Review Article

Dietary Options in Irritable Bowel Syndrome

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Abstract: Irritable bowel syndrome (IBS) is the disease condition in which our gastrointestinal (GI) tract is affected and cause abdominal pain and discomfort that is associated with change in the stools form and frequency. In this condition one may suffer from diarrhea, constipation or both at the same time. This disorder is very common now days because of unhealthy eating habits mostly in females. Many factors are responsible for IBS like food, environment, genetic and psychological factors. IBS can be overcomed by improving our eating habits and lifestyle and also by following different diets like FODMAP and GLUTEN FREE diet. Probiotics and herbs are also very beneficial in curing IBS.

Key Words:
Irritable Bowel Syndrome, Diarrhea, Constipation, FODMAP, Gluten free diet.

Introduction:

Irritable bowel syndrome (IBS) is defined as group of many gastrointestinal disorders that includes symptoms like abdominal pain or discomfort associated with trouble defecation. The disorder is also associated with emotional distress, dysfunction, and impaired health-related quality [1]. During the condition of IBS, a person may suffer from altered bowel habits, diarrhea or constipation. The common symptoms of IBS are constipation, diarrhea, mixed bowel habits, abdominal pain or bloating, mucus in bowel movements, feeling of incomplete bowel movement, looser or more frequent stools [2]. Diarrhea is the condition in IBS patients in which they have continuous episodes of watery stools which are painful for them. The diarrhea becomes chronic if not cure on time. This condition also occurs due to the gut microbiota which has very strong relation with IBS [3, 4]. Another condition called constipation also occurs in IBS patients in which they have abdominal pain, bloating, straining, hard and lumpy stools and incomplete feaces [5, 6]. IBS is also known as brain-gut disorder because the brain regulates the gut related activities. During IBS, the disturbance that occurs in the large intestine and small intestine affect the gut motor function and sensation resulting in pain and discomfort [7, 8].

Epidemiology:

11% of the world population is affected by IBS. It has been found that around 30% of people experience the symptoms associated with IBS. Rate of women suffering from it is higher than men around 1.5 to 3 times. It is found that 70% of women suffer from it globally and 14% of people suffer in Pakistan in general. It has been seen that 20% of cases are in between the age of 35 and 50 years whereas 50% have age around 30 years. A study conducted in Baghdad in which they test high school students to check the IBS occurrence and observed that IBS is much more common in school going students due to their genetics, environmental factors and their psychological conditions [2, 9].

Prevalence:

26% of Nigerian, 24% of Brazilian, 20% of United States, 12% of UK, 7.5% of Indian people suffer from IBS. A study was conducted to compare the western countries with Asian countries. Results showed that prevalence of IBS in western countries was higher than the Asian countries (Table 1) [10].

Variables	Western Countries	Asian Countries
Prevalence	10-20%	4.2-7.9%
Sex	Female>male	Male>female
Age	Common in young	Common in young
Socioeconomic Status	Inversely Related	Inversely Related
Clinical Features	Predominance of lower abdominal symptoms	Predominance of upper abdominal symptoms

Table 1: Demographic variables associated with IBS in Western and Asian countries

Signs and symptoms of IBS/Clinical Features:

During IBS, the patient may undergo dysentery or may feel difficulty in passing stool for two or more days. Sometimes, these two conditions can occur at the same time. In these circumstances the patient may undergo several problems such as he or she may feel headache, tummy ache, may feel sounds/ vibrations in their stomach, he or she has to skip food like milk, meat, all the fruits except bananas, spicy food, fast food and all the packaged foods and only have to stick to BRAT diet which is (Bananas, Rice, Apple sauce and toast). Other features include organs pain which is not an ordinary discomfort; it is more than usual suffering [11, 1]. In this, condition patient's intestines may undergo a condition in which they cannot work properly or completely. Actually they start to give negative response and refuses to synchronize their actions with muscles due to internal or external elicit [12].

