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Overview of Irritable Bowel Syndrome

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Abstract: ***Irritable bowel syndrome (IBS) one most common disease in gastrointestinal disorder. The prevalence of IBS is approximately 11% worldwide, ranging from 9 to 23%, however it differs significantly between nations based on the diagnostic criteria, gender, and age. The management of IBS is specific to each individual. This overview will look out IBS thoroughly from the epidemiological burden, pathophysiology, clinical presentation and diagnosis, and the current treatment of IBS.***

Keyword: Irritable bowel syndrome

1. Introduction

Irritable bowel syndrome (IBS) one most common disease in gastrointestinal disorder, an extremely common, chronic, and frequently devastating condition of the gut - brain connection[8, 9]. There is still much to learn about the pathophysiology of IBS. The illness, which affects 5% to 10% of the general population, is characterized by recurring stomach pain linked to unusual stools in terms of frequency or morphology[7]. Using the Rome IV criteria together with a thorough history, physical exam, and a few diagnostic tests, the disorder can be identified[17]. The treatment plan for IBS should be based on the most common symptoms and may include both non - pharmacological therapies and medication[1]. According to a randomized clinical research, lifestyle changes like lowering stress levels and increasing physical activity may be helpful to reduce Gi symptoms in people with IBS. Given the overall benefits of organised physical activity for health, IBS sufferers should be encouraged to participate in it[1].

Epidemiology

The prevalence of IBS is approximately 11% worldwide, ranging from 9 to 23%, however it differs significantly between nations based on the diagnostic criteria, gender, and age[1]. However, because organic gastrointestinal disease is very rare in the community and IBS is diagnosed primarily on the presence of typical symptoms, population-based epidemiological studies provide a close approximation of real prevalence, which is between 5% and 10% in most geographical regions[7]. IBS is categorised into four subtypes based on the major symptomatology: IBS with constipation (IBS - C), IBS with diarrhea (IBS - D), IBS with a mixed pattern (IBS - M) of constipation and diarrhea, and unclassified IBS (IBS - U) [1, 7, 8, 12].

Pathophysiology

The pathophysiology of IBS is yet unknown. It is regarded as a condition caused by the interaction of several elements. Despite several examinations, data has been contradictory, and no aberration specific to this condition has been discovered[13].

Traditionally, the emphasis has been on changes in gastrointestinal motility and visceral hypersensitivity. More recent research has looked into the role of inflammation, changes in fecal flora, and bacterial overgrowth. The role of dietary sensitivity is also being considered. The existence of a hereditary susceptibility is also being examined[13].

- **Gastrointestinal motility**

Although irritable bowel syndrome (IBS) symptoms have focused research on both small intestine and colonic motility, no dominating pattern of motor activity has emerged as a diagnostic for IBS. However, some IBS patients have GI motor abnormalities. In diarrhea - predominant IBS, abnormalities include increased frequency and irregularity of luminal contractions, longer transit time, and an exaggerated motor response to cholecystokinin and meal consumption. The relationship between these motor function changes and symptoms has yet to be determined. However, pharmaceutical stimulation of intestinal motility in IBS patients has been found to reduce gas retention and improve symptoms, indicating that a motility disruption may be at the root of this complaint in certain people[13].

- **The gut–brain axis and stress**

IBS also has a psychological component, and there is two - way communication between the gut and the brain. According to prospective longitudinal research, a portion of patients first experience gastrointestinal symptoms before experiencing psychological distress. Mental health issues and gastrointestinal infections seem to be separate risk factors that interact to cause both post - infection IBS and the extraintestinal symptoms that are typically associated with IBS, such as chronic fatigue[7, 16].

Clinical analyses of neuroimaging studies have also revealed that patients with IBS differ from healthy control participants in the central processing mechanisms of the brain - gut axis, as evidenced by variations in connection and functional responsiveness. Although it may be the case that many clinical manifestations of IBS are caused by abnormalities in the brain - gut axis, the underlying mechanisms are not fully known. Patient diagnosis is still frequently based on exclusion, and treatment is symptom - driven[16].

