The Irritable Bowel Syndrome

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A 45 year old businessman presents at your clinic with a 2 year history of recurrent abdominal pain, associated with frequent bouts of diarrhoea. The pain is relieved by defaecation, but there is often a feeling of incomplete evacuation. Between these episodes he is often constipated, with infrequent bowel motions characterised by hard stools. During stressful situations, symptoms get worse and are associated with abdominal bloating and increased flatulence. He researched his problem on the internet and thinks he might have Irritable Bowel Syndrome.

Keywords

Irritable bowel syndrome, diagnostic criteria, alarm features, psychological intervention

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Introduction

Irritable bowel syndrome (IBS) is a functional gastrointestinal disorder characterised by abdominal pain and altered bowel habits in the absence of specific and unique organic pathology. IBS is troublesome, with a significant negative impact on quality of life and social functioning in many patients, but it is not known to be associated with the development of serious disease or with excess mortality. IBS generates significant health care costs, both direct, because of IBS symptoms and associated disorders, and indirect, because of time off work.

10-15% of the people in Western countries suffer from this condition, but only about 30% of affected people see their primary care physician about it.[1] IBS accounts for 40-60% of referrals to gastroenterology outpatient clinics. In Western countries, women are 2-3 times more likely to develop IBS than men. The difference between the sexes is even more marked in IBS consulters in primary care and may be as high as 3 to 4 times in secondary care.[1] Approximately 50% of people with IBS report symptoms beginning before they were aged 35 years and 40% of patients develop symptoms between 35 and 50 years of age. Onset in elderly persons is rare.[2] IBS is recognised in children, and many patients can trace their symptoms to childhood. One study found that 26% of children with recurrent abdominal pain were diagnosed with IBS, making it a common reason for school absenteeism.[3]

Pathophysiology

The pathogenetic mechanisms of IBS are still poorly understood. Traditionally, genes, psychosocial factors, changes in gastrointestinal motility and visceral hypersensitivity were considered the prime suspects. IBS clearly aggregates within families and is more common in stressed, anxious and depressed patients. Colonic transit time is shorter in patients with diarrhoea and longer than normal in constipation. Patients with IBS exhibit evidence of altered CNS processing of visceral pain. Recent studies have implicated factors such as dysregulation of the brain–gut axis, imbalance in the intestinal microflora, gastrointestinal infection and chronic gut inflammation.[4] All of these factors are thought to contribute, in one way or the other, to the general picture.

Clinical Features

These are broadly categorised into gastrointestinal and non-gastrointestinal symptoms. The former include recurrent

abdominal pain relieved by defaecation and associated with disturbed bowel habit - a change in the appearance or frequency of stools. Other associated symptoms include bloating, distension, mucus in the stool, urgency, and a feeling of incomplete evacuation. The importance of these symptoms in the diagnosis of IBS will be discussed later.

Many IBS patients also report non-gastrointestinal symptoms that may be due to the coexistence or overlap of IBS with another condition such as fibromyalgia, chronic fatigue syndrome, or interstitial cystitis such as:

- Fatigue
- Muscle pain
- Sleep disturbances
- Sexual dysfunction
- Urinary symptoms such as nocturia, frequency and urgency of micturition, incomplete bladder emptying.

Other symptoms may occur that tend to correlate with the severity of the IBS such as

- Low back pain
- Headache

Physical examination is often normal, although non-specific abdominal tenderness or a palpable, tender colon may be present.[5]

Four patterns may be seen with irritable bowel syndrome. These patterns include IBS-D (diarrhoea predominant), IBS-C (constipation predominant), IBS-M (mixed diarrhoea and constipation), and IBS-A (alternating diarrhoea and constipation). These patterns are mentioned in the Rome II criteria, but their usefulness is debatable.

Diagnosis

Traditionally, IBS is a diagnosis of exclusion, based on history, physical examination, and a negative battery of diagnostic studies. There are no structural or chemical markers for IBS.[6] Diagnostic tests are frequently overused because physicians are concerned about missing a life-threatening illness.[7]

The diagnosis of IBS should be one that is based on positive findings rather than a diagnosis made after extensive investigation to exclude other disorders. Because there is no physiologic marker for the disease, symptom criteria have been developed to encourage diagnosis through history taking and to standardise patients entered into clinical trials.

