EDITORIAL

Could fecal calprotectin enter mainstream use for diagnosing and monitoring inflammatory bowel disease?

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Article: Accuracy of three different fecal calprotectin tests in the diagnosis of inflammatory bowel disease **(Intest Res 2016;14:305-313)**

Calprotectin is a heterodimer of the calcium binding proteins S100A8 and S100A9, and is mainly present in neutrophils.[1] Fecal calprotectin levels are correlated with the degree of intestinal inflammation, and have been found to increase when neutrophils migrate into the bowel lumen due to the inflammatory process.[2] Therefore, fecal calprotectin could help discriminate between IBD and IBS,[3] monitor treatment response and endoscopic disease activity,[4,5] and predict relapse for IBD.[6] Studies have also shown that fecal calprotectin levels are correlated with endoscopic severity scores[5] and the extent of inflammation in Asian patients with UC.[7] Coupled with the fact that it is a non-invasive and easily accessible test, the use of fecal calprotectin tests is expected to rise.

In this issue, Jang et al.[8] compared three kinds of fecal calprotectin assay kits (Quantum Blue® from Bühlmann Laborotories, Basel, Switzerland; EliA™ from Phadia AB, Uppsala, Sweden; and RIDASCREEN® from R-Biopharm AG, Darmstadt, Germany) in the diagnosis of IBD. All three are point of care immunoassay tests. The authors compared the sensitivity, specificity, and positive and negative predictive values of these three kits in discriminating between IBD and IBS. For patients diagnosed with IBD, the kits were used to evaluate the correlation between fecal calprotectin and disease activity or location.

The authors found that the overall accuracy for differentiating IBD from IBS or other types of colitis was 94% and 91% respectively for Quantum Blue® (cutoff, 50 µg/g); 92% and 89% for EliA™ (cutoff, 50 µg/g); and 82% and 76% for RIDAS-CREEN® (cutoff, 50 µg/g). The Quantum Blue® Calprotectin and EliA™ Calprotectin results were significantly correlated with the CDAI (Spearman's rank correlation coefficient r=0.66 and 0.49 respectively) in patients with CD. EliA™ Calprotectin was significantly correlated with the Mayo score (r=0.70) in UC patients. Thus, the authors concluded that fecal calprotectin levels were useful in identifying IBD. Overall, these three fecal calprotectin kits were comparable in accuracy.

Although this was a small-scale study, it provided practical and useful information on these three kits. This can help guide our daily clinical practice in terms of choosing an appropriate kit. Their results clearly demonstrated that all three fecal calprotectin kits were superior to CRP in distinguishing IBD from IBS and other types of colitis. In addition, the overall accuracies of these three kits were comparable. However, although there was good correlation between the different kits, it is inappropriate to directly compare the absolute calprotectin levels between the kits. Instead, the same kit should be used for follow-up comparisons. At present, cost appears to be the main factor affecting the choice of kit. The authors noted that the prices range from 20 to 33 US dollars per test, but also explained that the final cost might vary according to the number of tests submitted. When the availability and cost issues have been resolved, we can expect that fecal calprotectin will enter mainstream use for the diagnosis and monitoring of IBD.

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