- **The gut microenvironment**

It is hypothesized that nutrition and the gastro - intestinal bacteria are involved in pathophysiology since many IBS patients claim that consuming or avoiding specific foods causes their symptoms[7].

- **Visceral Hypersensitivity**

Patients who suffer from irritable bowel syndrome (IBS) frequently experience visceral hypersensitivity, which is an increase in sensation in reaction to stimuli. The stimulation

of numerous gut wall receptors leads to perception in the gastrointestinal (GI) tract. These receptors send information to the brain and dorsal horn of the spinal cord via afferent neural pathways[13].

- **Genetic**

Despite the fact that research on the genetics of IBS is less developed than that on other diseases (such as inflammatory bowel disease [IBD]), genome-wide association studies have revealed associations with variations on chromosome 9 (9q312 locus) that are linked to the functions of various ion channels and autonomic dysfunction, as well as mutations in the sucrase-isomaltase gene[7, 11].

Diagnosis

Clinical diagnostic standards have changed since the first iterations of the rome guidelines, which are the most recent RomeIV criteria, which were published in May 2016[1, 3, 5]. The Rome guidelines are an expert consensus criteria for diagnosing functional Gi disorders, which include esophageal, gastroduodenal, bowel, biliary, and anorectal disorders. The official RomeIV publications by the rome Foundation gradually changed the term "Functional Gastrointestinal Disorders" to "Disorders of Gut - Brain Interaction, " underscoring the significance of numerous distinct pathophysiological processes like dysbiosis, increased gut permeability, altered immune function, and the aforementioned neural and hormonal interaction between the brain and the gut. The second significant modification is that stomach pain must have occurred at least once per week for the previous three months[1].

Treatment

Given that the majority of therapies alleviate symptoms in only 25–30% of patients and have only been studied in secondary and tertiary care, treatment is focused on the predominant symptom and frank discussions of the limitations of existing therapies are included to moderate expectations. The patient should make the ultimate decision for the course of therapy after discussing all possible alternatives with the doctor and receiving complete information about them[7].

Lifestyle, diet, and probiotics

IBS patients have always been advised to consume more dietary fiber, despite the possibility that bran could make symptoms worse. However, ispaghula husk outperformed a placebo in a meta - analysis of seven randomised controlled trials. In comparison to a regular diet, several randomised controlled trials demonstrate that restricting FODMAPs improves IBS symptoms[6, 7].

Other randomised controlled trials, however, indicate that the conventional dietary advice to consume fewer, smaller meals more frequently, stay away from recognized trigger foods, and cut back on alcohol and caffeine, is just as helpful as a low FODMAP diet. There is little evidence to support benefit of a gluten-free diet in IBS. However, because wheat contains fructan, a FODMAP, a gluten-free diet incorporates elements of a low FODMAP diet. Therefore, some patients might adapt a low FODMAP diet to one that instead avoids gluten[7,]

Probiotics have been the subject of multiple randomised controlled trials for IBS. Nevertheless, despite some trials demonstrating promising outcomes, it is difficult to recommend which combination, species, or strain is most efficient due to the wide range of items examined and the inconsistent outcomes of the many trials[4, 7].

First line drug

- British researcher found that loperamide can be use on IBS - D and IBS M. Loperamid is a synthetic μ - opioid agonist that reduces myenteric plexus activity, thereby increasing intestinal transit time and enhancing water reabsorption. Although the drug can improved the stool frequency and consistency, it has no effect on global symptom[14].
- Antispasmodics also one of drug that can be use as reduction in gastrointestinal motility to improves diarrhoea but most of meta analysis was still unclear but it can relief global symptom and abdominal pain[14].
- Peppermint oil may be an effective treatment for global symptoms and abdominal pain in IBS. Gastro - oesophageal reflux is a common side effect[14].
- Polyethylene glycol may be an effective treatment for constipation in IBS. Abdominal pain is a common side effect[14].

