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Review Article

TREATMENT OPTIONS OF IRRITABLE BOWEL SYNDROME: A REVIEW OF LITERATURE

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Abstract:

Background: Irritable bowel syndrome (IBS) is a complex functional disorder of the gastrointestinal tract that constitutes a major portion of the total outpatient visits to gastroenterologists and other healthcare professionals. The cardinal symptom of irritable bowel syndrome is chronic abdominal pain with altered bowel habits in the absence of a discernable organic disease. This chronic disorder is highly prevalent and seen in as many as 10-20% of the entire population. Several treatment options are available for IBS which have progressed and evolved rapidly with the introduction of several new guidelines.

Objectives: In this review we aim to shed light on the available treatment options for irritable bowel syndrome including patient education, lifestyle modifications, dietary changes and the currently employed pharmacologic agents.

Materials and Methods: A review of relevant articles published from 1984 till date in English language was done using the electronic databases of PubMed Pico and, Google Scholar with preset keywords.

Keywords: Irritable bowel syndrome, abdominal pain, constipation, diarrhea, lifestyle changes, dietary modifications, pharmacotherapy, and physical therapy.

Conclusion: A multidisciplinary approach is recommended for the treatment of IBS. This includes collaboration of a team consisting of primary-care physician, a psychiatrist, a dietician, and a nurse practitioner. Following diagnosis of Irritable bowel syndrome, it is essential to establish a strong physician-patient relationship and enforce continuity of care given the chronicity of symptoms of Irritable bowel syndrome. In addition to the various pharmacologic agents available, it is mandatory to express empathy, encourage patient participation and promote lifestyle changes. Physical activity and dietary modifications can be greatly beneficial and should be tailored to the need of the individual patient. Pharmacology should focus on the predominant symptom and address them specifically such as constipation, diarrhea and abdominal pain.

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INTRODUCTION:

Irritable bowel syndrome (IBS) is a fairly prevalent gastrointestinal disorder that is reported in as many as 10 -20% of the general population and has an annual incidence of 1 - 2% (1). Irritable bowel syndrome is notably more common in females and is seen twice more commonly in females than males (2). Although IBS presents with a heterogeneous profile in each patient some of the most commonly encountered symptoms include abdominal discomfort, distention, or pain with altered bowel habits, including changes in stool form or frequency. Several treatment options and management guidelines have been established for this prevalent, functional gastrointestinal disorder which we intend to explore in this review.

MATERIAL AND METHODS:

Sample:

This literature review was conducted using the electronic biomedical databases of Google Scholar and PubMed Pico. We included studies published after the year of 1984 in English language. Keywords used to search through the databases were Irritable bowel syndrome, abdominal pain, constipation, diarrhea, lifestyle changes, dietary modifications, pharmacotherapy, and physical therapy.

Analysis:

We employed no software for analyzing the results obtained from the review of published articles. However, to ensure that the data compiled is free of error and valid, multiple revisions were done by each of the authors.

DISCUSSION:

Irritable bowel syndrome (IBS) is a frequently encountered gastrointestinal disorder and it is known that gastroenterologists spend 25% of their time treating IBS (3). IBS mostly presents with recurrent chronic abdominal pain that has occurred for at least one day per week over the last three months in the presence of two or more of the following: abdominal pain related to defecation, presence of a change in form of stool, or associated with a change in frequency of stool (4). IBS can be divided broadly into 4 subtypes: IBS with predominant constipation, IBS with predominant diarrhea, IBS with mixed bowel habits and, IBS unclassified in which patients do not meet the diagnostic criteria for the former three subtypes.

Diagnosis of IBS requires a personalized approach and is frequently made by obtaining a thorough clinical history and physical examination. IBS requires limited investigations but requires mandatory continued follow-up. Often diagnostic

criteria such as Rome criteria and National Institute for Health and Care Excellence (NICE) guidelines are used by clinicians to offer patients a positive diagnosis of IBS. Despite the fact that all patients diagnosed with IBS complain of abdominal pain and altered patterns of defecation, treatment still needs to be personalized and should be guided by the predominant symptom reported by the patient.

