

Information for Clinicians

Clinical Biochemistry Department

Faecal calprotectin pathway for primary care

Irritable bowel syndrome (IBS) is common, affecting up to 25 % of the UK population. In general, IBS can be managed in primary care, however as the symptoms can be difficult to differentiate from inflammatory bowel disease (IBD) many patients are still referred and account for 28% of gastroenterology appointments.

Faecal calprotectin is a test that can help reduce these referrals by differentiating between the two conditions. Calprotectin is recommended by NICE in adults with recent onset of lower gastrointestinal symptoms **for whom a specialist assessment is being considered, and when cancer is not suspected.**

Faecal calprotectin is a calcium binding protein which constitutes 60% of neutrophil cytosol therefore it is released during inflammation of the bowel. It is not degraded by gut enzymes and is stable in the sample for up to a week therefore can be assessed by sending a stool sample to the laboratory. The amount of calprotectin found in faeces is proportional to the amount of neutrophil migration through the gut wall and the level increases with the degree of inflammation. It is a sensitive test for inflammation but not specific to one cause. It will increase due to gut infections, diverticulitis, cancer, non-steroidal anti-inflammatories, coeliac disease and cirrhosis as well as inflammatory bowel disease.^{1, 2, 3}

The RUH faecal calprotectin pathway is based on the York Faecal calprotectin care pathway which is endorsed by NHS England.⁵ It can be used in adults 18-50 years but as the prevalence of colorectal cancer increases with age there is debate regarding the appropriate age group for use; above the age of 50 we advise considering FIT testing to exclude colorectal carcinoma. Faecal calprotectin is not sensitive enough in the exclusion of colorectal carcinoma. Faecal immunochemical tests (FIT) are recommended in primary care to guide referral for suspected colorectal cancer in people without rectal bleeding, who have unexplained symptoms but do not meet the criteria for a suspected cancer pathway referral (no weight loss, or under 60 with iron deficiency anaemia or changes in bowel habit). Therefore, the history, clinical suspicion and in particular age will determine which test is required.

Faecal calprotectin should **not** be used in;

- Patients with red flag symptoms (rectal bleeding, unintentional weight loss, nocturnal diarrhoea, anaemia, rectal mass, abdominal mass, significant history of bowel and/or ovarian cancer)
- Screening/surveillance for polyps or bowel cancer
- Patients >50 years old with a new change in bowel habit

Interpretation

Initial Faecal calprotectin (FC) result:

FC <100mcg/g: IBD is unlikely in this group of patients and they should be treated for IBS (negative prediction value 98%). If at review the patient is still symptomatic, they should have a repeat calprotectin.

FC 100-250mcg/g: Borderline result. There may be mild inflammation, therefore exclude other causes of raised calprotectin such as gut infections, diverticulitis, non-steroidal anti-inflammatories, proton pump inhibitors, coeliac disease and cirrhosis then repeat in 6 weeks.

FC >250mcg/g: In undiagnosed patients with no red flags or suspicion of acute severe IBD the patient should be reviewed in primary care. A repeat should be considered if clinically well and the result appears incongruous with clinical picture. If symptoms are significant or worsening refer urgently to gastroenterology.

Repeat Faecal calprotectin (FC) result:

It is important that a repeat test should only be done after excluding other causes of raised calprotectin such as gut infections, diverticulitis, non-steroidal anti-inflammatories, proton pump inhibitors, coeliac disease and cirrhosis. Repeat test interpretation;

FC >250mcg/g: Urgent referral to gastroenterology

FC 100-250mcg/g: Routine referral to gastroenterology

FC 50-100mcg/g: IBD unlikely but if still symptomatic after pharmacological and dietetic interventions then a routine referral to gastroenterology should be considered.

FC <50mcg/g: IBD excluded. A threshold of 50mcg/g has a negative predictive value 99%.

Faecal calprotectin can also be used by gastroenterologists to determine whether IBD is in remission and predict the likelihood of relapse; however in primary care it is only commissioned for use in the inflammatory bowel pathway.

Sample requirements

Special Precautions & Notes: None.

Container: Blue top universal with spoon

Ideal Volume (mL): 5 g

Sample stability: 3 days



Diagnosis of IBS

A positive diagnosis is important in the management of IBS.

