

FAECAL CALPROTECTIN

Who should be tested?

Calprotectin is an S-100 protein (mainly produced by neutrophils) measured in stool and is a non-specific marker of inflammation. It is relatively sensitive for inflammatory bowel disease (IBD) at around 97%, but is **NOT** very specific (approximately 70%). In children over 5 years of age with a high clinical suspicion of IBD (persistent diarrhoea with or without blood, abdominal pain, weight loss, family history of IBD) and in the context of a negative stool infection screen, we recommend urgent referral to the RHSC GI team with a calprotectin sent concurrently.

Like adult practice, the relevance of faecal calprotectin testing is to determine who requires further, more invasive, investigation and to help understand if inflammation is playing a part in the patient's symptoms (i.e. IBS versus IBD). We are keen that this test is performed in the workup of relevant children along with relevant blood testing and either performed in primary care or at RHSC as part of the open access service.

Who should not be tested?

Not only are children under the age of 5 years less likely to present with IBD but baseline faecal calprotectin is higher in this age group making interpretation more difficult therefore this should be avoided. Faecal calprotectin should also not be performed in children on aspirin or NSAIDs or who are recovering from (within 4 weeks) an obvious gastrointestinal infection; it should be routine to send stools concurrently for bacteriology (C diff in selected cases if there is suspicion and risk factors) and virology when requesting a faecal calprotectin. Faecal calprotectin may also be elevated in *Helicobacter* infection, giardia infection, coeliac disease, cow's milk protein allergy (CMPA), and in children with polyps.

What is an abnormal result?

The normal adult range regularly quoted is not always relevant for children (i.e. less than 50ug/g).

As for what a relevant positive result is, there is good data to suggest the best cut-off for sensitivity/specificity, with relation to a diagnosis of IBD, is when the result is **over 200ug/g**. It would therefore be reasonable to suggest that **100-200ug/g is equivocal** and **below 100 is seldom relevant (it is highly likely to be normal for that child)**. However, symptomatology, blood results and clinical acumen should never be over-ruled by a normal result; always discuss a result if in any doubt. For example, isolated oral and perianal Crohn's disease can occur in children, and who can have a normal faecal calprotectin if neither the small nor large bowel is inflamed.

In those with an equivocal result, and in the light of ongoing symptoms, we would recommend repeating the test after a month or discuss the result to obtain further advice. The test is not fool-proof and clinical correlation is always required.

Alternative diagnoses in chronic loose stools?

In children other common issues need to be thought of alongside potential inflammation. See our Refhelp pages on loose stools in children:

http://www.refhelp.scot.nhs.uk/index.php?option=com_content&view=article&id=636:chronic-diarrhoea-acute-and-chronic-bloody-diarrhoea-and-potential-ibd&catid=95:paediatric-gi&Itemid=104

If you are unsure about who should be tested or require further advice please contact the GI team at RHSC – details are on our Refhelp homepage.

Peter Gillett, Paul Henderson, David Wilson, Consultant Gastroenterologists RHSC