The most significant aspect of treating irritable bowel syndrome is establishing an empathetic doctor-patient relationship and mandating regular follow-ups to ensure continuity of care. Patients who report only mild or intermittent symptoms benefit greatly from lifestyle and dietary modifications alone (5). In addition to these modifications, such patients benefit from counseling, providing reassurance and expressing empathy (6). If education and reassurance are given in the recommended manner they can forfeit the need of more complex treatment and this approach requires validating the patient's symptoms, reassuring that IBS though a chronic disorder does not predispose to malignancy and establishing realistic expectations by involving patients in their management decisions (7, 8).

Recommendations of dietary modifications should be made after obtaining a thorough dietary history of the patient. All patients should be encouraged to eat healthy foods at regular intervals and avoid skipping meals or prolonging meal to meal interval (9). Patients with IBS can benefit from dietary modifications such as increasing water intake, exclusion of gas-producing foods that increase flatulence such as Brussels sprouts, carrots, onions, raisins, bananas, apricots, wheat germ, bagels, etc. (10), and limiting the intake of alcohol, and caffeine (11). Reduction in the intake of fermentable oligo-, di-, and monosaccharides and polyols (FODMAPs) has been shown to reduce IBS symptom severity. This was demonstrated in a randomized trial involving 75 patients diagnosed with IBS that had considerably reduced symptom severity with a low FODMAP diet at the end of a four week study period (12). Similar results were seen in another randomized crossover trial with 92 patients of IBS who reported decreased abdominal pain, bloating, stool consistency, frequency, and urgency with low FODMAP diet at the end of one month (13).

Additionally, patients with IBS have an exaggerated symptom response to lactose ingestion similar to lactose ingestion, thus an empiric trial of lactose-free diet can be initiated (10). A gluten-restricted diet has been suggested by some studies but the evidence for

Nonceliac gluten sensitivity (NCGS) in patients with IBS is still lacking (14, 15). This is based on the observation that gluten can alter the barrier functions of the bowel in patients with IBS (16).

In patients with the constipation-predominant type of IBS, additional fiber supplements in the form of, psyllium/ispaghula can be considered (17, 18). Fiber intake of patients should be reviewed at every clinic visit, and patients should also be advised to consume foods rich in soluble fiber content such as oats (9).

In patients with mild symptoms that fail to respond to lifestyle and dietary changes and in patients with moderate to severe IBS symptoms, pharmacotherapy and behavioral interventions are recommended. Behavioral interventions include cognitive behavior therapy and mindfulness-based therapy (19, 20). Several studies have demonstrated the superiority of using pharmacological drugs to placebos in patients with IBS. It is estimated that a significant proportion i.e. 74% of IBS patients uses one or another medicine to address their gastrointestinal symptoms (21).

In patients with constipation-predominant IBS (IBS-C) who do not respond to soluble fiber, osmotic laxative such as polyethylene glycol (PEG) is recommended, which has superior efficacy than other osmotic laxatives such as lactulose and magnesium hydroxide (22, 23). If constipation remains persistent despite treatment with PEG, lubiprostone or linaclotide can be used. Lubiprostone works by activating intestinal chloride channels and is often used to treat IBS-C in women of 18 years and older due to demonstrated efficacy in two placebo-controlled randomized trials consisting of a majority of female patients with IBS-C (24). The most frequently reported adverse effect of lubiprostone is nausea. On the other hand, Linaclotide is an intestinal guanylate cyclase channel activator that is efficacious in relieving constipation in IBS-C patients as seen in three randomized controlled trials (25, 26, 27). All three trials used patients diagnosed by Rome III criteria and the patient population comprised mostly of females (>90% in each of the three trials). It was shown that Linaclotide in addition to reducing symptoms of constipation also reduces abdominal pain. The most commonly reported side effect of Linaclotide is diarrhea.