According to NICE CG61 consider a diagnosis of IBS when:

Abdominal pain eased with defaecation or associated with altered bowel frequency accompanied by >2 of following:

- Altered stool passage
- Abdominal bloating
- Made worse by eating
- Passage of mucus

Rome III diagnostic criteria for irritable bowel syndrome:

Recurrent abdominal pain or discomfort at least 3 days a month in the past 3 months, associated with two or more of the following:

- Improvement with defecation
- Onset associated with a change in frequency of stool
- Onset associated with a change in form (appearance) of stool

Criteria fulfilled for the past 3 months with symptom onset at least 6 months before diagnosis.

Helpful diagnostic behavioural features of IBS in general practice⁶:

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- Symptoms present for more than 6 months
- Frequent consultations for non-gastrointestinal symptoms
- Previous medically unexplained symptoms
- Patient reports that stress aggravates symptoms

Differential diagnosis of diarrhoea predominant IBS

- Microscopic colitis
- Coeliac disease
- Giardiasis
- Lactose malabsorption
- Bile salt malabsorption
- Colon cancer

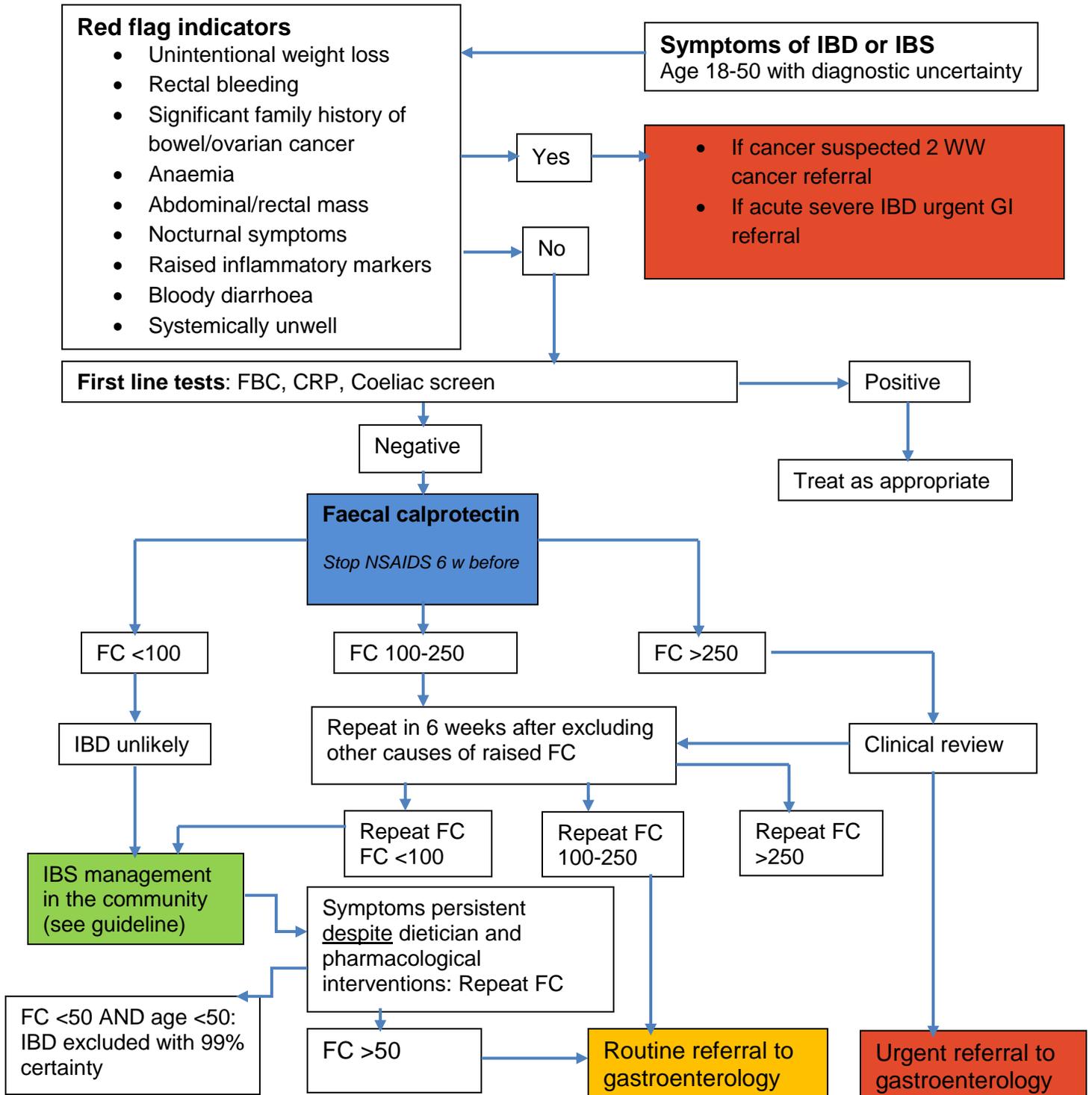
IBS management in the community

The management of irritable bowel syndrome (IBS) should be individualized to the person's symptoms and psychosocial situation, and should initially include diet and lifestyle advice. Following this drug and behavioural interventions can be considered.

1. The history is essential to exclude red flag symptoms but also to evaluate psychosocial factors
2. Exclude infectious gastroenteritis/giardia if acute onset of diarrhoea
3. Make a positive diagnosis and provide a clear explanation of the cause, nature of symptoms and an honest appraisal of prognosis and treatment options.
4. Offer sources of information and support, such as:
 - a. The NHS patient leaflet [Irritable bowel syndrome](#).
 - b. The gut and liver disease charity CORE (website available at corecharity.org.uk) provides support for patients and families
 - c. The IBS Network is a national charity supporting people living with irritable bowel syndrome (website available at www.theibsnetwork.org) which has multiple [self-help information](#) pages and runs local support groups.
5. Dietary changes: Advise the person to drink plenty of fluids, eat regular meals with a healthy, balanced diet, and to adjust their fibre intake according to symptoms. Advise regular exercise and weight loss.
