Impact of Endoscopic Remission on Long-Term Outcomes and IBD-Related Surgery in Patients With Ulcerative Colitis: A Retrospective Cohort Analysis From the Crohn's & Colitis Foundation Database

Carla Truyers,[1] Dominik Naessens,[1] Myrlene Sanon,[2] Elise Wu,[2,*] Jackie Kwong,[3] Shashi Adsul[2]
[1]Johnson & Johnson, Beerse, Belgium; [2]Johnson & Johnson, Horsham, PA, USA; [3]Johnson & Johnson, Raritan, NJ, USA
*Presenting author.

Key Takeaways

- **In this retrospective cohort study, endoscopic remission in UC was associated with less subsequent clinical worsening and fewer IBD-related surgeries, as well as lower subsequent UCDAI scores compared with no endoscopic remission**
- **These findings show that endoscopic remission in UC is associated with improved long-term outcomes, including lower subsequent clinical activity and fewer patient-relevant events, even after adjusting for baseline UCDAI score, which supports endoscopic remission as an important therapeutic target in UC**

Background

Approximately 40% to 60% of patients with inflammatory bowel disease (IBD) who receive advanced therapies achieve symptomatic/clinical remission, defined as resolution or normalization of key symptoms as reported by the patient; however, some continue to show persistent endoscopic inflammation, which may be associated with worse outcomes[1-3]

Endoscopic remission/healing is a key treatment target in IBD[3-5]

Clinical trials show that improvements in clinical indices (eg, Ulcerative Colitis Disease Activity Index [UCDAI]) and endoscopic measures (eg, Mayo Endoscopic Subscore [MES]) are associated with better long-term outcomes and may reduce the risk of bowel damage; however, real-world evidence from routine clinical practice remains limited[3-7]

Objective

To assess the association between endoscopic remission and subsequent outcomes in patients with ulcerative colitis (UC), including clinical worsening and IBD-related surgery

Methods

Study Design

- This retrospective cohort study utilized the Crohn's & Colitis Foundation IBD Plexus database, with data collected between November 2016 and June 2024
- Data were primarily pooled from the electronic health records of patients diagnosed with IBD across 17 academic medical centers in the United States (eg, specialized IBD clinics, secondary care hospitals, and primary care)
- Adults (≥18 years of age) with UC, ≥1 endoscopic assessment (MES), and biologic use on or before the index date were included (**Figure 1**)
- The index date was defined as the date of the first recorded endoscopic assessment in the database
- Endoscopic remission and disease were defined as MES score of 0 and MES score >0, respectively, and patients were censored at the time of changing endoscopic status (MES=0 vs MES >0)
- Post-index clinical activity was measured by the UCDAI

Statistical Analysis

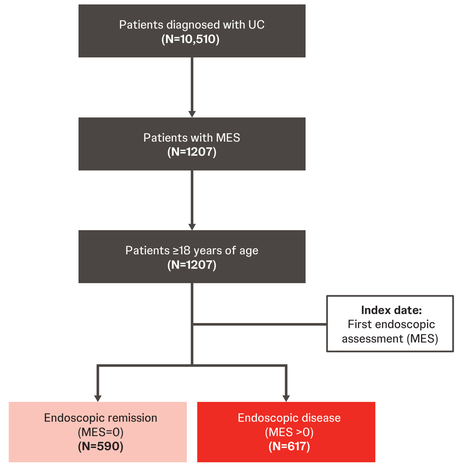
- Post-index clinical activity was evaluated using repeated-measures mixed models, and a Cox proportional hazards model was used to examine time to clinical worsening (first UCDAI score ≥1) and time to IBD-related surgery
- All analyses were adjusted for pre-index baseline characteristics (eg, UCDAI, age, gender, and race, when statistically significant)

Results

Baseline Demographic and Disease Characteristics

- A total of 1207 patients were included in this study; 590 patients were in endoscopic remission (MES=0) and 617 had endoscopic disease (MES >0) at baseline (**Figure 1**)
- Across all patients with UC, 52% were female and 85% White, with a mean age of 43 years (**Table 1**)
- Median follow-up time was 2.2 years; all patients had ≥1 post-index MES assessment