In IBS patients with diarrhea-predominant symptoms, antidiarrheal such as loperamide is used as a first-line treatment. Loperamide works by reducing fecal volume, inhibiting peristalsis, and prolonging transit time. A systematic review on loperamide included

three randomized controlled trials that revealed loperamide to be more effective than placebo in effectively treating diarrhea by decreasing stool frequency and consistency (28, 29). Other agents recommended for treatment of diarrhea include eluxadoline which is a combination of a mu-opioid receptor agonist and a delta-opioid receptor antagonist. Several studies have demonstrated the efficacy of eluxadoline in the treatment of IBS-D (30), but, it is contraindicated in patients with a history of pancreatitis, liver and biliary disease and heavy alcohol use (31).

In IBS patients with diarrhea that persists despite antidiarrheal, bile acid sequestrants such as cholestyramine, colestipol, and colesevelam are recommended. Bile acid sequestrants are used in patients with IBS-D because several studies have demonstrated that over 50 percent of patients with functional diarrhea have bile acid malabsorption (32). However, these agents are not commonly employed due to side effects of constipation, bloating, abdominal discomfort and, flatulence. If symptoms of diarrhea in IBS-D are resistant to the use of both loperamide and bile acid sequestrants, 5-hydroxytryptamine (serotonin) 3 receptor antagonists such as alosetron can be used. Alosetron decreases colonic motility and secretion by impacting visceral afferent activity from the gastrointestinal tract and may improve abdominal pain in addition to diarrhea (33). A large scale meta-analysis revealed alosetron to cause a marked improvement in IBS symptoms including diarrhea and abdominal pain (34).

For treating abdominal pain and bloating in patients of IBS antispasmodics can be used when needed or in anticipation of potential stressors. Antispasmodics provide short-term relief in symptoms of abdominal pain in patients with IBS, but their long-term efficacy has not been established. In a meta-analysis, antispasmodics, when compared to placebo, resulted in improvement of abdominal pain with statistically significant benefits seen with pinaverium, cimetropium, peppermint oil, dicyclomine and trimebutine (35). If abdominal pain remains persistent despite the use of antispasmodics, antidepressants are recommended. The rationale for the use of antidepressants is that they have analgesic properties in addition to their impact on mood (36, 37). Tricyclic antidepressants (TCAs) can be used for relieving abdominal pain in IBS patients and may prove to be additionally beneficial in IBS -D patients as they increase intestinal transit time owing to their anticholinergic properties (36). Although TCAs are widely studied and implemented in IBS patients, data

in support of other antidepressants such as selective serotonin reuptake inhibitors (SSRIs) and serotonin-norepinephrine reuptake inhibitors (SNRIs), is limited and inconsistent (38, 39). In patients with abdominal pain resistant to the aforementioned treatments, a two-week trial of antibiotics such as rifaximin is recommended. Rifaximin has been shown to be superior to placebo with an odds ratio of 1.57 in a meta-analysis. (40). In this meta-analysis, it was also noted that patients given rifaximin had an improvement in diarrhea when compared to placebo.

In addition to lifestyle and dietary modifications and pharmacotherapy, physical activity and exercise are also encouraged in patients with IBS. Physical activity in addition to resulting in overall health improvement contributes to symptom improvement in patients of IBS. A study done on 102 patients diagnosed with IBS revealed clinical improvement in the symptom severity of IBS after 3 months study period as compared to the control group (41). Another encouraging finding observed from this trial was that IBS patients who were placed in the physical activity group reported worsening of IBS symptoms significantly less than the control group.

CONCLUSION:

IBS is a chronic functional gastrointestinal disorder that requires collaboration from several health care experts to improve the quality of life of the patients. While several options of pharmacologic agents are available to address this prevalent disorder, it is crucial to establish rapport with the patient and encourage follow-ups. Lifestyle modification, dietary changes and physical activity should also be encouraged. Behavioral interventions can be planned when deemed necessary. Pharmacologic agents should target the predominant symptom reported by the patient.

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