

Long-Term Clinical Outcomes, IBD-Related Surgery, and Corticosteroid Use in Patients With Crohn's Disease in Endoscopic Remission: A Retrospective Cohort Analysis From the Crohn's & Colitis Foundation Database

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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 outcomes¹⁻³
- Endoscopic remission/healing is a key therapeutic target in IBD, particularly in Crohn's disease (CD), where treating to a target of endoscopic healing is associated with improved long-term outcomes and may reduce the risk of bowel damage^{1,2}
- There is a lack of literature evaluating the association of endoscopic scores with future disease activity and patient-relevant outcomes, such as IBD-related surgery and corticosteroid use

Objective

To evaluate whether achieving endoscopic remission is associated with future clinical disease activity, as measured by the short Crohn's Disease Activity Index (sCDAI), IBD-related surgery, and corticosteroid use in patients with CD

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 CD, ≥1 Simple Endoscopic Score for Crohn's Disease (SES-CD) assessment, and biologic use on or before the index SES-CD assessment were included (Figure 1)
- The index date was at the first available SES-CD assessment
- Endoscopic remission was defined as SES-CD ≤2, while endoscopic disease was defined as SES-CD >2

- Post-index disease activity was measured by the sCDAI⁴

- The sCDAI is a simplified, patient-reported version of the Crohn's Disease Activity Index (CDAI) that assesses disease activity using questionnaire items (eg, abdominal pain, stool frequency/diarrhea, and general well-being) and can be completed without an office visit or laboratory testing; an sCDAI score ≥150 is commonly used to indicate active disease

Statistical Analysis

- For time-to-event analyses, patients were censored at the time of documented change in endoscopic status (with remission vs without remission)
- Post-index clinical activity, IBD-related surgery, and corticosteroid use were compared between patients with and without endoscopic remission at index using repeated-measures mixed models and a Cox proportional hazards model while adjusting for pre-index baseline characteristics (eg, sCDAI score, age, gender, and race, when statistically significant)

Results

Baseline Demographic and Disease Characteristics

- A total of 2270 patients were included in this study, with 1227 patients in endoscopic remission (SES-CD ≤2) and 1043 with endoscopic disease (SES-CD >2) at index (Figure 1)
- Demographic characteristics were similar between groups; 56% of patients were female and 84% were White, with a mean age of 39 years (Table 1)
- Median follow-up time was 2.4 years, and 823 (36%) patients had >1 post-index SES-CD assessment; the median time between sCDAI assessments was ~6 months (182 days)

