

AI-BASED QUANTIFICATION OF SEGMENTAL MAYO ENDOSCOPIC SCORES FOR GRANULAR DISEASE GRADING IN ULCERATIVE COLITIS TRIALS

Marcela Vieira

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Poster

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An artificial intelligence system was developed for automated segmental Mayo Endoscopic Score grading in ulcerative colitis, demonstrating strong agreement with gastroenterologist assessments for overall disease activity and good to moderate agreement for segmental scoring.

KEY POINTS

- The AI system was trained on 5,897 endoscopic videos and a foundation model trained on 22 million frames, using a hierarchical framework to grade disease activity at frame, segment, and video levels across descending colon, sigmoid colon, and rectum.
- On 915 test videos, the system achieved strong agreement with gastroenterologists for overall Mayo Endoscopic Score (QWK=0.752), good agreement for sigmoid and rectum (QWK=0.647 and 0.687), and moderate agreement for descending colon (QWK=0.592).
- The system demonstrated very high accuracy in detecting endoscopic remission, with 90.38% accuracy overall and 78.80% to 85.03% accuracy across individual colon segments, and reduced mean colonoscopy video review time by 37.72% through automated filtering.
- Lower performance in the descending colon was attributed to high variability in reference annotations, and the system achieved 59.13% mean accuracy in detecting the number of colon segments with active disease per video.
- All authors are employees of Clario Inc., and the work presents a research tool for detailed mucosal assessment that may support treatment response evaluation in clinical trial settings.

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