The patient can also suffer a condition in which prebiotics which are known to generate beneficial bacteria for stomach alter their function and refuses to generate bacteria completely or partially [13]. Patient may suffer a very slight swelling which can be over the body or may the internal organs and membranes swell. This can be determined by the absence of factors/ cells/tissues found in body's defense system. If the swelling is more than normal this can lead to cardiovascular disease [14]. The last but not least another symptom is the outer layer of cerebrum starts becoming less dense [15]. Another study was done to determine is there any relationship of BMI with the symptoms of IBS. It was revealed that the individuals whose BMI was above 26 which lies in the range of bulkiness, have more chronic symptoms of stomach pain, acidity, morning sickness [16].

Diagnosis:

There are several indicators to diagnose constipation and diarrhea to confirm IBS. Rome III method is also used for diagnosis which includes four things: First is bodily inspection, Secondly, blood sample of an individual is taken and test is done to know the presence of IBS, Thirdly an endoscope is push through the mouth and used to study the inside of the stomach, A test is done to determine the un-common changes in large intestine. This is considered to be the most important way for diagnosis [17].

Factors Responsible for IBS:

There are several factors which play important part in the development and severity of IBS. These include foods, psychological factors, environmental factors, physiological factors etc. Food factors include fibers (some fruits and vegetables), dairy products, artificial sweeteners, fried items, etc. which triggers IBS symptoms. Some people are allergic to gluten which also cause IBS symptoms [18, 19]. Other important element include psychological reasons, stress, person's own ability to seek treatment, how to respond to ongoing treatment, managing mental distress. Stress plays a major contribution in causing IBS, as people often get disturbed digestive system if they are in stressed condition [20].

Socioeconomic status also plays important role in IBS as lower quality of life have lower health care facilities, poor sanitation, etc and more physiological stressors causing more gastrointestinal diseases. Genetic factors are also considerable as people who have more IBS affected family members are more likely to have IBS issue, and also the genes are mutated because of several environmental changes causing more digestive disorders. Physiological

factors include, the basic factor as gender, which is observed by the studies that female tend to be more effected by IBS as compared to males [21]. Environmental factors which are presence of different infections caused by bacteria, water pollution, air pollution, food contamination, harmful rays and different other harmful particles present in our surrounding which initiate IBS symptoms and may causes severity [22].

Dietary Management:

IBS is the condition that can also be treated through dietary management which include food. A person who is suffering from IBS may have regular eating routine and he may limit the quantities of those foods which has bad effect on their health such as alcohol, fatty food, spicy food and caffeine. They should avoid these foods because these may have potential dietary triggers [23]. Water is very helpful in improving those conditions which has bad effects on our stomach and on the intestines. IBS is also the condition in which the stomach and the intestines are badly affected not only by the food but also by the antibiotics which we take for the condition. So, they also have good intake of water because water soothes the stomach distress and lower the symptoms of IBS [24]. Keeping oneself physically active is also very helpful in IBS. It helps them to lower the symptoms. The exercise may include cycling, aerobics and walking [25, 23].

Dietary Guideline:

In IBS, the patients may consume different diets which are low in fermentable oligosaccharides, disaccharides, monosaccharides, and polyols which is frequently useful in managing the functional gastrointestinal systems. Basically the diet is lactose free and include rice, banana, lactose free milk and green beans [26, 27]. These lactose free diets improve the condition of abdominal pain, bloating, constipation, diarrhea, abdominal distention, and flatulence in IBS patients. Fiber is also very helpful in reducing constipation in IBS patients so they include more those foods which have higher content of fiber in it [28].

Diet Recommendations for IBS:

The IBS patients may avoid the large meals as it is not good for their health they should take small meals which is easily digestible for them and they will not suffer from stomach pain by eating the small meals. Avoid the foods which are not digestible and causing gas these include cabbage, onion, caffeine, insoluble fibers and fats. These kinds of foods are actually poison for IBS patients [29]. Probiotics are also very helpful in managing the diarrhea condition in IBS patients. It is helpful in stopping the continuous episodes of watery stools and soothes the stomach [30].

Healthy Life Style:

IBS patients start to live healthy by following these tips which include they establish regular eating habits like no skipping of meal, eat in small portions instead of larger ones, drink enough fluids and avoid those foods which cause problematic conditions and also avoid those eating habits which cause stomach problems [31]. The Do's and Don't's for IBS patients are summarized in Table 2.