The most common criteria used in research and clinical practice are the 2006 Rome III diagnostic criteria for IBS, summarised in Table 1. They require symptoms to have originated 6 months prior to diagnosis and be currently active (i.e. meet criteria) for 3 months. Abdominal pain is the main indicator and other cumulative symptoms support the diagnosis.[8] These criteria have replaced the outdated Manning criteria (Table 1), in which the presence of 3 or more criteria discriminates IBS from organic gastrointestinal disease, with a sensitivity of 58%-81% and a specificity of 67%-87%.[9] The greater the number of symptoms present, the more likely the diagnosis of IBS.[8] However the Manning criteria are widely considered to be insensitive and less reliable in men.[9] In addition, abdominal pain does not always overlap with bowel habit disorders, unlike the Rome criteria.

The addition of alarm features (Table 2) to symptom criteria seems to enhance diagnostic accuracy.[10] Recent studies have demonstrated that the absence of alarm symptoms increases the positive predictive value of the criteria.[13]

Furthermore, there is evidence that the addition of non-colonic and even non-gastrointestinal symptoms can also improve diagnostic accuracy.[14]

Other helpful clues to the diagnosis of IBS are that the symptoms are chronic or recurrent, the pain is variable in location and timing, diarrhoea and constipation may alternate, the onset sometimes follows infectious gastroenteritis, and the symptoms may be related to stress.[15-17]

Differential Diagnosis

Many illnesses share some of the same symptoms as IBS. Some of these illnesses are serious and require aggressive evaluation and treatment. The differential diagnosis for patients who present with abdominal pain and altered bowel habits is summarised in Table 3.

A careful and detailed history and physical examination are needed to establish diagnostic criteria, and take note of supporting symptoms and alarm features. As regards investigations in the primary care setting, the issue becomes hazier.

The NICE Guidelines[18] recommend that in people who meet the IBS diagnostic criteria, the following tests should be undertaken to exclude other diagnoses:

- Full blood count (FBC)
- Erythrocyte sedimentation rate (ESR)
- C-reactive protein (CRP)
- Antibody testing for coeliac disease (endomysial antibodies [EMA] or tissue transglutaminase antibodies [TTG]).

They go on to recommend that the following tests are not necessary to confirm diagnosis in people who meet the IBS diagnostic criteria:

- Ultrasound
- Rigid/flexible sigmoidoscopy
- Colonoscopy; barium enema
- Thyroid function test
- Faecal ova and parasite test
- Faecal occult blood
- Hydrogen breath test (for lactose intolerance and bacterial overgrowth).

On the other hand, patients who present with alarm features during the history, physical examination and basic investigations, should be immediately referred to secondary care. The emergence of any alarm features during management

Table 1: *The Manning and Rome III criteria*

Manning Criteria

1. Onset of pain linked to more frequent bowel movements
2. Looser stools associated with onset of pain
3. Pain relieved by passage of stool
4. Noticeable abdominal bloating
5. Sensation of incomplete evacuation more than 25% of the time.
6. Diarrhoea with mucus more than 25% of the time

Factor analysis shows the first three symptoms correlate well but are not related to 4, 5 and 6.[11] *4 is more useful in women, as abdominal bloating is less common in men.*[12]

Rome III Criteria

The Rome III criteria (2006) require that patients must have recurrent abdominal pain or discomfort at least 3 days per month during the previous 3 months that is associated with 2 or more of the following:

1. Relieved by defaecation
2. Onset associated with a change in stool frequency
3. Onset associated with a change in stool form or appearance

Supporting symptoms include the following:

4. Altered stool frequency (greater than 3 bowel movements/day or less than 3 bowel movements/week)
5. Altered stool form (lumpy/hard or loose/watery stool)
6. Altered stool passage (straining and/or urgency)
7. Mucorrhoea
8. Abdominal bloating or subjective distention.

In pathophysiology research and clinical trials, a pain/discomfort frequency of at least 2 days a week during the screening evaluation is recommended for subject eligibility.

and follow-up of patients diagnosed with IBS should prompt further investigation and/or referral to secondary care.

The British Society of Gastroenterology guidelines recommend a FBC in all older patients at first presentation a FBC and ESR/CRP in all those with new IBS-D. Testing for coeliac disease in IBS-D is only considered cost-effective if the incidence of coeliac disease in that population is above 1%[19] (it is estimated to be 1% in the Maltese population).[20] Other tests, including the faecal occult blood test, are not recommended as first line investigations.