6. If there are predominant symptoms of diarrhoea and/or bloating, advise the person to:
 - Reduce their intake of insoluble fibre, such as wholemeal or high-fibre flour and breads, cereals high in bran, and whole grains such as brown rice.
 - Consider reducing foods that may exacerbate symptoms, such as caffeine, alcohol, carbonated drinks, and gas-producing foods.

- Consider Loperamide
 - Consider probiotics (need to be taken for at 4 weeks)
 - Consider SSRI's/Tricyclic antidepressants
7. If there are predominant symptoms of constipation, advise the person to:
 - Try soluble fibre supplements (for example fybogel) or foods high in soluble fibre (for example oats and linseed).
 - Gradually increase fibre intake to minimize flatulence and bloating, and be aware that beneficial effects may be seen after several weeks.
 - Consider Movicol or senna
 - Consider SSRI's
 8. If there is predominant pain consider anti-spasmodics, tricyclic antidepressant or alternative antidepressant (SSRI's such as Fluoxetine/paroxetine)
 9. Help the patient identify any stress, anxiety or depression. Psychological therapies may help (relaxation therapy, CBT, hypnotherapy) and co-existing psychological pathology should be treated.

Differentiating IBD and IBS with Faecal calprotectin in adults



Related Documents

Clinical Biochemistry test information – RUH Pathology website

Reference Sources

1. NICE (October 2013). Faecal calprotectin diagnostic tests for inflammatory diseases of the bowel
2. Dhaliwal A, et al. Frontline Gastroenterology 2014. Utility of faecal calprotectin in inflammatory bowel disease (IBD): what cut-offs should we apply? ; 0:1–6. doi:10.1136/flgastro-2013-100420
3. Mowat, C., et al. Gut 2015. Faecal haemoglobin and faecal calprotectin as indicators of bowel disease in patients presenting to primary care with bowel symptoms. 10.1136/gutjnl-2015-30957
4. N Waugh, et al. Faecal calprotectin testing for differentiating amongst inflammatory and non-inflammatory bowel diseases: Systematic review and economic evaluation. Health Technology Assessment Volume 17 issue 55 Nov 2013. ISSN 1366-5278
5. Turvill et al. Evaluation of a faecal calprotectin care pathway for use in primary care. Prim Health Care Res Dev. 2016 Sep
6. Guidelines on the Irritable Bowel Syndrome: Mechanisms and Practical Management BSG 2007
7. NICE Irritable bowel syndrome in adults: diagnosis and management CG61 April 2017

Further sources of Information

For clinical advice regarding the use of faecal calprotectin please contact the duty biochemist on 01225 824050 Monday –Friday 9am-5pm.