DO's	DON'Ts
• cook homemade meals using fresh ingredients when you can • keep a diary of what you eat and any symptoms you get – try to avoid things that trigger your IBS • try to find ways to relax • get plenty of exercise • try probiotics for a month to see if they help	• do not delay or skip meals • do not eat too quickly • do not eat lots of fatty, spicy or processed foods • do not eat more than 3 portions of fresh fruit a day (a portion is 80g) • do not drink more than 3 cups of tea or coffee a day • do not drink lots of alcohol or fizzy drinks [32]

Table 2: Do's and Don'ts for IBS patients

Dietary Requirements for the IBS conditions:

The IBS patient suffer from two different conditions: constipation and diarrhea. The choice of food that may be helpful in both conditions is different. Firstly, in constipation the patient should increase its fiber intake by 2-3 grams per day. Drink plenty of water and very less intake of sugar. In diarrheal condition, it is recommended to eat moderate amount of soluble fiber, do not eat food at opposite temperature like hot and cold and eat in small portions [33].

Role of Herbs and Probiotics in IBS:

Herbal medicines are very helpful in controlling different diseases and are commonly used in many countries. Herbs are also very beneficial in treating IBS. Mostly patients use Complementary Alternative Medicine (CAM) when the other options of treatment are not helpful. The CAM is 43% used by the IBS patients. Aloe Vera, Artichoke and *Fumaria officinalis* are the herbs which are most commonly used in IBS [34]. Probiotics are also very effective in treating irritable bowel syndrome because of their impact on the bacteria of GIT and promotion of mucosal immune-regulation. Lactobacilli, Bifidobacterium and *Streptococcus thermophilus*, assist in reducing the symptoms of lactose intolerance Produce the enzyme beta-galactosidase (lactase) in yogurt.Microbial lactase breaks down lactose. Probiotics are very well tolerating and never cause any harmful effects. So probiotics are recommended for treating IBS [35].

Pepper Mint oil and IBS:

Daily use of pepper mint oil is helpful in reducing the pain caused by IBS. Peppermint oil reduces abdominal pain by targeting specific pain receptors," says Adrian Masclee, a Professor of Gastroenterology and Hepatology at the Maastricht University Medical Center in the Netherlands. "It also seems to act as a muscle relaxant. A drug used to relieve or prevent spasms (especially of the smooth muscles) Spasmolytic. Another study was done in which peppermint oil is used to cure the gastrointestional problems, which showed that it doesn't only relax the muscles of intestine but also helps in visceral hypersensitivity modulation, is anti-inflammatory and also overcome the stress [36, 37].

Diets for IBS:

There are two types of diets which are mostly recommended to the IBS patients. First one is fermentable oligo-, di-, mono-saccharides, and polyols (FODMAPS) diet and second one is Gluten free diet. Low FODMAPS diet basically include the avoidance of foods like short chain carbs which that are not easily digestible and take more time for digestion and these carbohydrates are also not easily absorbed. So in this diet these kind foods are replaced by those which are easily digestible these foods include, are certain vegetables and fruits, lactose free dairy, hard cheeses, meat, fish, chicken, eggs, soy, rice, oats, quinoa, non-dairy milks, and small servings of nuts and seeds. A study was conducted in which the patients were given the low FOODMAP diet and they were gradually checked by their instructors and it proved to be very effective in IBS patients [38, 39]. The second diet is gluten free diet which is very helpful in reducing IBS. Gluten-free diets may improve symptoms such as abdominal pain, stool consistency, and tiredness, and they can be recommended to patients with IBS. The food included in this diet is corn, rice, potatoes, meat, eggs, poultry, fish, gluten free flower, nuts, seeds and squash etc. [40].

Healthy tips:

Turmeric as part of a healthy diet-based approach to manage IBS symptoms is an easy step to take. Adding turmeric to your diet may also help to reduce IBS symptoms like, abdominal pain digestive, problems, and nausea, blood-thinning. A study was done on IBS patients in whom they were given a combination of turmeric and fennel oil to cure the IBS and found to be very effective in curing the patient's condition [41].

Conclusions:

Change in eating habits is important to avoid IBS symptoms and furthermore involvement of physical activity in daily life helps us to overcome gastrointestinal conditions like IBS. Faulty eating habits like junk food should be avoided by the IBS patients as these foods may aggravate the condition. In order to overcome the condition, health professionals should be consulted.

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