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ORIGINAL ARTICLE

Faecal calprotectin, an useful marker in discriminating between inflammatory bowel disease and functional gastrointestinal disorders☆

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Abstract
Introduction: Diagnostic discrimination between inflammatory bowel disease (IBD) and functional gastrointestinal disorders is complex, as they cause similar signs and symptoms. Faecal calprotectin (FC) is a useful marker in this context, and can be used to select patients who will most benefit from colonoscopy. The aim of this study was to evaluate the utility of FC in discriminating between organic disease and functional disorders.
Materials and methods: The study included 264 patients presenting with gastrointestinal complaints consistent with an organic pathology. FC levels were determined and diagnostic accuracy was assessed using the area under the curve obtained from the final diagnosis.
Results: Calprotectin levels in organic bowel disease patients were significantly higher (median 254 μg/g; 95% confidence interval [CI], interquartile range 105–588.5) than in functional disease patients (95 μg/g; 95% CI, 47.25–243.92) ($p < .0001$). Similarly, in patients with IBD, the values obtained were higher (270.85 μg/g; 95% CI, 96.85–674.00) than in those with irritable bowel syndrome (79.70 μg/g; 95% CI, 36.50–117.25) ($p < .0001$). For a cut-off of 150 μg/g, FC had an area under the ROC curve to discriminate between organic and functional disease of 0.718, and 0.872 to discriminate between irritable bowel syndrome and IBD.

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Conclusion: Our study supports the importance of FC as a marker in the evaluation of patients with IBD. The best diagnostic accuracy is obtained at a cut-off value of 150 μg/g.

PALABRAS CLAVE
Calprotectina fecal;
Enfermedad inflamatoria intestinal;
Síndrome del intestino irritable;
Patología intestinal orgánica;
Trastorno funcional gastrointestinal;
Punto de corte

Calprotectina fecal, marcador eficaz en la diferenciación de enfermedades inflamatorias intestinales y trastornos funcionales gastrointestinales

Resumen
Introducción: La discriminación entre enfermedades inflamatorias intestinales (EII) y trastornos funcionales gastrointestinales es compleja debido a que pueden presentar cuadros clínicos similares. La calprotectina fecal (CPF) es un marcador inflamatorio útil para este fin y permite seleccionar a los pacientes que más se pueden beneficiar de someterse a una colonoscopia. El objetivo fundamental de este estudio fue valorar la utilidad de la CPF para diferenciar entre enfermedades orgánicas y funcionales.
Material y métodos: Se determinó la concentración de CPF de 264 pacientes que presentaban signos o síntomas gastrointestinales indicativos de enfermedad orgánica, y se calculó su precisión diagnóstica mediante el área bajo la curva a partir del diagnóstico final.
Resultados: Los pacientes con enfermedad orgánica presentaron valores de CPF mayores (mediana 254 μg/g; intervalo de confianza [IC] 95%, rango intercuartil 105-588,5) que el grupo con enfermedad funcional (95 μg/g; IC 95%, 47,25-243,92; p < 0,0001), así como el grupo con EII (270,85 μg/g; IC 95%, 96,85-674,00) obtuvo valores más elevados que el grupo con síndrome del intestino irritable (79,70; IC 95%, 36,50-117,25; p < 0,0001). Para un valor de corte de 150 μg/g se obtuvo un valor del área bajo la curva de 0,718 para discriminar entre enfermedad orgánica y funcional, y de 0,872 para discriminar entre síndrome del intestino irritable y EII.
Conclusión: En este estudio se corrobora el alto valor de la CPF en la evaluación de pacientes con sospecha de EII. La mejor eficacia diagnóstica se consigue con un cut-off de 150 μg/g para la discriminación entre EII y síndrome del intestino irritable.

Introduction

Abdominal pain or discomfort, accompanied by diarrhoea or constipation, is a common cause of primary care and gastroenterology consultations.[1] Many clinical symptoms that manifest in abdominal pain of functional origin are also common with other organic disorders,[2] particularly inflammatory bowel disease (IBD), so it is important to identify these patients early in order to avoid unnecessary studies.

Irritable bowel syndrome (IBS) is the most common gastrointestinal functional disorder, with a prevalence in Europe of around 10-15%. On the other hand, IBD is less common, with a prevalence of 0.1–0.2% for ulcerative colitis (UC) and 0.05–0.1% for Crohn's Disease (CD).[3] IBS has a benign course but is unpleasant, painful and greatly reduces the patient's quality of life.[4] The most common symptoms are abdominal pain, bloating and/or impaired defecation. The pathophysiological basis has not been fully established, but several factors have been proposed: alterations in intestinal motility, visceral hypersensitivity, psychological disorders and inflammatory and postinfectious mechanisms.[5] About 3% of primary care consultations and 16–25% of gastroenterology consultations are due to this condition.[6] In contrast, IBD is a chronic inflammatory disorder of the gastrointestinal tract comprising 2 major entities: UC and CD, whose progression alternates bouts of inflammatory activity with periods of remission and can lead to severe complications, requiring in some cases hospital admissions. UC is characterised by continuous inflammation of the mucosa of the colon, whereas CD presents a discontinuous and transmural involvement that may involve any part of the digestive tract, although it most commonly affects the terminal ileum and in the colon. As for its aetiology, there are no new relevant data on IBD,[7] but its cause is believed to be multifactorial, resulting from a complex interaction between genetic, environmental and individual factors of the patients' immune system.

The clinical suspicion of IBD generally results in the practice of a blood test, a stool analysis, an endoscopy (sigmoidoscopy or colonoscopy), a biopsy and imaging studies, which help to exclude other causes and confirm the diagnosis.

Endoscopy remains the gold standard, as it allows the intestinal mucosa to be directly viewed and biopsied. However, it is an examination that has some risks and limitations because it is an invasive, operator-dependent procedure that is both unpleasant and requires preparation and anaesthesia for paediatric patients, in addition to being relatively expensive. It is estimated that more than 60% of the