ORIGINAL ARTICLE

Rifaximin: An Option for the Treatment of Irritable Bowel Syndrome

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ABSTRACT

Objective: To study the response of irritable bowel syndrome patients presenting with diarrhea and abdominal pain to the treatment with rifaximin.

Study Design: Observational descriptive study.

Place and Duration of Study: Study was carried out from 1st February 2019 to 1st December 2019 at Gastroenterology department of Combined Military Hospital Rawalakot.

Materials and Methods: Total of 113 patients were consecutively chosen from the Gastroenterology Outpatient Department, Sheikh Khalifa Bin Zayed Al Nahyan Hospital/ AK Combined Military Hospital Rawalakot. Irritable bowel syndrome, diarrhea was diagnosed using Rome III criteria. All participants received 550 mg Rifaximin in two divided doses for a period of fourteen days and were observed for six weeks. The assessed symptoms were diarrhea and abdominal pain, which were recorded at baseline and then at 6 week follow up. Descriptive statistics were done to look for the response of patients' clinical symptoms to Rifaximin.

Results: Mean age of the participants was 26.96 years. Out of 113 subjects, 45% were male (51/113) and 55% (62/113) females. Rifaximin was found to be effective in relieving symptoms in 99(87.6%) cases while it did not relieve symptoms in 14 (12.4%) cases. Only 14(12.4%) patients developed headache as a side effect, while the rest 99(87.6%) tolerated it well.

Conclusion: Rifaximin is a useful, effective and a safe drug for the treatment of irritable bowel syndrome patients suffering from diarrhea and abdominal pain.

Key Words: *Abdominal Pain, Diarrhea, Irritable Bowel Syndrome, Rifaximin.*

Introduction

Irritable bowel syndrome is marked by abdominal pain with disturbed defecation. It is amongst the most diagnosed conditions by health care physicians across the world.[1] Epidemiological data suggest that there has been an increase in diagnosis of this condition in all settings.[2] In the western countries, prevalence of IBS is around 17-22%, while in Asian countries its around 2.3-34%.[3-5] Studies from Pakistan have limited information regarding various aspects of IBS. In one of the studies from Abbottabad, prevalence of 13% was found for this condition. Altered gastrointestinal motility, visceral hypersensitivity, post infectious reactivity, brain-gut interactions, alteration in fecal micro flora, bacterial overgrowth, food sensitivity, carbohydrate malabsorption, and intestinal inflammation all have been implicated in the pathogenesis of IBS.[6]

Due to unknown reasons, somehow irritable bowel syndrome presents more commonly amongst females.[6,7] An Indian study however contradicts this finding showing a higher prevalence for males versus females i.e., almost 8% males against 7% females.[8-9] Manning criteria, Rome I, Rome II and Rome III criteria are used for diagnosis of this condition. Rome III criteria is more commonly used clinically but Manning criteria has a better yield when compared to Rome I or II criteria.[10] All these criteria involve wide range of gastrointestinal symptoms and quality of life parameters.

Various treatment strategies have been available for the patients suffering from irritable bowel syndrome. In one of the placebo-controlled trials 41% patients showed marked improvement in

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symptoms with Rifaximin versus 31% for the placebo.[11] Another study that compared the efficacy of Neomycin with Rifaximin found that around 69% showed a remarkable clinical response with Rifaximin versus only with 44% with Neomycin and other antibiotics.[12]In another study patients of irritable bowel syndrome put on Rifaximin were followed up for four weeks and showed marked improvement in symptoms.[13]

Limited data has been generated from patients of our own population regarding efficacy of Rifaximin. Therefore, this study was designed to assess the efficacy of Rifaximin in treating diarrhea and abdominal pain in patients with irritable bowel syndrome.

Materials and Methods

This was an observational descriptive study conducted at the department of Gastroenterology, Sheikh Khalifa Bin Zayed Al Nahyan Hospital/ AK Combined Military Hospital Rawalakot from 1st February 2019 till 1st December 2019. Duration of this study was ten months. Sample size was calculated by using WHO sample size calculator by using population prevalence proportion of 69%[12] and margin of error as 10%. Sample size turned out to be 83. Nonprobability consecutive sampling technique was used to gather the sample for this study. The study was commenced after taking approval from Hospital Research Ethical Committee.

We included patients of both genders with age between 18 and 35 years, diagnosed as suffering from irritable bowel syndrome for more than 6 months. Irritable bowel syndrome was diagnosed based on Rome III criteria. According to Rome III criteria irritable bowel syndrome is characterized by repeated episodes of abdominal pain or discomfort for at least 3 days/month during last 3 months associated with two or more of the coming characteristics:[14]

- Which improve by passing stool and/or
- Attack associated with a change in frequency of stool. And/or
- Attack associated with a change in form (appearance) of stool.

