



Idiopathic ulcerative colitis and fecal calprotectin as a marker of remission

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ORIGINAL RESEARCH ARTICLE

ABSTRACT

This research sought articles, reviews, descriptive studies, cohort studies, and medical record analysis, whose theme brought a survey of the most recent studies in the literature regarding fecal calprotectin (FC) cutoff values indicative of clinical remission for Idiopathic Ulcerative Colitis (UC). FC was presented during this review as a potential biomarker of clinical, endoscopic, and histological remission in patients with UC. In addition, some studies have shown that the use of FC in patients being monitored for UC resulted in lower costs to the system when compared to requesting follow-up colonoscopies.

Keywords: Fecal Calprotectin, Idiopathic Ulcerative Colitis, Remission.

Colitis ulcerosa idiopática y calprotectina fecal como marcador de remisión

RESUMEN

Esta investigación buscó artículos, revisiones, estudios descriptivos, estudios de cohorte y análisis de historias clínicas. Su tema incluyó una revisión de los estudios más recientes en la literatura sobre los valores de corte de calprotectina fecal (CF) indicativos de remisión clínica en la colitis ulcerosa idiopática (CU). La CF se presentó en esta revisión como un posible biomarcador de remisión clínica, endoscópica e histológica en pacientes con CU. Además, algunos estudios han demostrado que el uso de CF en pacientes en seguimiento para CU resultó en menores costos para el sistema en comparación con la solicitud de colonoscopias de seguimiento.

Palabras clave: Calprotectina fecal, Colitis Ulcerosa Idiopática, Remisión.

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INTRODUCTION

Inflammatory bowel diseases (IBD) are idiopathic diseases that mainly affect the intestine through a chronic inflammatory process¹⁵. Within this group, Idiopathic Ulcerative Colitis (UIC) is one of the most common presentations, presenting with symptoms such as diarrhea, hematochezia, weight loss, abdominal pain, as well as other symptoms¹.

As an aid to clinical examination and anamnesis, especially in cases with undetermined activity, laboratory tests can be used as a non-invasive and informative way of determining whether or not UIC is active².

In UC, due to the chronic inflammatory stimulus under the colonic mucosa, neutrophils are recruited together with other defense cells, which promotes a greater increase in FC². Because it is a non-invasive test and has a lower cost than colonoscopy, fetal calprotectin (FC) has been used as an important biomarker in the monitoring and prediction of clinical, endoscopic and possibly histological remission in patients with UC².

However, it is still difficult to determine the exact FC values related to inflammatory activity and remission of the disease itself, unlike functional disorders of the GIT, where FC will normally be within normal limits, below 50 mg/dl³. Currently, the values proposed by the vast majority of FC kits are: FC > 50 ug/g and 250 ug/g, inflammatory activity is observed⁴. This article presented a survey of the most recent studies in the literature regarding CF cutoff values indicative of clinical remission.

METHODOLOGY

For this research, terms such as: “fecal calprotectin and ulcerative” and “fecal calprotectin and remission” were used. Through this research, we searched for articles, reviews, descriptive studies, cohort studies, and medical record analysis, between 2015 and 2025, whose theme was related to the association of CF dosage in patients with UC and the remission status of the disease in these patients.



RESULTS AND DISCUSSION

In this study, 1,092 articles were viewed, of which 82 were selected for full reading and only 8 were included. The ELISA laboratory method was used mainly for measuring FC in the selected studies. Among these articles included in our review, a total of 1,300 patients were counted.

ZITTAN et al, through a cohort study conducted with a sample of 35 patients being monitored for UC, obtained a sensitivity of 87% for FC < 100 ug/g as an indication of clinical remission of the disease⁵.

HASSAN et al, followed a group of 42 people diagnosed with UC for 90 days and undergoing treatment. According to him, 22 patients were in complete clinical remission, with a FC < 100 ug/g, obtaining a specificity of 90%⁶.

In another large study with a sample of 365 patients, it was observed that a FC < 80-100 ug/g was related to histological remission⁷. However, the inactivity of histological disease in UC is a divergent topic in the literature⁸. While some studies associate histological remission with a lower rate of recurrences and complications, such as colectomy, in addition to a reduced risk of colon cancer⁹; others highlight that, despite these positive points, few patients benefit⁸. In addition, some studies indicate that the risks and costs of achieving this goal become greater than the favorable points⁸.

