

Efficient diagnosis for endoscopic remission in Crohn's diseases

by the combination of three non-invasive markers

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ABSTRACT

Background: Serum C-reactive protein (CRP), leucine-rich alpha-2 glycoprotein (LRG), and fecal calprotectin (Fcal) are non-invasive markers used to assess Crohn's disease (CD) severity. However, the accuracy of these markers alone is often limited, and most previous reports have evaluated the efficacy of each marker individually. We aimed to improve the diagnostic performance of endoscopic remission (ER) of CD by combining these 3 markers.

Methods: We tested the diagnostic ability of various combinations of these 3 markers for endoscopic severity in 230 consecutive patients with CD from September 2014 to July 2023. The modified Simple Endoscopic Score for Crohn's disease (mSES-CD) was used to determine endoscopic severity.

Results: Each of the 3 markers was correlated with mSED-CD (LRG: $r = 0.69$, CRP: $r = 0.60$, and Fcal: $r = 0.67$). A combination of 2 of the 3 markers did not increase the diagnostic accuracy of ER. However, by combining all 3 markers, the diagnostic ability for ER was improved in comparison to the diagnostic ability of the 3 individual markers, assuming that ER was obtained if 2 or 3 markers were negative. The sensitivity, specificity, and accuracy were 89%, 83%, and 86%, respectively. Additionally, we established a 2-step method using Fcal values after evaluating the 2 serum markers. This method was most useful for reducing both the patient burden and costs.

Conclusions: The newly established 2-step method allowed for a higher accuracy in the non-invasive diagnosis of ER when the 3 markers were combined.

Keywords: CD, Crohn's disease; LRG, leucine-rich alpha-2 glycoprotein; Fcal, fecal calprotectin; CRP, C-reactive protein; ER, endoscopic remission.