

Rifaximin for irritable bowel syndrome treatment

Irritable bowel syndrome is generally known as IBS. It is one of the most commonly diagnosed gastrointestinal (GI) disorders which affects about 20% of the adult US population. It is more common in women than men. Physicians use ROME criteria to diagnose IBS which is based on a constellation of clinical symptoms including abdominal pain or discomfort, bloating or distention and altered bowel habits. It can be further divided into diarrhea predominant (IBS-D), constipation predominant (IBS-C) or mixed subtypes (IBS-M) based upon patient's predominant symptoms. Majority of the patients experience some change in their symptoms over the course of time. They can convert from IBS-C or IBS-D to IBS-M or alternate between IBS-C and IBS-D. The significant proportion of the patients also have other pain-related disorders like heartburn, dyspepsia, migraine, fibromyalgia and chronic pelvic pain.

The underlying cause of IBS is not totally understood. Hypersensitivity of the gut nervous system to pain and changes in GI motility play a significant role. Environmental triggers such as dietary changes or stress may exacerbate the symptoms. Recent focus has been on changes in immune system and gut microbiome. The human gut contains a wide variety of bacteria collectively referred to as the microbiota. An adult human microbiota has approximately 10^{14} cells, which is 10-fold greater than the total number of cells in the entire human body. The microbiota plays a vital role in maintaining intestinal health. It synthesizes vitamins, short chain fatty acids, regulates the immune system and prevents colonization of invading microorganisms. Disruption of gut microbiota is known as dysbiosis and it has been linked with many GI disorders including IBS.

Rifaximin is an oral antibiotic with broad spectrum of activity against the intestinal bacteria. It is a gut-selective antibiotic with no systemic absorption. Rifaximin causes changes in gut microbiome which is likely responsible for its beneficial effects in IBS.

Initial studies on Rifaximin in 2006 showed improvement in IBS symptoms of diarrhea, constipation, bloating and abdominal pain compared to placebo. Rifaximin was used at a dose of 400 mg twice or three times a day for 10 days. Another two studies in 2011 known as TARGET 1 and TARGET 2, used Rifaximin 550 mg three times a day for 2 weeks. It is noteworthy that Rifaximin dose was higher and of longer duration in these studies compared to previous two studies. They included the IBS patients without constipation only. Patients had a significant improvement in overall IBS symptoms including bloating, abdominal pain and stool consistency.

The most recent study was conducted in 2016 by Anthony Lembo and colleagues. Like the previous study, it also included only the patients with diarrhea-predominant IBS. Patients were enrolled from 270 centers across the United States and Europe. The eligible patients were treated with Rifaximin 550 mg three times a day for 2 weeks. The patients were called responders if they had improvement in abdominal pain and stool consistency within 4 weeks of treatment. The responder patients were then followed up for approximately 4 months. They were given 2 more repeat courses of Rifaximin if they had a relapse of IBS symptoms. The study concluded that

repeat courses of Rifaximin significantly improved abdominal pain but not stool consistency or bloating.

This study strongly supports the beneficial effects of Rifaximin in IBS including the repeat courses of treatment. However, similar to the previous studies it was limited only to the patients with IBS-D. Future studies will likely shed more light on the appropriate duration of treatment, the number of courses which can be given in a year and its use in other subclasses of IBS.

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