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FOOD ALLERGY IN CHILDREN: A PRACTICAL APPROACH

PRIMARY CARE GUIDE TO DIETARY MANAGEMENT OF IRRITABLE BOWEL SYNDROME

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REVIEW

Primary care guide to the dietary management of irritable bowel syndrome

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INTRODUCTION

Irritable bowel syndrome (IBS) is a functional bowel disorder characterised by symptoms of abdominal pain or discomfort that is associated with disturbed defecation.

PREVALENCE

Irritable bowel syndrome most commonly occurs between the ages of 20 and 30 years, and women are twice as likely to suffer as men. It is estimated that 15% of the population will experience symptoms of IBS, with up to half of these presenting to primary care clinicians (Lee, 2009). Recent trends indicate that there is a significant prevalence of IBS in older people. The true prevalence of IBS in the whole population may be higher, as it is thought that only a quarter of IBS patients seek medical advice.

CAUSES

Gut hypersensitivity, disturbed colonic motility, post-infective bowel dysfunction or a defective anti-nociceptive (anti-pain) system are all cited as possible causes. One study showed that the occurrence of bacterial gastroenteritis (*Campylobacter*, *Shigella* and *Salmonella*) in the previous 12-month period was strongly predictive of new-onset IBS (Spiller, 2007). Stress commonly aggravates the disorder, with 50% of IBS patients attributing the onset of IBS to a stressful event. Many patients believe that certain types of food, such as lactose, gluten and coffee, exacerbate their symptoms.

DIAGNOSIS

Making the correct diagnosis is crucial. A history of unexplained weight loss, rectal bleeding, family history of bowel or ovarian cancer or more frequent stool persisting for more than six weeks in the over-60s requires further investigation.

A diagnosis should be considered if the person has abdominal pain or altered bowel frequency or stool form. This should be accompanied by two of the following four symptoms:

- Altered stool passage – straining, a feeling of incomplete evacuation and/or urgency
- Passing of mucus
- Abdominal bloating, distension, tension or hardness
- Symptoms aggravated by eating.

Patients can present with other problems such as tiredness, nausea, urinary/gynaecological symptoms, back pain, migraine and depression.

REVIEW OF ASSOCIATIONS BETWEEN DIET AND IBS

Many patients with IBS change their diets in order to control symptoms, which can lead to an unnecessarily restrictive diet. This can lead to diets deficient in key nutrients such as vitamins or minerals.

The traditional dietary approach was to recommend a diet high in fibre but many patients find that this worsens their symptoms (Woolner, 2000). Wheat, resistant starch, caffeine, fructose, sorbitol, alcohol and fizzy drinks have been documented frequently as causing problems.

Dietary fibre

Fibre is defined as non-starch polysaccharides (NSPs). Dietary fibre is food material that is not hydrolysed by enzymes secreted by the gastrointestinal tract. Soluble NSPs form a gel and are fermented by the colonic microbiota increasing bacterial numbers and colonic bulking activity. Soluble fibre is of benefit in patients suffering with constipation. Dietary sources include oats, psyllium, ispaghula, nuts and seeds, some fruit and vegetables (McIntyre, 1997).

Insoluble NSP is not readily broken down by the gastrointestinal microbiota and it increases faecal bulk and decreases colonic transit time. It is found in wheat bran, corn, edible skins and certain vegetables. Wheat bran worsened symptoms in 55% of patients whilst only 10% reported improvement in constipation (Francis, 1994).

Wheat

Wheat is found in bread, many breakfast cereals, pasta, cakes and biscuits, and is one of the major cereals consumed in Ireland. In IBS, wheat consumption is often associated with increased symptoms which may be due to the content of fibre, fructans or resistant starch. Increasing the variety of other cereals and reducing, but not necessarily excluding, wheat, may be beneficial in IBS.

Resistant starches

Resistant starch is the sum of starch and products of starch

degradation not absorbed in the small intestine of healthy individuals (Englyst and Cummings, 1987). Digestibility of resistant starch in the large bowel is very variable. Anaerobic fermentation is the colonic phase of carbohydrate digestion; the main products are short chain fatty acids. Cummings et al (1996) found an average breakdown of 80% to 90%. The Western diet contains 3-20g/day of resistant starches. Processing techniques, resistant starches used to partially replace fat, and prepared chilled and frozen meals could increase consumption.

Lactose

One-third of patients with IBS reported lactose intolerance when consuming up to 20g of lactose, although only half were lactose maldigesters (Burden 2001). Undigested lactose passes into the colon where it can be fermented. Exclusion of lactose from the diet may not lead to complete symptom relief in IBS and may lead to an inadequate intake of calcium. Often people with lactose intolerance can manage 10g to 12g lactose per day if spread throughout the day. It is possible to provide a sufficient amount of dairy foods to maintain a balanced diet (Mascolo, 1998).

