No Change in Determining Crohn's Disease Recurrence or Need for Endoscopic or Surgical Intervention With Modification of the Rutgeerts Scoring System

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The postoperative endoscopic recurrence score, commonly referred to as the Rutgeerts score, was designed to predict clinical recurrence risk in Crohn's disease (CD) patients undergoing ileocolonic resection based on early endoscopic findings at the anastomosis and in the neoterminal ileum.¹ In the pivotal publication, the i2 category, including aphthous lesions in the terminal ileum as well as ileocolonic anastomosis lesions, had a heterogeneous recurrence risk. Because anastomotic ulcers were suspected to be postsurgical ischemic lesions and less predictive of progressive disease,² a modified Rutgeerts score (mRS) was proposed: i2a, lesions confined to the anastomosis $\pm$ <5 isolated aphthous ulcers in the ileum; i2b, more than 5 aphthous ulcers in the ileum with normal mucosa in between, $\pm$ anastomotic lesions.^{3,4}

This study investigated the difference in clinical postoperative recurrence and need for endoscopic dilatation or new surgical intervention between i2a and i2b endoscopic recurrence.

Methods

This retrospective study was conducted in the University Hospitals of Leuven (Belgium) and Bordeaux University Hospitals (France). Consecutive adult CD patients undergoing an ileocolonic resection with ileocolonic anastomosis between 2000 and 2013 evaluated by ileocolonoscopy within 1 year after the surgery and at least 3 years of follow-up after endoscopy were included.

One trained investigator (P.R.) revised endoscopic reports to attribute the mRS based on description of the lesions and images when available.

Clinical postoperative recurrence (cPOR) was defined as the occurrence of CD related symptoms associated to C-reactive protein >5 mg/L and/or endoscopic recurrence $\geq$ i2a or radiologic evidence of neoterminal ileitis. When the recurrence was not

localized on the surgery site (eg, perianal disease, colitis, jejunitis), patients were considered as lost to follow-up at date of recurrence. New surgery included resection or stricturoplasty of the ileocolonic anastomosis. Surgical POR (sPOR) was the combination of endoscopic dilatation and new surgery.

Patients already experiencing cPOR at time of endoscopy were excluded for cPOR analyses. Statistical analyses were performed using R software version ●●●^{Q4} (Survival package; R Foundation for Statistical Computing, Vienna, Austria).

Results

A total of 365 patients were included: 49% (n = 180), median age 36 (interquartile range, 27–48) years, median follow-up 79 (interquartile range, 50–87) months, had an i2 Rutgeerts score, of whom 51% (n = 91 of 180) had an i2a mRS and 49% (n = 89 of 180) had an i2b mRS. No difference was observed between i2a and i2b patients regarding history of previous ileocolonic resection (21% vs 32%; $P = .15$), penetrating phenotype (36% vs 33%; $P = .97$), prophylactic therapy after surgery (20% vs 18%; $P = .91$), or active smoking at endoscopy (30% vs 23%; $P = .42$). Patients with mRS i2b received significantly more treatment initiation than did i2a patients after endoscopy (odds ratio, 3.3; 95% confidence interval, 1.8–6.3; $P < .001$).

Comparing i2a and i2b patients, cPOR-free survival rates were not significantly different (log-rank $P = .70$) (Figure 1A). In detail, similar cPOR-free survival rates were observed 1 year (91.1% vs 90.7%; $P = .09$) and 3 years (76.5% vs 69.4%; $P = .31$) after postoperative

Figure 1. Outcomes after ileocolonic resection stratified by the modified Rutgeerts score at postoperative endoscopy. (A) Kaplan-Meier curves plotted from endoscopy to clinical postoperative recurrence. Clinical postoperative recurrence is defined as symptoms suggestive of Crohn's disease recurrence associated to objective criteria of disease activity (C-reactive protein >5 mg/L or Rutgeerts score $\geq$ i2 or radiologic terminal ileitis). Analysis restricted to patients not experiencing already clinical recurrence before postoperative endoscopy. (B) Kaplan-Meier curves plotted from endoscopy to surgical postoperative recurrence defined as endoscopic dilatation or refection of the ileocolonic anastomosis (all patients included).

endoscopy. Similarly, sPOR-free survival rates were not significantly different between i2a and i2b patients (log-rank $P = .11$) (Figure 1B): 94.5% and 96.6% ($P = .45$) at 1 year and 86.2% and 94.3% ($P = .07$) at 3 years, respectively. Of note, these findings were not modified by exclusion of patients receiving immediate change of therapy after endoscopy (log-rank $P = .17$ for cPOR and $P = .30$ for sPOR).

In multivariate analysis, cPOR was independently associated with smoking at endoscopy (hazard ratio, 1.7; 95% confidence interval, 1.0–2.8; $P = .05$) and the absence of a laterolateral anastomosis (hazard ratio, 1.8; 95% confidence interval, 1.0–3.1; $P = .05$).

Discussion

In this retrospective study, no difference was observed in terms of clinical postoperative recurrence and need for endoscopic or surgical intervention between patients with i2a or i2b endoscopic recurrence. Our data confirm on a larger cohort findings from a previously published retrospective study.⁵

The major limitation of our study is its retrospective setting. Ileocolonoscopy was not performed routinely in operated patients in the early years of the cohort. Some patients were excluded because of shorter follow-up duration. These 2 factors could have led to a selection

bias toward more severe patients. Two centers were involved in this work; however, no difference was observed when comparing patients' profiles, prophylactic therapy, or treatment modifications (data not shown). Interobserver reproducibility of the RS has been shown to be suboptimal, especially for the i2 subscore.⁶ To limit this variability, each endoscopy was revised to reassess the mRS by 1 unique investigator. Objective outcomes defining cPOR were retained and only patients having a long-term follow-up have been included to restrict the observational bias.

Endoscopic recurrence RS i2a and i2b do not differ in terms of clinical recurrence-free survival and need for a new intervention.

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Reprint requests

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Conflicts of interest

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