocetrone	10	1.97
Lactilol monohydrate	9	1.77
Alprazolam	8	1.57
Metformin	8	1.57
Hyocyamine sulphate	8	1.57
Isapgula+Lactilol monohydrate	7	1.38
Cefixime	7	1.38
Amoxicillin	7	1.38
Iron and folic acid supplements	7	1.38
Sertaline	6	1.18
Ornidazole	6	1.18
Butylscopulamine	6	1.18
Ciprofloxacin	6	1.18
Telmisartan	6	1.18
Amitriptyline	5	0.98
Amlodipine	4	0.79
Atorvastatin	4	0.79
Albendazole	4	0.79
Sucralfate	4	0.79
Lorazepam	4	0.79
Calcium supplements	3	0.60
Others	20	3.95

most common clinical presentations were found to be abdominal pain, loose stools, and bloating. Blood tests were performed in almost all patients and medication was prescribed to either increase or decrease the gastric transit time. The average number of drugs per prescription was found to be 4.2. This study thus, provides a classic frame of trends in the prescribing pattern of drugs for the management of irritable bowel syndrome.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

IBS: Irritable Bowel Syndrome; **IBS-D:** Irritable Bowel Syndrome-diarrhea; **IBS-C:** Irritable Bowel Syndrome-Constipation; **IBS-M:** Irritable Bowel Syndrome-Mixed.

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