

Use of Rifaximin in Patients of Irritable Bowel Syndrome with Pre Dominant Diarrhea

Rabia Rathore¹, Nasir Farooq Butt², Adil Iqbal³, Ishtiaq Alam⁴, Fatima Mehboob⁵

ABSTRACT:

AIMS AND OBJECTIVES:

To find out the effect of Rifaximin in patients of irritable bowel syndrome with predominant diarrhea.

MATERIAL AND METHODS:

This study was carried out from January 2012 to September 2012 on patients presenting to medical OPD of Mayo Hospital, Lahore.

STUDY DESIGN:

It is descriptive type of study.

RESULTS: Out of 30 patients presenting to medical OPD with diagnosis of diarrhea predominant irritable bowel syndrome 18 (60%)

were females and 12 (40 %) were males. The age of the patients were between 13-38 years. All the patients were prescribed Tab. Rifaximin 550 mg three times a day for 14 days and were assessed for their complaints like diarrhea its frequency and consistency using 5 point scale for stool consistency, abdominal pain and abdominal bloating using Li Kert scoring. The patients were assessed for their complaints on day 15 and again after 2 months. It was found out that out of 30 patients 18 (60%), patients showed improvement in their global symptoms of irritable bowel syndrome at 15 day of follow up, but at 2 months of follow up out of 18 (60%) patients who responded to Rifaximin treatment at 15 day only 12 (40%) patients reported to have consistent improvement in symptoms while 6 (20%) patients again developed, diarrhea abdominal pain and bloating 2 (6%) patients left the study at 3rd day of treatment due to increase in frequency of diarrhea. It was observed that drug was more effective in females and older individuals. Out of 18 patients who responded 11 (61%) were females and the patients were of relatively of older age.

CONCLUSION: It was found out that treatment with Rifaximin provided significant relief of IBS symptoms, bloating abdominal pain and diarrhea.

KEY WORDS: Irritable bowel syndrome, Rifaximin, diarrhea.

INTRODUCTION

Irritable bowel syndrome is a functional gastro intestinal disorder characterized by symptoms of abdominal pain, bloating and altered bowel function in the absence of structural inflammatory or biochemical abnormalities, and usually these symptoms are recurring⁽¹⁾.

Rathore R

Dept. of Medicine, West Medical Ward, Mayo Hospital, Lahore.

Butt NF

Dept. of Medicine, West Medical Ward, Mayo Hospital, Lahore.

Iqbal A

Dept. of Medicine, West Medical Ward, Mayo Hospital, Lahore.

Alam I

Dept. of Medicine, West Medical Ward, Mayo Hospital, Lahore.

Mehboob F

Dept. of Medicine, West Medical Ward, Mayo Hospital, Lahore.

The etiology of irritable bowel syndrome is still under study. Some suggests that it is due to the abnormal motility of gastrointestinal tract in response to various stimuli which may include stress, some types of meals, certain chemicals and distension of G.I. tract⁽²⁾, some consider the cause of IBS to be the visceral hyper sensitivity. Many experts argue about the break down in the interaction between GI tract and the brain.

One of the pathogenesis of IBS is considered to be the alterations in the intestinal microbiota⁽³⁾, so treatment with antibiotics is considered to be the treatment of IBS⁽⁴⁾

Rifaximin is non systemic oral broad spectrum antibiotic which has its effects on the gut with minimal or no bacterial resistance⁽⁵⁾

Keeping in view that alteration in intestinal microflora can cause irritable bowel syndrome which can be treated with oral antibiotics we carried out a study with Rifaximin and its effects on patients of irritable bowel syndrome with predominant diarrhea.

PATIENTS AND METHODS

Study design: It is a descriptive type of study

Sample size: 30 consecutive patients presenting to medical OPD out of which 18 were female and 12 were males.

Setting: This study was carried out from January 2012 to December 2012

on patients presenting to medical OPD of Mayo Hospital, Lahore.

INCLUSION CRITERIA:

1. Patients of either sex.
2. Patient of age 13 or above
3. Patients fulfilling the Rome II diagnostic criteria for IBS.
4. Eligible patients rated the average daily amount of abdominal pain and bloating as a score of 2 or greater on a linkert scoring system which is as below

- 0 = Indicating not at all
- 1 = Hardly
- 2 = Somewhat
- 3 = Moderate
- 4 = A good deal
- 5 = A great deal

- 6 = A very great deal.
- 5. Average daily consistency of stools as measured on 5 point scale for stool consistency which is as below:

- 1 = Very hard
- 2 = Hard
- 3 = Formed
- 4 = Loose
- 5 = Watery.