To follow up patients with a confirmed diagnosis, Motaganahalli and Beswick conducted a cohort comparing expenses before and after insertion of the FC and how it could reduce requests for colonoscopies for IBD monitoring¹⁰. The conclusion of this study indicated that, before the FC, each colonoscopy cost 1,857.32 dollars per patient per year¹⁰. With the introduction of the CF, due to its initial screening with indications of normality or not, the costs of colonoscopy fell to 964.60 dollars per patient per year¹⁰.

Associating this study proposed above with the ideas of Mindemark and Larsson, the implementation of the CF could be of great help as a screening method, given that its cost is lower compared to colonoscopy¹⁰. Through the CF, the costs of the system would decrease through the selection of patients who really need endoscopic investigation.



FINAL CONSIDERATIONS

During this review, FC was presented as a potential biomarker of clinical, endoscopic and histological remission in patients with UC. Furthermore, some studies have shown that the use of FC in patients undergoing follow-up for UC resulted in lower costs to the system. This is highlighted by the lower request for follow-up colonoscopies compared to the FC dosage considered normal.

REFERENCES

- 1- GOLDMAN, L. & AUSIELLO, D. — Cecil: tratado de Medicina Interna. 23. ed., Rio de Janeiro, Elsevier, 2005.
- 2- TURNER, D. et al. STRIDE-II: An update on the Selecting Therapeutic Targets in Inflammatory Bowel Disease (STRIDE) initiative of the International Organization for the Study of IBD (IOIBD): Determining therapeutic goals for treat-to-target strategies in IBD. *Gastroenterology*, v. 160, n. 5, p. 1570–1583, 2021.
- 3- MAASER, C. et al. ECCO-ESGAR Guideline for Diagnostic Assessment in IBD Part 1: Initial diagnosis, monitoring of known IBD, detection of complications. *Journal of Crohn's & colitis*, v. 13, n. 2, p. 144–164, 2019.
- 4- LEE, J.-M. et al. A comparison of diagnostic performance between two quantitative rapid fecal calprotectin assays in detecting active inflammatory bowel disease. *PloS one*, v. 16, n. 8, p. e0255974, 2021.
- 5- ZITTAN, E. et al. Low fecal calprotectin correlates with histological remission and mucosal healing in ulcerative colitis and colonic Crohn's disease. *Inflammatory bowel diseases*, v. 22, n. 3, p. 623–630, 2016.
- 6- HASSAN, E. A. et al. Noninvasive biomarkers as surrogate predictors of clinical and endoscopic remission after infliximab induction in patients with refractory ulcerative colitis. *Saudi journal of gastroenterology: official journal of the Saudi Gastroenterology Association*, v. 23, n. 4, p. 238–245, 2017.
- 7- STEVENS, T. W. et al. Diagnostic accuracy of fecal calprotectin concentration in



evaluating therapeutic outcomes of patients with ulcerative colitis. *Clinical gastroenterology and hepatology: the official clinical practice journal of the American Gastroenterological Association*, v. 19, n. 11, p. 2333–2342, 2021.

8- TURNER, D. et al. STRIDE-II: An update on the Selecting Therapeutic Targets in Inflammatory Bowel Disease (STRIDE) initiative of the International Organization for the Study of IBD (IOIBD): Determining therapeutic goals for treat-to-target strategies in IBD. *Gastroenterology*, v. 160, n. 5, p. 1570–1583, 2021.

9- MAK, W. Y. et al. Fecal calprotectin in assessing endoscopic and histological remission in patients with ulcerative colitis. *Digestive diseases and sciences*, v. 63, n. 5, p. 1294–1301, 2018.

10- MOTAGANAHALLI, S. et al. Faecal calprotectin delivers on convenience, cost reduction and clinical decision-making in inflammatory bowel disease: a real-world cohort study: Faecal calprotectin in IBD. *Internal medicine journal*, v. 49, n. 1, p. 94–100, 2019.