Coeliac disease

It should be noted that testing for coeliac disease is recommended as a first line test, alongside other less specific investigations. This stems from the diagnostic difficulty one often encounters in trying to distinguish between the two. Many of the symptoms found in IBS are shared by coeliac disease. In addition, several studies suggest that screening for coeliac disease in IBS patients, even in a population with relatively low coeliac disease prevalence and small improvements in quality of life with a gluten-free diet, is still cost-effective.[21]

Management

Since the aetiology of IBS is still obscure, its management is still mainly symptomatic, with attempts at dealing with potential underlying disorders in stress responsiveness, and predisposing psychological features. To make matters worse, the different

Table 2: *Alarm features in irritable bowel syndrome*

History

- New onset of symptoms in patient > 50 years
- Short history of symptoms
- Documented weight loss (unexplained and unintentional)
- Nocturnal symptoms
- Male sex
- Family history of colon cancer (and other gastrointestinal cancers)
- Anaemia
- Rectal bleeding
- Recent antibiotic use
- Persistent diarrhoea
- Severe constipation
- Fever
- Inflammatory bowel disease or coeliac disease
- Travel history to locations with endemic parasitic diseases

Examination

- Fever
- Abdominal masses
- Rectal masses

Investigations

- Anaemia on full blood count
- Positive inflammatory bowel disease markers.

IBS patterns, with their own predominant symptoms, often warrant a combination of different treatment modalities. The efficacy of several of these modalities is still in question. They can be broadly classified into these categories: Diet and lifestyle, Pharmacological, Psychological and Psychosocial interventions, and Complementary therapies.

Diet and Lifestyle (Table 4)

Many patients with IBS believe that their symptoms are caused by food, and so they expect a dietary solution. Some exclude many foods with little evidence of improvement. Unfortunately, there is scanty scientifically valid information on the relation of diet to IBS symptoms, especially as regards food allergies and intolerances.[22] Data from dietary elimination and food challenge studies are contradictory, and in some cases inconclusive. The fact remains that food intolerances are often present in patients with IBS, as well as in the general population, and their symptoms closely mimic those of IBS. Common culprits include milk (lactose), wheat, eggs, nuts, shellfish, caffeine and soybeans. A trial of exclusion and serial reintroduction of individual foods can be done to detect co-existing food intolerances.[23] Dietary exclusion can then be done, under the supervision of a qualified dietician, to deal with the intolerance, irrespective of its causal relationship with IBS, thus reducing the overall symptoms, while taking care to avoid malnutrition. Dietary management of food intolerances thus is an adjunct of IBS treatment, but it must be tailored to the individual, and be done under the guidance of a dietician.[24]

Fibre

An increase in fibre is often recommended in IBS, but there are few data to support this approach. A survey based on secondary care patients actually suggested that cereal fibre makes the symptoms worse in around 55% of cases, with only 11% reporting any benefit. Though insoluble fibre (eg. bran, green vegetables, sprouts, legumes, seeds, and nuts) helps constipation-predominant IBS, current guidelines recommend reduced intake of wholemeal or high-fibre flour and breads, cereals high in bran, and whole grains such as brown rice. When fibre is needed, foods rich in soluble fibre (rice, barley, soy, carrots, etc.) or and/or ispaghula powder should be encouraged, as it relieves both diarrhoea and constipation.[18]

Other dietary considerations

Fluid intake (together with soluble fibre) must be increased to compensate for the water lost in diarrhoea and to help relieve constipation. Caffeine intake should be restricted, because of its dehydrating and stimulant effects. Carbonated beverages exacerbate bloating and diarrhoea (sorbitol).

Table 3: *Differential diagnosis*

IBS with diarrhoea

- Dietary - lactose, sorbitol, fructose, caffeine, alcohol, fatty foods, fat substitutes, gas-producing foods Infections — Giardia species, Amoeba species, HIV-related, bacterial overgrowth
- IBD — Crohn's disease, ulcerative colitis, microscopic colitis
- Drug toxicity — antibiotics, PPIs, NSAIDs, ACE inhibitors, beta-blockers, chemotherapy
- Malabsorption — coeliac disease, bile acid-related
- Other — ovarian cancer, endometriosis, colorectal cancer, hyperthyroidism, carcinoid, VIPoma, ischaemic colitis