Second line drug for treatment of IBS - D

- Eluxadoline, its effected for seond line drug for IBS with diarrhoea but it has many contraindication such as patient with prior sphincter of Oddi problems or cholecystectomy, alcohol dependence, pancreatitis or severe liver impairment, and lack of availability may limit its use[14].
- Ondancetron (5 - HT3 reseptor antagonis) start 4mg once a day maximun to 8 mg three time a day. Side effect is constipation[14].
- The non - absorbable antibiotic rifaximin is an efficacious second - line drug for IBS with diarrhoea in secondary care, although its effect on abdominal pain is limited [14].

Second line drug for treatment of IBS - C

- Linaclotide, a guanylate cyclase - C agonist, one of second line drug for IBS with constipation in secondary care but has side effect diarrhoea is common side effect[14].
- Lubiprostone, a chloride channel activator, is more cause diarrhoea than other, nausea is one of side effect[14].
- Plecantide, another guanylate cyclase - C agonist, less effect diarrhoea than linaclotide or tenapanor. It's very hard to find in many countries except USA[14].
- Tenapanor, a sodium - hydrogen exchange inhibitor, same side effect as other is diarrhoea and it's very hard to find in many countries except USA[14].
- Tegaserod, a 5 - Hydroxytryptamine 4 receptor agonist, same as tenapanor and plecantide[14].

Psychological therapies

- IBS - specific cognitive behavioural therapy may be an efficacious treatment for global symptoms in IBS[14].
- Gut - directed hypnotherapy may be an efficacious treatment for global symptoms in IBS.1[4].

- Psychological therapies should be considered when symptoms have not improved after 12 months of drug treatment. Referral can be made at an earlier stage, if accessible locally, and based on patient preference[14].

2. Conclusion

IBS is still a mysterious factor in considerable misery, morbidity, and disability. For the foreseeable future, determining the presence of IBS will depend on identifying its distinctive symptoms and ruling out organic disease mimics. New biomarkers that can either rule in or rule out IBS are expected to help with the accurate diagnosis of IBS as science progresses. The development of new nonpharmacologic and pharmaceutical treatments for IBS will also be facilitated by a better knowledge of its etiology. For the time being, it's critical for doctors to comprehend the function of dietary, lifestyle, and behavioral change for IBS, whether these changes are combined with or independent of medicinal treatments.

References

[1] Adriani, A., Ribaldone, D. G., Astegiano, M., Durazzo, M., Saracco, G. M. and Pellicano, R. (2018). Irritable bowel syndrome: the clinical approach. *Panminerva Medica*, 60 (4). doi: https: //doi. org/10.23736/s0031 - 0808.18.03541 - 3.

[2] Alaradi, O. and Barkin, J. S. (2002). Irritable Bowel Syndrome: Update on Pathogenesis and Management. *Medical Principles and Practice*, 11 (1), pp.2–17. doi: https: //doi. org/10.1159/000048654.

[3] Chang, L., Sultan, S., Lembo, A., Verne, G. N., Smalley, W. and Heidelbaugh, J. J. (2022). AGA Clinical Practice Guideline on the Pharmacological Management of Irritable Bowel Syndrome With Constipation. *Gastroenterology*, 163 (1), pp.118–136. doi: https: //doi. org/10.1053/j. gastro.2022.04.016.

[4] Chey, W. D., Kurlander, J. and Eswaran, S. (2015). Irritable Bowel Syndrome. *JAMA*, 313 (9), p.949. doi: https: //doi. org/10.1001/jama.2015.0954.

[5] Fang, X., Fan, W., Drossman, D. A., Han, S. and Ke, M. (2022). Are bowel symptoms and psychosocial features different in irritable bowel syndrome patients with abdominal discomfort compared to abdominal pain? 28 (33), pp.4861–4874. doi: https: //doi. org/10.3748/wjg. v28. i33.4861.