Figure 1. Study Disposition and Number of Patients

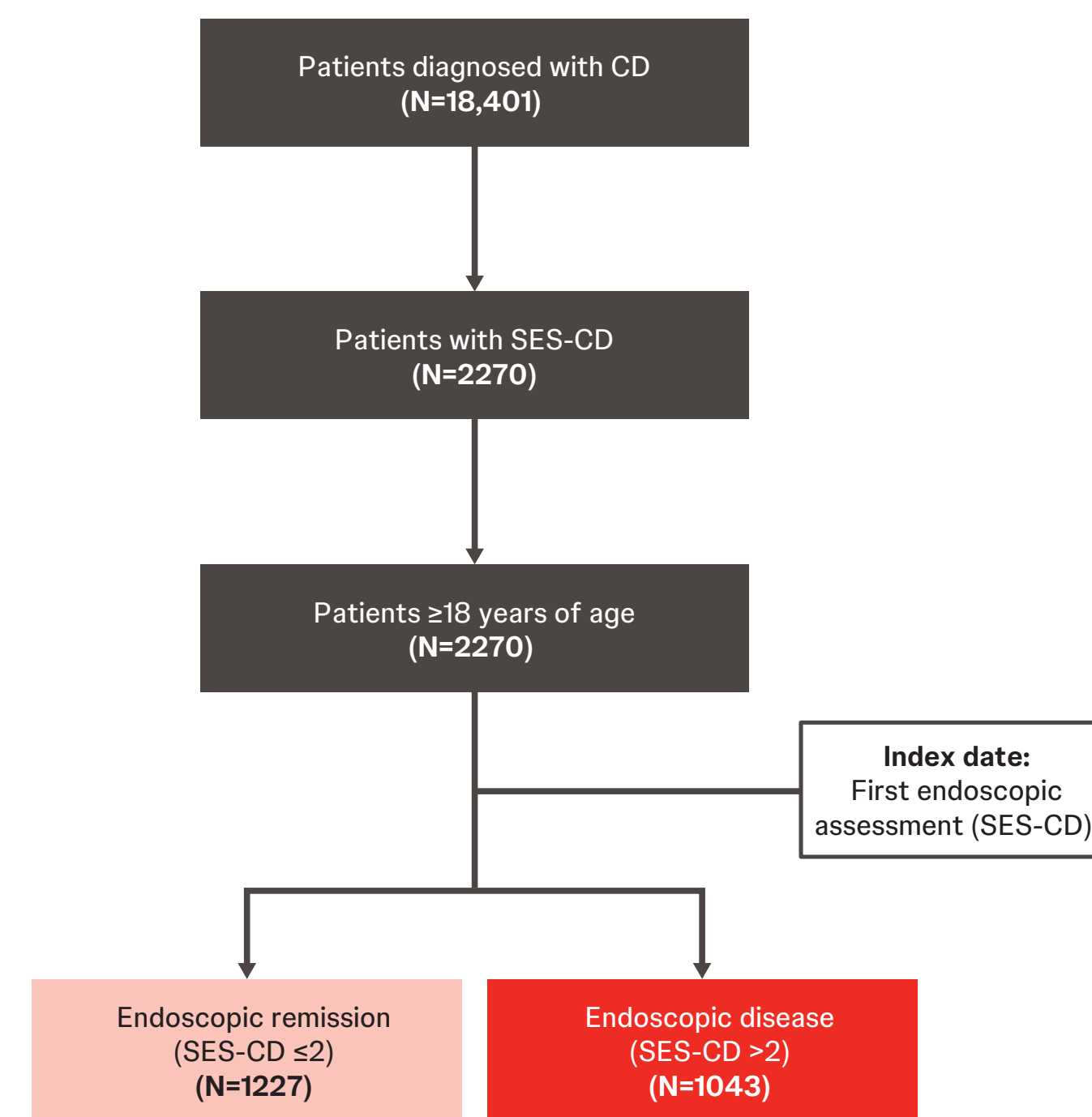


Table 1. Sociodemographic and Clinical Characteristics of Participants

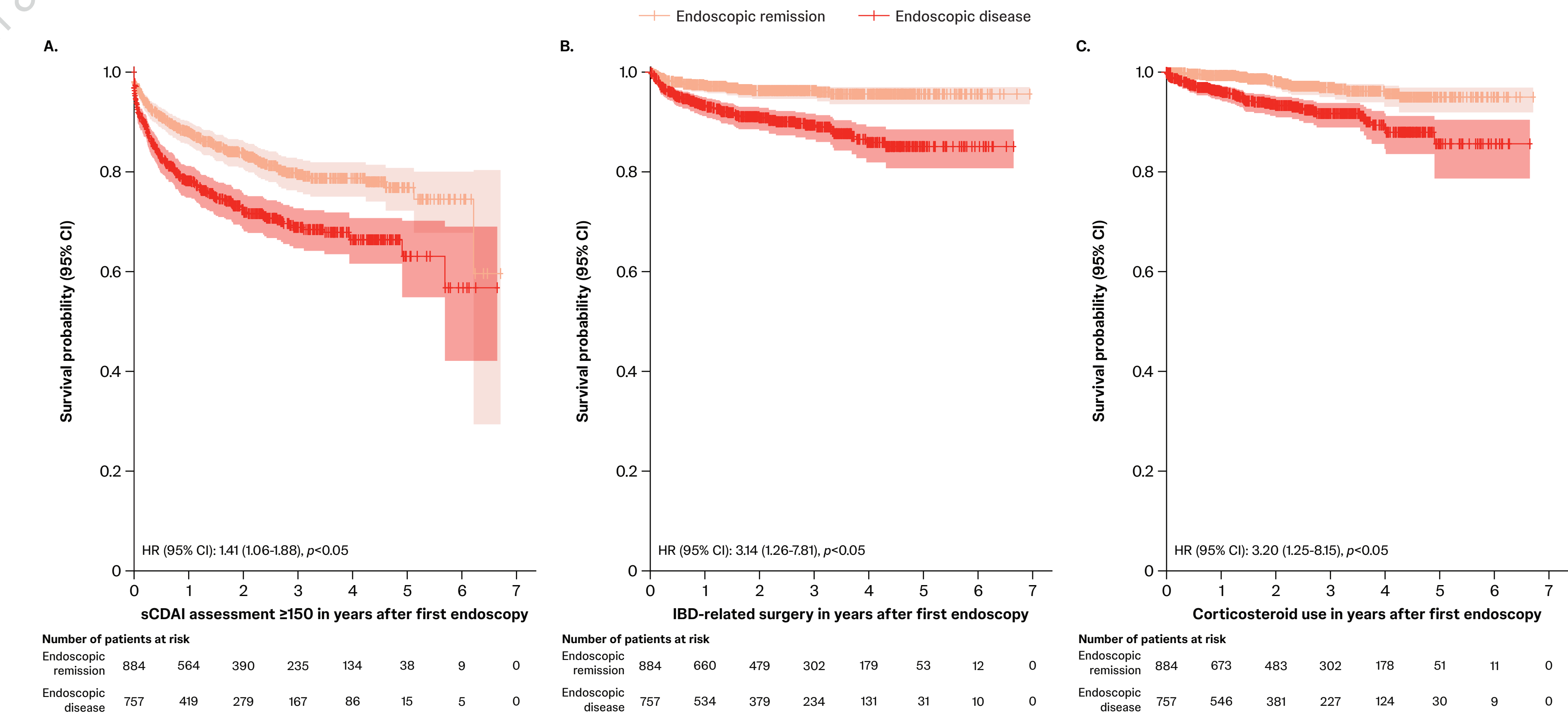
Characteristic	Endoscopic remission (SES-CD ≤2) (N=1227)	Endoscopic disease (SES-CD >2) (N=1043)
Age, years, mean (SD)	39.1 (13.7)	39.8 (14.4)
Female sex, n (%) ^a	692 (59.1)	529 (52.6)
Race, n (%)		
Black or African American	98 (8.0)	90 (8.6)
White	1032 (84.1)	882 (84.6)
Disease activity, n (%) ^{b,c}		
Constantly active	115 (10.2)	166 (17.2)
Often active	128 (11.3)	166 (17.2)
Sometimes active	232 (20.5)	207 (21.4)
Occasionally active	182 (16.1)	153 (15.8)
Rarely active	216 (19.1)	136 (14.1)
I was well in the past 6 months	260 (22.9)	139 (14.4)
Daily liquid bowel movements (95% CI) ^e	1.55 (1.41-1.68)	2.39 (2.21-2.58)
Charlson Comorbidity Index, mean (SD)	0.69 (1.18)	0.73 (1.27)
Charlson comorbidity score, n (%) ^d		
0	763 (63.5)	650 (63.1)
1-2	351 (29.2)	287 (27.9)
3+	88 (7.3)	93 (9.0)
sCDAI score in the past 6 months, mean (SD)	122.5 (77.8)	157.8 (90.1)
sCDAI score ≥150, n (%) ^a	91 (7.4)	151 (14.5)
Years between diagnosis and first SES-CD assessment, mean (SD)	14.8 (10.8)	15.4 (11.8)
Prior medication, n (%) ^f		
Adalimumab	404 (32.9)	351 (33.7)
Certolizumab	71 (5.8)	98 (9.4)
Infliximab	340 (27.7)	273 (26.2)
Ustekinumab	264 (21.5)	355 (34.0)
Vedolizumab	234 (19.1)	216 (20.7)
Current medication, n (%) ^f		
Adalimumab	266 (21.7)	192 (18.4)
Certolizumab	22 (1.8)	34 (3.3)
Infliximab	147 (11.9)	103 (9.9)
Ustekinumab	214 (17.4)	299 (28.7)
Vedolizumab	170 (13.9)	117 (11.2)