IBS with constipation

- Dietary/mode of life — inadequate fibre, immobility
- Neurologic — Parkinson's disease, multiple sclerosis, spinal cord injuries
- Endocrine — diabetes, hypothyroidism, hypercalcemia
- Drug toxicity — opiate analgesics, calcium-channel blockers, antidepressants, clonidine
- Other — colorectal cancer, ovarian cancer, bowel obstruction, diverticular disease, endometriosis

Abbreviations: PPIs: proton pump inhibitors; NSAIDs: non-steroidal anti-inflammatory drugs; ACE: angiotensin converting enzyme

Table 4: *Lifestyle: diet and physical activity*

- Assess diet and nutrition and give general advice (Table 5)
- Assess physical activity levels, ideally using the General Practice Physical Activity
- Questionnaire (GPPAQ).
- Give people with low activity levels advice and counselling to increase
- their activity.
- Provide information about self-help covering lifestyle, physical activity, diet and
- symptom-targeted medication.
- Encourage people to identify and make the most of their leisure time and to
- create relaxation time.
- If the person wants to try probiotics, advise them to take the dose recommended
- by the manufacturer for at least 4 weeks while monitoring the effect.
- Discourage use of aloe vera for IBS.

Adapted from NICE guidelines[18]

Exercise

Current guidelines advise an increase in physical activity in patients with low activity levels. Again, studies regarding this issue are few and inconclusive, and it is still doubtful whether exercise has any effect at all on bowel movements, even in the general population.[25] Having said that, the benefits of exercise on health in general are indisputable, so that regular exercise should still be recommended to patients.

Probiotics

There is a growing amount of evidence showing that some probiotics are effective in relieving various IBS symptoms, especially abdominal pain and bloating. There is no general consensus about the best ones. Nevertheless all the studies agree that none of them cause any adverse effects.[26] Current guidelines leave the choice of probiotic use to the patient, with the proviso that it is taken at the recommended dose for at least 4 weeks, while monitoring its effect.

Aloe Vera

Aloe Vera, though not commonly prescribed, is often bought by IBS patients, with variable results. Studies have been unable to definitely prove its effectiveness in IBS, while proving that it can cause serious side effects.[27] As a result, its use in IBS is often discouraged.

Pharmacological interventions

First-line treatment

Antispasmodics

Antispasmodics help alleviate the pain, which is always present at some point and despite doubts about their efficacy, several studies have confirmed their efficacy in dealing not only with pain, but also with symptoms in general, by reducing the exaggerated gastro-colonic reflex.[28] It is recommended that they are taken 30-45 minutes before a meal.

Laxatives

These are obviously the agents of choice in dealing with constipation. The studies available involve patients with acute or chronic constipation of different causes, rather than just IBS-C. Polyethylene glycol based laxatives emerged as the most effective and well tolerated laxatives in chronic constipation (better than ispaghula husk, which in turn, is better than lactulose).[29-31] The use of lactulose is not recommended.[18] Stimulant laxatives (eg. docusate sodium, glycerol, senna) act erratically and are associated with tachyphylaxis and dependency. Stimulants are therefore generally recommended only for occasional use.

Antimotility agents

Loperamide is the most popular agent of this class. It reduces diarrhoea in patients with IBS-D[32] but has little effect on abdominal pain.[33] Tachyphylaxis does not develop with chronic dosing and it is not associated with confusion or anticholinergic side effects (as in cophenotrope), or nausea and dysphoria (codeine phosphate).[34] It is important to teach patients how to titrate its dose according to stool consistency, aiming to get a soft, well formed stool.

Second-line treatment

Antidepressants

The NICE guidelines recommend moving on to tricyclic antidepressants (TCAs) or SSRIs if fist-line treatments do not help. The idea here is to use them as analgesics, (rather than anti-depressants) so low initial doses are advised (5–10 mg equivalent of amitriptyline).[35] TCAs should be used first, starting at a low dose, taken once at night (because of sedation and to aid compliance), with follow up after 4 weeks, increasing dose as needed.[36] It should be continued for 6 to 12 months, during which careful monitoring of side effects should be done, and after which dose tapering may be attempted.[36] If TCAs are ineffective, selective serotonin re-uptake inhibitors (SSRIs) are used as they are effective in improving general well-being (but not bowel symptoms or pain).[37]

Psychological Interventions

Anxiety and depression are common in IBS and patients report a close relation between stress and their gut symptoms, providing a pragmatic rationale for psychological therapy.