[6] Farmer, A. D., Wood, E. and Ruffle, J. K. (2020). An approach to the care of patients with irritable bowel syndrome. *Canadian Medical Association Journal*, 192 (11), pp. E275–E282. doi: https: //doi. org/10.1503/cmaj.190716.

[7] Ford, A. C., Sperber, A. D., Corsetti, M. and Camilleri, M. (2020). Irritable bowel syndrome. *The Lancet*, 396 (10263). doi: https: //doi. org/10.1016/s0140 - 6736 (20) 31548 - 8.

[8] Lacy, B. and Patel, N. (2017). Rome Criteria and a Diagnostic Approach to Irritable Bowel Syndrome. *Journal of Clinical Medicine*, [online] 6 (11), p.99. doi: https: //doi. org/10.3390/jcm6110099.

[9] Lacy, B. E., Pimentel, M., Brenner, D. M., Chey, W. D., Keefer, L. A., Long, M. D. and Moshiree, B. (2020). ACG Clinical Guideline: Management of Irritable Bowel Syndrome. *American Journal of Gastroenterology*, 116 (1), pp.17–44. doi: https: //doi. org/10.14309/ajg.0000000000001036.

[10] Lembo, A., Sultan, S., Chang, L., Heidelbaugh, J. J., Smalley, W. and Verne, G. N. (2022). AGA Clinical Practice Guideline on the Pharmacological Management of Irritable Bowel Syndrome With Diarrhea. *Gastroenterology*, 163 (1), pp.137–151. doi: https: //doi. org/10.1053/j. gastro.2022.04.017.

[11] Saha, L. (2014). Irritable bowel syndrome: Pathogenesis, diagnosis, treatment, and evidence - based medicine. *World Journal of Gastroenterology*, [online] 20 (22), p.6759. doi: https: //doi. org/10.3748/wjg. v20. i22.6759.

[12] Su, A. M., Shih, W., Presson, A. P. and Chang, L. (2013). Characterization of symptoms in irritable bowel syndrome with mixed bowel habit pattern. *Neurogastroenterology & Motility*, 26 (1), pp.36–45. doi: https: //doi. org/10.1111/nmo.12220.

[13] Uptodate. com. (2019). *UpToDate*. [online] Available at: https: //www.uptodate. com/contents/pathophysiology - of - irritable - bowel - syndrome.

[14] Van den Houte, K., Carbone, F., Pannemans, J., Corsetti, M., Fischler, B., Piessevaux, H. and Tack, J. (2018). Prevalence and impact of self - reported irritable bowel symptoms in the general population. *United European Gastroenterology Journal*, 7 (2), pp.307–315. doi: https: //doi. org/10.1177/2050640618821804.

[15] Vasant, D. H., Paine, P. A., Black, C. J., Houghton, L. A., Everitt, H. A., Corsetti, M., Agrawal, A., Aziz, I., Farmer, A. D., Eugenicos, M. P., Moss - Morris, R., Yiannakou, Y. and Ford, A. C. (2021). British Society of Gastroenterology guidelines on the management of irritable bowel syndrome. *Gut*. [online] doi: https: //doi. org/10.1136/gutjnl - 2021 - 324598.

[16] Weaver, K. R., Melkus, G. D. and Henderson, W. A. (2017). Irritable Bowel Syndrome. *AJN, American Journal of Nursing*, [online] 117 (6), pp.48–55. doi: https: //doi. org/10.1097/01. naj.0000520253.57459.01.

[17] Werlang, M. E., Palmer, W. C. and Lacy, B. E. (2019). Irritable Bowel Syndrome and Dietary Interventions. *Gastroenterology & Hepatology*, [online] 15 (1), pp.16–26. Available at: https: //pubmed. ncbi. nlm. nih. gov/30899204/.