EXCLUSION CRITERIA

1. Constipation predominant IBS.
2. History of inflammatory bowel disease.
3. Diabetes Mellitus.
4. Hyper thyroidism.
5. Human immuno deficiency virus infection.
6. Chronic renal failure.
7. Chronic liver disease.
8. Patient taking drugs like warfarin, anti psychotics, anti spasmotic, anti diarrheal, probiotics and anti narcotics.
9. Or any antibiotic in previous 14 days.
10. Colonic malignancy.

RESULTS:

Out of 30 patients presenting to medical OPD with diagnosis of diarrhea predominant irritable bowel syndrome 18 (60%) were females and 12 (40%) were males. The age of patients were between 13-38 years. All the patients were prescribed tablet Rifaximin 550 mg three times a day for 14 days and were assessed for their complaints i.e. frequency and consistency of stools using 5 point scale for stool consistency, abdominal pain and abdominal bloating using likert scoring. The patients were assessed on day 15 and again after 2 months.

It was found out that out of 30 patients 18 (60%) patients showed improvement in their global symptoms of IBS at 15th day of follow up but at 2 months of follow up out of 18 (60%) patients who responded to initial improvement at 15 day only 12 (40%) patients reported to have persistent improvement in their symptoms while 6 (20%) patients again developed diarrhea, abdominal pain and bloating, 2 (6%) patients left the study on 3rd day of treatment due to increase in the frequency

of diarrhea. It was found out that Rifaximin was more effective in females and older individuals rather than in males and younger individuals. Out of 18 patients responded 11 (61%) were females and 7 (39%) were males and were relatively elderly with average age of response seen around 28-32 years of age.

DISCUSSION

Irritable bowel syndrome is a chronic gastrointestinal condition of unknown etiology and is characterized by the presence of abdominal pain and altered bowel function in the absence of clinical alarm signs such as anemia or significant weight loss⁽⁶⁾. Patients present with diarrhea, constipation or diarrhea alternating with constipation.

The pathogenesis of this is not clear various mechanisms have been reported involving visceral hypersensitivity, GI tract distension and microbial overgrowth which is tested significantly by lactulose hydrogen breath test⁽⁷⁾. The reported prevalence of the positive lactulose hydrogen breath test ranges from 14 % to 78 %⁽⁸⁾. Keeping this pathogenesis under view we conducted a study at Mayo Hospital where we considered the effect of antibiotic i.e. Rifaximin on the micro organisms causing symptoms of irritable bowel syndrome. Rifaximin is a semi synthetic derivative of Rifamycin which contains an additional benzimidazole ring that prevents Rifaximin from being absorbed systemically⁽⁹⁾. It has activity against gram positive and gram negative aerobic and anaerobic organisms⁽¹⁰⁾. It works by inhibiting bacterial protein synthesis by binding to the B-sub unit of the bacterial DNA dependent RNA polymerase thus inhibiting - the initiation of chain formation in RNA synthesis. Rifamycin also apparently modify bacterial pathogenicity and in sub therapeutic concentrations may alter attachment and tissue toxicity⁽¹¹⁾. What ever the final pathway the positive effect of Rifaximin suggests that Rifaximin is affecting an underlying cause of irritable bowel syndrome that is linked to alteration in the intestinal microbiota⁽¹²⁾. Studies done by the Ford AC⁽¹³⁾ and Posserud⁽¹⁴⁾ I also showed bacterial over growth in patients with irritable bowel syndrome.

In majority of cases suffering from irritable bowel syndrome have periods during their lives in which

the symptoms wax and wanes. They added that currently available treatments such as fiber supplements or dietary changes do not provide a satisfactory relief for a significant number of patients as soon as the treatment stops symptoms tends to recur but when given Rifaximin leads to improvement of symptoms for a longer duration especially those having diarrhea predominant irritable bowel syndrome, as shown in our study, that out of 30 patients 18 responded to treatment with Rifaximin i.e. showed improvement in their abdominal pain, bloating and diarrhea and 12 patients showed sustained improvement even at 2 months after stopping the treatment. Study done by Pimentel⁽¹⁵⁾ reported normalization of breath test that results after oral administration of Rifaximin. Similarly studies done by Schey R⁽¹⁶⁾, and Palsson also showed improvement in symptoms of irritable bowel syndrome after taking Rifaximin for 14 days.