Exclusion criteria were the patients with ulcerative colitis, Crohn's disease, protozoal intestinal parasites Entamoeba histolytica and Giardia lamblia, duodenal or gastric ulcers, diverticulitis, bacterial and viral gastroenteritis. Patients with history of use of antibiotic, probiotics, prebiotics, corticosteroids, proton-pump inhibitors, or patients on treatment of irritable bowel syndrome in last one month were excluded as well. Detailed colonoscopic examination was undertaken to rule out any co morbid lower gastrointestinal problems. All participants received 550 mg Rifaximin in two divided doses for fourteen days and were further followed for another forty-two days to monitor drug efficacy. Patients were called to outpatient department for follow up when examined at baseline. If they didn't show up, they were called as their contact numbers were taken at time of baseline interview. Diarrhea and abdominal pain were recorded at baseline and then at 6 weeks follow up.

The data was analyzed using SPSS 22.0. For the numerical values like age, mean± Standard Deviation and for the categorical, frequencies and percentages were presented.

Results

A total was 113 patients who had IBS-diarrhea were included in the study after inclusion/exclusion criteria and dropouts. Mean age of the participants was 26.96 ± S.D 4.606 with an age range of 20-34 years. Out of 113 patients, 45% (51/113) were males while 55% (62/113) were females. Regarding the efficacy of Rifaximin, it was found that 99(87.6%) patients showed significant improvement in symptoms while 14 (12.4%) patients had no significant improvement in symptoms (Table I). Regarding the safety profile, it was found that only 14(12.4%) patients developed headache as a side effect, while the rest 99(87.6%) had no significant side effects (Table II).

Table I: Improvement in Symptoms with Rifaximin Among Patients of Irritable Bowel Syndrome

Response to Rifaximin	Frequency(n)	Percentage %
Improvement in symptoms	99	87.6
No improvement in symptoms	14	12.4

Table II: Safety Profile of Rifaximin

Safety profile of Rifaximin	Frequency(N)	Percentage %
Side effects and poor tolerability	14	12.4
Well tolerated and safe	99	87.6

Discussion

Timely managing irritable bowel syndrome is essential as there is considerable associated functional impairment leading to poor overall health of the individual.[15,16,17] A lot of research has been done in various parts of the world involving various pharmacological modalities to control the symptoms of IBS. This study was designed to assess the role of an antibiotic for this purpose.

Patients in our study showed a better response with Rifaximin 550mg in a twice daily dosing offered for 2 weeks. We studied improvement in diarrhea and abdominal pain as primary outcome of our study and found significant improvement in both symptoms in response to Rifaximin. This is in line with the study conducted by Pimentel et al., where they found that around 41% patients responded well to Rifaximin, in terms of overall improvement and also improving diarrhea and bloating.[11] There are other studies which support the use of Rifaximin due to its efficacy in irritable bowel syndrome-diarrhea.[12,13, 18,19] Considering this, there is sufficient support for Rifaximin efficacy in improvement of physical disturbances of irritable bowel syndrome-diarrhea. It is a conveniently available, cost-effective, treatment, should be a part of future regimens for irritable bowel syndrome.

Our study showed that only about 11.5% patients had relapsed and did not show adequate response to Rifaximin. This contradicts the findings from few other studies where most patients failed to show adequate response to rifaximin.[20,21] Reason may be difference in pharmacokinetic or pharmacodynamic profiles of Rifaximin in our population. It is worth mentioning here that we included a small sample which could lead to bias in our study. Choosing a larger sample could have indeed helped in determining the exact efficacy and safety profile of Rifaximin in our population.

Regarding the safety and tolerability, our study found that about 12.38% of our study participants experienced headache as a side effect, otherwise it was well tolerated. This is in line with the research by Pimentel et al which showed that only 1.6% patients on Rifaximin experienced serious adverse effects. Similar safety profile has been reported in other studies as well.[11] Therefore if efficacy of this agent gets established then side effects profile would not raise concerns for clinicians and hinder in the routine use of this medication.

This Study was useful in a sense that it provided sufficient evidence to suggest the Rifaximin is an effective treatment for irritable bowel syndrome symptoms. In Pakistan, it is a novel drug and holds a promise for treating this disorder effectively with minimum side-effects. This study had few limitations as well. Due to small sample size and observational descriptive design; it lacks the generalizability of the findings to a larger population. Therefore, the conclusions should be drawn cautiously. Furthermore, there was lack of control group for comparison and no randomization was done, which make it a methodologically weak study.

Conclusion

Rifaximin is a useful, effective and a safe drug for the treatment of irritable bowel syndrome patients suffering from diarrhea and abdominal pain.

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