Relaxation training is useful when stress causes exacerbation of symptoms, which can be relieved by progressive muscle relaxation, biofeedback, and transcendental or yoga meditations.[38] The evidence for the efficacy of cognitive behavioural therapy remains controversial.[39] One study in particular suggests that CBT may help patients cope with their

Table 5: *General dietary advice*

- Regular meals, at frequent intervals.
- ≥8 cups of fluid per day, especially water or other non-caffeinated drinks such as herbal teas.
- ≤ three cups of tea and coffee per day
- Reduce intake of alcohol and fizzy drinks.
- Fibre : Reduce intake of insoluble fibre (for example, wholemeal or high-fibre flour and breads, cereals high in bran, and whole grains such as brown rice). If more fibre is needed (constipation, wind and bloating), take soluble fibre such as ispaghula powder, or foods high in soluble fibre (for example, oat cereals or porridge) and linseeds (up to one tablespoon per day).
- Reduce intake of 'resistant starch', often found in processed or re-cooked foods.
- Limit fresh fruit to three portions (of 80g each) per day.
- For diarrhoea, avoid sorbitol, found in sugar-free sweets (including chewing gum) and drinks, and in some diabetic and slimming products.

Adapted from NICE guidelines[18]

symptoms without necessarily abolishing them.[39] The evidence for hypnotherapy is more compelling, showing that it improves many of the features of the condition, including quality of life and psychological status.[40] The beneficial effects appear to be sustained over time, with patients reporting continued relief from symptoms for at least five years.[41] Psychodynamic interpersonal therapy (PIT) may lead to significant life changes as well as to an improvement in emotional state and IBS symptoms.[42] Current guidelines recommend these psychological interventions in refractory IBS which does not respond to first-line pharmacological treatment after 12 months.

Complementary therapies

Despite limited evidence favouring the use of complementary therapies, they are becoming increasingly popular in developed countries, especially in chronic conditions refractive to conventional medicine. Very few complementary disciplines have been studied regarding their use in IBS; the three main ones being reflexology, acupuncture and herbal medicine. Studies on the first two conclude that there is nothing to suggest any specific benefit for patients with IBS[43],[44] and they should not be recommended in IBS, pending further studies.[18] Herbal medicine involves the use of a wide variety of herbal preparations in different combinations, thus making practice recommendations difficult. The evidence available suggests that some herbal preparations are effective in some people[45], but guidelines steer clear from general conclusions and further studies are still awaited.

The Role of the GP

The general practitioner is the patient's first point of contact, and in most cases, the one who has been dealing with the patient's problems for years. The onus is on him/her to diagnose this condition accurately and with certainty, so that management can be initiated as soon as possible and without undue investigations and referrals. Once the diagnosis is made, the GP should offer help not only in the form of medication, but also by providing lifestyle advice, referral to support groups, and sources of patient information. Unfortunately, there are no local IBS support groups, but plenty of online ones where one can interact with other IBS sufferers and share experiences.[46] In this way the patient will share the responsibility of his management with his/her GP, enabling him to cope more effectively with his symptoms and improve his quality of life, while reducing referrals to secondary care.[47] Having said that, the GP should be familiar with the alarm features which warrant immediate referral to secondary care, even after a confident diagnosis of IBS is made.

Returning to our businessman, a careful history and examination should be done to confirm or exclude IBS. If alarm features are present, immediate referral to secondary care is advised. If none are present, the basic blood tests mentioned before, should be carried out. If IBS is confirmed, antispasmodics should be used to alleviate the pain, while using laxatives and antimotility agents, depending on the particular pattern exhibited at the time. A trial of probiotics can be prescribed, while psychological intervention and self help advice can help him deal with stress and improve his quality of life. Regular review of the patient is recommended, not only to monitor response to treatment, but also to reinforce lifestyle modifications and use the consultation as an ongoing therapeutic intervention to assist him in coping with the symptoms and optimize his social functioning and quality of life. Initially a once weekly appointment can be scheduled. Follow-up appointments are adjusted according to response.

Conclusion

For a long time now, this condition has been relegated to the ranks of the functional bowel disorders, which are only diagnosed by exclusion. Its consequences are often underestimated, because it is not a 'life-threatening illness' and doctors often heave a sigh of relief once they diagnose IBS, as if it is of no consequence. The truth is that this can be a debilitating disease leading to distress, frustration, severe anxiety and in some cases, social isolation. As such it should be treated with respect.

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