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Abstract Discussion Forum **(0)**

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COMPARATIVE ACCURACY OF POINT-OF-CARE TRANS-PERINEAL ULTRASOUND VS. ENDOSCOPIC ULTRASOUND VS. TRANS-ABDOMINAL ULTRASOUND FOR ASSESSING RECTAL HISTOENDOSCOPIC ACTIVITY IN ULCERATIVE COLITIS: THE TRINITY STUDY

Society: AGA
Track: Inflammatory Bowel Diseases

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Background and aims: Non-invasive assessment of proctitis in ulcerative colitis (UC) remains a significant clinical challenge. While trans-abdominal sonography (TAS) often falls short, trans-perineal ultrasound (TPUS) has emerged as a promising, non-invasive, point-of-care, and cost-effective alternative. The widespread application of TPUS in proctitis is limited by its ability to evaluate only the lower rectum and lack of specific rectal total wall thickness (TWT) cut-offs validated outside single-center study. This study, "Comparison of **Tri**ple Rectal Ultrasou**n**d **I**maging **T**echnolog**y**" (**TRINITY**), aims to assess the accuracy of TPUS in predicting rectal histoendoscopic activity in UC patients, using endoscopic ultrasound (EUS) as the reference standard.

Methods:
114 UC patients [age 18-70 yr (median- 37), 64 % male, E1: 16, E2: 61, E3: 37] underwent point-of-care TAS and TPUS followed by sigmoidoscopy with biopsy and rectal EUS. On TAS and TPUS, rectal TWT (average of anterior and posterior) and vascularity (Modified Limberg Score, MLS) were evaluated. On EUS, rectal TWT (average of upper, middle and lower and separately lower), vascularity (MLS), mucosal thickness (MT), and submucosal thickness (SMT) were measured. Diagnostic accuracies of all 3 modalities for predicting endoscopic activity (Ulcerative colitis endoscopic index of severity: UCEIS>1 in rectum) and histologic activity (Nancy Indexâ‰¥1) were evaluated using receiver operating characteristic (ROC) curves.

Results:
For prediction of both **endoscopic and histologic activity**, EUS outperformed TPUS. TAS was not useful (p>0.05).
For endoscopic activity (n=114) (Figure 1: accuracy of parameters: upper panel; Figure 2A-B)
EUS:
Mucosal thickness>0.95 mm: AUC (area under the curve): 0.95 (p<0.001);
Average TWT> 4 mm: AUC: 0.89 (p<0.001);
Vascularity (MLS) >1: AUC: 0.93 (p<0.001);
SMT>2.2 mm: AUC: 0.84,(p<0.001).
TPUS:
Rectal TWT >5.6 mm: AUC:0.68 (p=0.001);
Vascularity â‰¥1: AUC:0.74 (p<0.001).
TAS:
TWT >6.3 mm: AUC: 0.57(p=0.25);
Vacularity â‰¥1: AUC: 0.61 (p=0.04).

For predicting **histologic activity**(n=81) **(Figure 1: accuracy of parameters: lower panel; Figure 2C-D):**
EUS:
Lower rectal vascularity (MLS â‰¥1): AUC: 0.84, p<0.001;
SMT>2.1 mm: AUC: 0.71, p<0.001;
MTâ‰¥1 mm: AUC: 0.81, p<0.001;
TWT>5.6 mm: AUC:0.65, p=0.02.
TPUS:
Rectal TWTâ‰¥ 5.6 mm: AUC:0.65 (p=0.02);
Vascularity (MLSâ‰¥1) AUC: 0.65 (p=0.036).
TAS:
TWT â‰¥ 6.3 mm: AUC:0.56, p=0.44;
Vascularity (MLS â‰¥1), AUC:0.59, p=0.18.

Conclusion:
Although EUS remains the gold standard for assessing rectal inflammation, its invasive nature limits routine clinical use. TPUS offers a point-of-care, non-invasive alternative with moderate accuracy for predicting histoendoscopic activity with higher cut off levels contrary to previous reports. Further refinements in TPUS techniques and protocols with multicentre validation are warranted to enhance its widespread applicability in clinical practice.

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