^aGender data were missing for 93 patients, with data available for 1171 patients in endoscopic remission and 1006 in endoscopic disease. ^bDisease activity data were missing for 170 patients, with data available for 1133 patients in endoscopic remission and 967 in endoscopic disease. ^cMedian time between the index date to assessment (before/after=0 mo, mean=4 mo; >50% within the same month). ^dCharlson comorbidity score data were missing for 38 patients, with data available for 1202 patients in endoscopic remission and 1030 in endoscopic disease. ^esCDAI data were missing for 1489 patients, with data available for 380 patients in endoscopic remission and 401 in endoscopic disease. ^fThis medication list is not exhaustive and only reflects the top 5 most frequently used medications; current medications were used before and after the index date at first available SES-CD score.

CI=confidence interval, sCDAI=short Crohn's Disease Activity Index, SD=standard deviation, SES-CD=Simple Endoscopic Score for Crohn's Disease.

- Compared with patients in endoscopic remission, those without endoscopic remission experienced earlier and more frequent events during follow-up, including clinically active disease (sCDAI ≥150; $p<0.05$; Figure 2A), IBD-related surgery ($p<0.05$; Figure 2B), and corticosteroid use after adjustment for prior corticosteroid use ($p<0.05$; Figure 2C)
- After controlling for pre-index sCDAI scores, repeated-measures analysis confirmed that patients with endoscopic remission had significantly lower sCDAI scores over time compared with those without endoscopic remission (13.3-point difference; $p<0.01$)

Figure 2. Time to (A) First sCDAI Score ≥150, (B) First IBD-Related Surgery, and (C) Corticosteroid Use (Multivariate Analysis)



CI=confidence interval, HR=hazard ratio, IBD=inflammatory bowel disease, sCDAI=short Crohn's Disease Activity Index, SES-CD=Simple Endoscopic Score for Crohn's Disease.

Key Takeaways

- In this retrospective cohort study, endoscopic remission in CD was associated with a lower likelihood of clinically active disease, IBD-related surgery, and corticosteroid use, as well as lower subsequent sCDAI scores compared with no endoscopic remission
- These findings show a statistically significant association between endoscopic remission and improved long-term outcomes, including subsequent clinical disease activity and fewer patient-relevant events, which supports endoscopic remission as an important therapeutic target in CD