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Invited Editorial

Intestinal Ultrasound Is the Ideal Patient-Centric, Point-of-Care Tool for Clinical Decision Making in the Inflammatory Bowel Disease Practice

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Crohn's disease (CD) and ulcerative colitis (UC) are transmural, chronic inflammatory bowel diseases (IBD) that are characterized by periods of relapsing and remitting disease and progressive bowel damage.[1,2] Early mucosal and transmural healing in UC and CD are each associated with reduced disease progression and improved long-term outcomes, yet current biologics and small molecules offer low net remission rates.[3–6] Strategies that incorporate treat-to-target and tight-control monitoring have been adopted as consensus recommendations to guide therapy optimization and improve rates of mucosal and transmural healing.[7] Although objective noninvasive biomarkers such as C-reactive protein (CRP) and fecal calprotectin (FC) have traditionally been the primary modes of disease activity assessment in these strategies, their use in combination with clinical symptom assessment alone has not dramatically improved remission rates.[8]

Intestinal ultrasound (IUS) is an emerging tool that adds significant value to CRP and FC when incorporated into a treat-to-target and tight-control monitory strategy. IUS is a noninvasive, point-of-care, real-time cross-sectional imaging modality that provides accurate disease activity assessment in patients with IBD without the need for fasting, bowel preparation, or contrast.[9] Although IUS may be the key to improving remission rates further, evidence to inform its optimal positioning and support its clinical utility is still limited, and additional understanding of its ability to guide clinical decision making in the absence of additional testing is needed.[10–12]

Saleh and Abraham are among the first to present evidence that supports the routine use of IUS in an IBD practice in the United States in their study, "The Utility of Intestinal Ultrasound in Clinical Decision-Making for Inflammatory Bowel Disease." In this study of 148 patients, the majority had active disease on IUS despite reporting clinical remission. IUS correlated well with the Ulcerative Colitis Activity Index and the Mayo Score, however unsurprisingly correlated poorly with the Harvey Bradshaw Index (HBI). CRP and erythrocyte sedimentation rate values were similar in patients with and without active disease on IUS, suggesting these were inadequate at reflecting the inflammation noted on IUS. Most importantly, IUS was used to drive clinical decision making—greater than 40% of patients with active disease on IUS underwent either treatment escalation or a change in therapy. In a subgroup of 39 patients with subsequent repeat IUS, significant improvement in IUS parameters was noted in 77%.

The results of this study are important for several reasons. First, they highlight the discordance between subjective and objective measures of disease activity. The presence of smoldering inflammation in the absence of clinical symptoms is likely a contributing factor to the progression of disease and our current inability to alter disease outcomes. By using point-of-care IUS, objective metrics are added to the subjective reports of patients, and a finer understanding of disease activity—beyond that which is gained with serum and stool biomarkers—is achieved. Second, these results emphasize the ability of IUS to impact clinical care and subsequent outcomes in a real-world setting. A significant number of patients escalated or changed therapy due to active disease noted on IUS, and in concert, a significant number subsequently noted objective improvement in disease activity. In utilizing IUS for therapeutic optimization in the present, Saleh and Abraham were able to document disease improvement in the future. Third, these results propose a novel, supportive role for IUS as part treatment de-escalation discussions. In this study, IUS findings were used to support treatment de-escalation in 5% of patients in remission. IUS likely has an important role in the close monitoring and detection of recurrence of inflammation in patients who have undergone treatment de-escalation, however prospective studies with comparison to serum and stool biomarkers in this setting are necessary.

When used as point-of-care, IUS can objectively monitor and assess disease activity in a manner that is superior to our

current symptom and biomarker-based strategy. As shown by Saleh and Abraham, IUS is a tool that can drive clinical decision making and therapeutic optimization in addition to de-escalation. We propose IUS to be used at minimum at the following time points in routine clinic care: (1) baseline, benchmarked with colonoscopy prior to treatment initiation, (2) 8–12 weeks after treatment initiation to assess for response and guide early treatment optimization, (3) 24 weeks, benchmarked with a treat-to-target colonoscopy, and (4) any time point during which the patient presents with new-onset symptoms. As uptake in the United States continues to increase, better understanding of the ideal and practical positioning of IUS within the treat-to-target and tight-control monitoring strategy in the real-world will be gained.

Conflicts of Interest

Michael Todd Dolinger is a consultant for Neurologica Corp., a subsidiary of Samsung Electronics Co., Ltd and Pfizer. Maia Kayal has served as a consultant for AbbVie, Pfizer, Bristol Meyers Squibb, Fresenius and is on the board of GoodRx.

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