Our study showed that improvement of symptoms of irritable bowel syndrome with Rifaximin was more evident in females as compared to males, this was also shown by studies done by Hertig⁽¹⁸⁾ VL and Trinkley KE⁽¹⁹⁾

One of the results which is shown in our study as well as that seen in study done by Fumi⁽²⁰⁾ et al was that the effect of Rifaximin was seen more in older individuals rather than younger ones.

CONCLUSION:

Irritable Bowel Syndrome can be extremely unpleasant, it does not cause any serious complication however can cause abstinence from work, serious fatigue and makes the life of patient misery but this state can be overcome with the simple use of antibiotic i.e. Rifaximin which improves the quality of life by improving the symptoms of irritable bowel syndrome in patient who have predominant diarrhea.

REFERENCES

1. Longstreth GF, Thompson WG, Chey WD et al. Functional bowel disorders. *Gastroenterology* 2006; 130:1480-91.
2. Brandt LJ, Chey WD, Foxx – Orenstein AE et al. An evidence based position statement on the management of irritable bowel syndrome. *Am J Gastroenterol* 2009; 104: S1-35.

3. Ringel Y, Carroll IM. Alterations in the intestinal microbiota and functional bowel symptoms. *Gastrointest Endosc Clin N Am* 2009; 19: 141-50
4. Rivkin A, Gim S. Rifaximin. A new therapeutic indication and future directions. *Clin Ther* 2011; 33(7): 812-27.
5. Menees SB, Manee rattanna-porn M, Kim HM, Chey WD. The efficacy and safety of Rifaximin for the irritable bowel syndrome. *Am J Gastroenterol* 2012; 107:28-35.
6. Chitkara DK, Van Tilburg MA, Blois – Martin N et al. Early life risk factors that contribute to irritable bowel syndrome in adults. *Am J Gastroenterol* 2008;103:765-74.
7. Meyrat P, Safroneeva E, Schoepfer AM. Rifaximine treatment for irritable bowel syndrome with positive lactulose hydrogen breath test improves symptoms for at least 3 months. *Aliment Pharma Col Ther* 2012; 36(11-12): 1084-93.
8. Parodi A, Dulbecco P, Savarino E, Gianni EG, Bodini G, Corbo M. Positive glucose breath testing is more prevalent in patients with controls of similar age and gender distribution. *J Clin Gastroenterol* 2009; 43(10): 962-6.
9. Mortini S, Boneci C, Corboni G, Donati A, Rossi C. Solution structure of Rifaximin and its synthetic derivative determined by NMR and theoretical simulation methods. *Bioorg Med Chem* 2004; 12: 2163-72.
10. Dupont HL, Jiang ZD. Influence of Rifaximin treatment on susceptibility of intestinal gram negative flora and enterococci. *Clin Microbiol Infect* 2004; 10: 1009-11
11. Baker DE. Rifaximin. A non absorbed oral antibiotic. *Rev Gastroenterol Discord*. 2005; 5:19-30.
12. Schmulson M, Chang L. The treatment of functional abdominal bloating and distension. *Aliment pharmacol Ther*. 2011; 33(10): 1071-86.
13. Ford AC, Spiegel BMR, Talley NJ, Maccyedi P. Small intestinal bacterial overgrowth in patients with irritable bowel syndrome. *Clin Gastroenterol Hepatol* 2009; 7: 1279-86.
14. Posserud I, Stotzer PO, Bjornsson ES, Abrahamsson H, Simren M. Small intestinal overgrowth with irritable bowel syndrome. *Gut* 2007; 56: 802-8.
15. Pimental M, Moralesw, Chua K, Barlow G, Weitsman S, Kin G. et al. Effects of Rifaximin treatment and retreatment in non constipated IBS subjects. *Dig Dis Sci* 2011; 56(7): 2067-72.
16. Schey R, Rao SS. The role of Rifaximin therapy in patients with irritable bowel syndrome without constipation. *Rev Gastroenterol Hepatol*. 2011; 5(4):461-4.
17. Palsson OS, Baggish JS, Turner MJ, Whitehead WE. IBS patients show frequent fluctuations between loose/watery and hard lumpy stools: implication for treatment. *AMJ Gastroenterol* 2012; 107(2): 286-95.
18. Hertig VL, Cain KC, Jarrett ME, Burr RL. Daily stress and gastrointestinal symptoms in woman with irritable bowel syndrome. *Nurs Res*. 2007; 56(6) 399-406.
19. Trinkley Ke, Nahata MC. Treatment of irritable bowel syndrome. *J Clin Pharm Ther* 2011; 36(3): 275-82.
Fumi AL, Trexler K. Rifaximin treatment for symptoms of irritable bowel syndrome. *Ann Pharmacother* 2008; 42(3): 408-12.