Figure 1. Study Disposition and Number of Patients



***MES**=Mayo Endoscopic Subscore, **UC**=ulcerative colitis.*

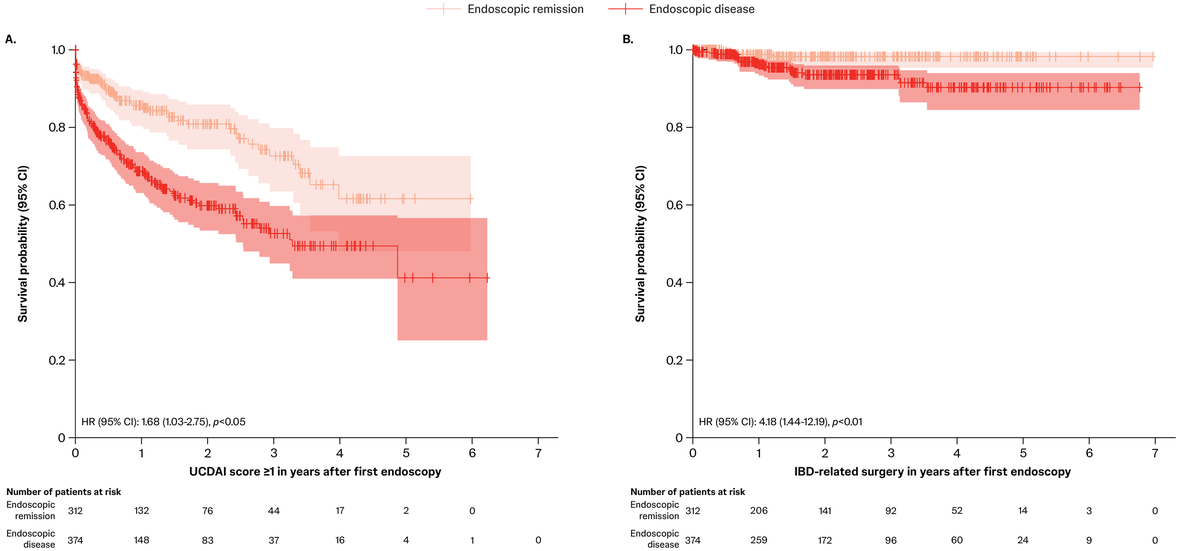
Table 1. Sociodemographic and Clinical Characteristics of Participants

Characteristic	Endoscopic remission (MES=0) (N=590)	Endoscopic disease (MES >0) (N=617)
Age, years, mean (SD)	44.8 (14.8)	42.1 (14.6)
Female sex, n (%)[a]	317 (55.6)	288 (48.6)
Race, n (%)		
Black or African American	30 (5.1)	34 (5.5)
White	508 (86.1)	520 (84.3)
Disease activity, n (%)[b,c]		
Constantly active	42 (7.5)	134 (23.1)
Often active	37 (6.6)	96 (16.5)
Sometimes active	81 (14.4)	106 (18.2)
Occasionally active	89 (15.9)	78 (13.4)
Rarely active	113 (20.1)	87 (15.0)
I was well in the past 6 months	199 (35.5)	80 (13.8)
Disease phenotype, n (%)[d]		
Extensive UC	52 (11.5)	66 (13.1)
Left-sided UC	106 (23.4)	133 (26.5)
Pancolitis	235 (51.9)	245 (48.8)
Ulcerative proctitis (rectum)	59 (13.1)	58 (11.6)
Daily liquid bowel movements (95% CI)[c]	0.9 (0.7-1.0)	2.1 (1.9-2.4)
Charlson Comorbidity Index, mean (SD)	0.9 (1.4)	0.7 (1.3)
MES within 6 months, mean (SD)	0.7 (1.3)	2.2 (1.9)
UCDAI within 6 months, mean (SD)[e]	0.5 (0.9)	1.5 (1.7)
Years between diagnosis and first MES, mean (SD)	13.5 (10.0)	11.2 (9.9)
Prior medication, n (%)[f]		
Adalimumab	100 (16.9)	122 (19.8)
Infliximab	147 (24.9)	144 (23.3)
Tofacitinib	30 (5.1)	57 (9.2)
Ustekinumab	31 (5.3)	72 (11.7)
Vedolizumab	143 (24.2)	195 (31.6)
Current medication, n (%)[f]		
Adalimumab	53 (8.9)	54 (8.8)
Infliximab	53 (8.9)	66 (10.7)
Tofacitinib	21 (3.6)	44 (7.1)
Ustekinumab	25 (4.2)	57 (9.2)
Vedolizumab	113 (19.2)	138 (22.4)

[a]Gender data were missing for 45 patients, with data available for 570 patients in endoscopic remission and 592 in endoscopic disease. [b]Disease activity data were missing for 65 patients, with data available for 561 patients in endoscopic remission and 581 in endoscopic disease. [c]Median time between index date to assessment (before/after=0 mo, mean=4 mo; >50% within the same month). [d]Disease phenotype data were missing for 253 patients, with data available for 452 patients in endoscopic remission and 502 in endoscopic disease. [e]Baseline UCDAI scores were defined as the most recent pre-index UCDAI score within 6 months before the index date; data were available for 156 patients in endoscopic remission and 220 in endoscopic disease. [f]This medication list is not exhaustive and only reflects the top 5 most frequently used medications by patients; current medications were used before and after the index date.
***CI**=confidence interval, **MES**=Mayo Endoscopic Subscore, **SD**=standard deviation, **UC**=ulcerative colitis, **UCDAI**=Ulcerative Colitis Disease Activity Index.*

- At index, not achieving endoscopic remission was associated with earlier clinical worsening ($p<0.05$; **Figure 2A**) and a higher likelihood of undergoing IBD-related surgery during follow-up ($p<0.01$; **Figure 2B**)
- Repeated-measures analysis confirmed that patients with endoscopic remission had independently associated lower UCDAI scores over time compared with those without remission (0.61-point difference; $p<0.0001$)

Figure 2. Time to First (A) UCDAI Score ≥1[a] and (B) IBD-Related Surgery[b]



[a]Multivariate analysis of clinical worsening. [b]Univariate analysis due to limited events.
***CI**=confidence interval, **HR**=hazard ratio, **IBD**=inflammatory bowel disease, **UCDAI**=Ulcerative Colitis Disease Activity Index.*

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