Fructose

Incomplete fructose absorption can cause gastrointestinal symptoms of bloating, diarrhoea and abdominal discomfort (Skoog, 2004). Patients with positive hydrogen breath tests for fructose are shown to benefit from a dietary fructose restriction (Sheppard, 2006).

Sorbitol

Sorbitol is found naturally in fruits but it is also manufactured as a low calorie sweetener, e.g. in sugar-free chewing gum, sweets and diabetic products. In large quantities, 30g/day, it causes osmotic diarrhoea, but patients with IBS may be symptomatic at lower amounts (Thomas, 1992).

Caffeine

Caffeine has stimulatory effects on the digestive system but there is little evidence that it will cause gastrointestinal dysfunction. Advice should be targeted at patients consuming large quantities.

Probiotics and prebiotics

In randomised control trials of probiotics, studies have shown improvements in abdominal pain, bloating and wind. Studies varied in the length of treatment, number, type, dosage and strengths of probiotics used. One study by Brenner 2009 showed that using *B infantis* 35624 at dosage level of 10^8 cfu is effective in reducing symptoms of IBS by four weeks. *L plantarum* DSM 9843 also relieved abdominal pain and discomfort.

Prebiotics are defined as a non-digestible food ingredient that affect the host by stimulating the growth and/or activity of one or

more bacteria in the colon and may be beneficial. More controlled studies may be required. These include fructo-oligosaccharides (FOS), inulin, lactulose and galacto-oligosaccharides (GOS). Synbiotics are defined as a mixture of pre and probiotics whose benefits exceed the individual effects (bifidobacterium and inulin).

Colonic fermentation

Some of the symptoms of IBS, such as bloating, wind and diarrhoea, may be due to colonic fermentation by intestinal microflora of certain dietary constituents to short chain fatty acids and gases (Barbara, 2005). The dietary constituents include non-absorbed lactose, dietary fibre/non-starch polysaccharides, resistant starches and oligosaccharides from wheat and other grains.

Peppermint oil

In studies with peppermint oil, it was found to be better than placebo when taken two to three times daily. Fifty per cent of patients reported relief of symptoms, although study numbers were small (Napoli, 2009).

Aloe vera

Aloe vera is not recommended for the treatment of IBS (NICE, 2008).

DIETARY INTERVENTIONS TO IMPROVE SYMPTOMS

Dietary assessment

Dietary modification in the treatment of IBS patients has to rely upon the assessment of the individual's symptoms in relation to a detailed evaluation of their habitable intake.

Management

Management focuses on the relief of symptoms. These include diet and lifestyle changes, patient education, medications and behavioural therapies. Reassure patients that dietary changes can take several weeks to give symptom relief.

Dietary guidelines

All patients should be advised to:

- Have regular meals and try eating more slowly
- Have smaller meals more often
- Drink at least eight cups of fluid per day, especially water or other non-caffeinated drinks
- Limit tea and coffee to three cups per day
- Decrease intake of alcohol and fizzy drinks.

Dietary treatment is based on symptoms

If the patient suffers from constipation then advise the following:

- Gradually increase the intake of soluble fibre, such as porridge, peas, beans and lentils
- Aim for five servings of fruit and vegetables per day
- Try adding seeds such as linseed to your diet, gradually up to

a maximum of one tablespoon per day

- Drink plenty of fluids without caffeine
- Use synthetic fibre supplements such as methylcellulose or ispaghula.

If diarrhoea is the main symptom then:

- Decrease intake of high-fibre food, such as wholemeal breads, cereals enriched with bran and wholegrains such as brown rice
- Avoid sorbitol, an artificial sweetener found in sugar-free sweets (including chewing gum) and drinks. This can be found in diabetic and slimming products
- Cut down on processed or recooked foods high in resistant starch, cereal products such as cakes, biscuits and breakfast cereals, bread, cold or reheated potatoes, unripe bananas
- Limit intake of fruit to two to three pieces a day.

If bloating is the main symptom then:

- Gradually increase the intake of soluble fibre, such as porridge
- Cut down on processed or recooked foods high in resistant starch, cereal products such as cakes, biscuits and breakfast cereals, bread, cold or reheated potatoes, unripe bananas
- Limit intake of certain fruit and vegetables
- Peppermint oil may be beneficial.

Probiotics may improve certain symptoms of IBS. Patients should be advised to take the product for at least four weeks at the dose recommended by the manufacturer (Hoveyda, 2009).

CONCLUSION

Dietary advice will vary depending on the symptoms, such as diarrhoea and/or constipation, abdominal bloating, and therefore needs to be tailored to the individual. Expert professional advice on diet and nutrition for IBS should be obtained from a dietitian who is a member of the Irish Nutrition and Dietetic Institute (INDI). It is important to monitor and support the patient, and adjust diet if symptoms don't resolve with the initial treatment.

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