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INTESTINAL ULTRASOUND FOR RESPONSE ASSESSMENT IN HOSPITALIZED PATIENTS WITH ACUTE SEVERE ULCERATIVE COLITIS (ASUC)

**Society:** AGA**Track:** Inflammatory Bowel Diseases**Author(s) and Affiliation(s):**Umang Arora<sup>1</sup>, Devasenathipathy Kandasamy<sup>1</sup>, Mahak verma<sup>1</sup>, Divya Madan<sup>1</sup>, Mukesh Kumar<sup>1</sup>, Himanshu Narang<sup>1</sup>, Manjeet Kumar Goyal<sup>1</sup>, malambo Mubunnu<sup>1</sup>, Rajesh Panwar<sup>1</sup>, Nihar Ranjan Dash<sup>1</sup>, Ankur Goyal<sup>1</sup>, Raju Sharma<sup>1</sup>, Vineet Ahuja<sup>1</sup>, Saurabh Kedia<sup>1</sup>

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**Background:** Patients admitted with acute severe ulcerative colitis (ASUC) respond to medical therapy in upto two-third cases but monitoring and early detection of non-response is of prime importance to prevent colectomy or mortality, through use of rescue medical therapy. This study evaluates the utility of intestinal ultrasonography (USG) in prognostication and decision-making for ASUC patients undergoing standardized treatment protocols. USG offers a non-invasive approach to assess bowel wall thickening and vascularity, pivotal indicators of disease activity.

**Methods:** In this prospective study, 47 ASUC patients undergoing intravenous steroid therapy were enrolled, with additional randomization to receive tofacitinib or placebo. USG evaluations of bowel wall thickness (defined as  $\geq 3$  mm) and vascularity were conducted at baseline and on day 5, with data available for 41 patients. Clinical responses were assessed using the Lichtiger index. Correlations between USG findings, clinical outcomes, and biochemical markers such as CRP and albumin were analyzed. Clinical trial registered after ethics committee approval [CTRI/2022/11/047186].

**Results:** Baseline USG revealed bowel wall thickening in the sigmoid colon in 82.9% (34/41) of patients and in the descending colon in 70% (28/41). (Figure 1) Responders (n=30) showed a significant reduction in bowel wall thickness in the sigmoid and descending colon ( $p < 0.05$ ), whereas non-responders (n=11) exhibited no changes. (Figure 2) There was a moderate correlation between bowel wall thickening across different segments (Spearman's  $\rho = 0.3 \pm 0.5$ ,  $p < 0.05$ ), but no significant correlation with CRP, albumin, or endoscopic severity. Doppler findings indicated similar rates of increased vascularity (Limberg grade  $\geq 3$ ) in both responders and non-responders at baseline and follow-up. Ancillary findings, such as pericolic fat thickening and free fluid, were associated with poor clinical outcomes, highlighting their prognostic value. Notably, baseline USG identified skip lesions in two patients, later confirmed to have Crohn's colitis instead of ASUC. The sample size was limited as the trial is ongoing, and the treatment groups (tofacitinib vs. placebo) remain blinded.

**Conclusion:** Serial ultrasonography of the left colon provides valuable, non-invasive insights into treatment response in ASUC, correlating well with reductions in clinical activity and bowel wall thickness among responders. The presence of pericolic fat thickening and ascites correlates with poor outcomes, while doppler findings do not contribute to the response assessment. Importantly, baseline USG may aid in differentiating ASUC from Crohn's colitis in patients with index presentation as acute severe colitis.

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