than in UC and more common in CD Fs than CD M's. A novel finding is that a high proportion of patients with UC exhibit continued growth, suggesting delayed BA is common in UC. These data highlight the need for prospective longitudinal studies to examine BA progression and statural growth in patients with CD and UC.

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Faecal calprotectin and plasma cytokines in the prediction of early postoperative Crohn’s disease recurrence
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Background: Unravelling the pathogenic mechanisms that lead to postoperative recurrence (POR) in CD and having surrogate predictive markers to identify patients at risk of early recurrence remains a challenge. The aim of this prospective study was to characterise the profile of the immune response in patients with early POR, to identify predictive biomarkers and to develop a non-invasive predictive tool for its clinical application in CD patients after surgery.

Methods: Sixty-one patients who had undergone intestinal resection for CD were prospectively included and followed up for 24 months. Blood and stool samples were obtained before surgery and at different time-points during postoperative follow-up, to determine fecal calprotectin (FC) levels and plasma cytokines (IL-1β, IL-2, IL-6, IL-10, IL-12p70, IL-13, TNFα, IFN-γ). Morphological recurrence was assessed by ileocolonoscopy (Sailer’s Index) or MR enterography (Sailer’s Index) within the first year. FC levels were determined by ELISA. Plasma cytokines were assessed using a multiplex bead immunoassay, based on the Luminterx platform. Statistical analysis was performed using the R software (version 3.3.2). The p-values <0.05 have been considered statistically significant.

Results: Among the 61 patients, 27 (44.3%) (41 [18–72] years old) had morphological recurrence during follow-up. 88.5% of the patients had received treatment for the prevention of POR (9.8% mesalazine, 54.1% azathioprine, and 24.6% biological therapy). The majority of patients (73.8%) had an ileal disease. FC values were significantly associated with the POR risk over time, whether it be assessed by endoscopy or MRE. ROC curve for FC gave an AUC of 0.88 (CI 0.75–0.96). Recurrence was best predicted by FC of 160 µg/g at 6 months after surgery. Combined values of FC, IL-6 and IFN-γ levels at 6 months post-surgery gave an AUC of 0.90 for predicting an early recurrence.

Conclusions: FC is a useful early non-invasive marker for predicting POR in CD. Values lower than 160 µg/g at 6 months have a high NPV to rule out early lesions. Patients who develop early recurrence have significantly higher plasma levels of IL-13 pre-surgery, as well as IL-6 and IFN-γ at 6 months after surgery. Combined values of FC, IL-6 and IFN-γ levels at 6 months post-surgery constitutes a prognostic index with high predictive capacity for assessing the risk of early recurrence.

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Automated digital calculation of endoscopic inflammation in ulcerative colitis: Results of the red density study
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Background: The evaluation of the endoscopic inflammation in ulcerative colitis (UC) using MAYO endoscopic subscore (MES) or ulcerative colitis endoscopic index of severity (UCEIS) is subjective leading to high inter-observer variability, mainly in the lower ranges of the scores. Histological inflammation is predictive for relapse in UC even in patients with endoscopic remission. An operator-independent endoscopic tool that correlates with histological inflammation would improve therapeutic decisions in UC. We aimed to develop an objective real-time digital endoscopic tool for the evaluation of UC that correlates with histology.

Methods: The red density (RD) score (Pentax Medical) calculates the degree of redness based on digital extraction of the intensity and distribution of red pixels in high definition white light (WL) endoscopic images. The RD algorithm was further refined by integrating computerised vessel pattern recognition and multiple regression analysis including the RD histogram and Robarts histological index (RHI). RD provides a continues numeric scale from 0 to 255. To test the RD score, sequential patients with UC with planned endoscopy in two tertiary IBD centres (Belgium and Japan) were included. WL and RD images were collected according to a standardised protocol. All WL images were evaluated at random for MES and UCEIS by 2 blinded central readers. In case of discordance between the readers a consensus decision provided the final endoscopic scoring. Standardised biopsies were taken in the most inflamed area of the images. Biopsies were evaluated using the Geboes score and RHI.

Results: In total 46 patients providing 100 images were included. The RD score was stable and reproducible in the same patient. Distribution of the MES, UCEIS and RHI was skewed to the lower ranges of the different scores. There was an interobserver variability of κ = 0.71 and k = 0.65 for the MES and UCEIS, respectively, after first central reading. Using the Spearman correlation test, RD showed a moderate correlation with the final consensus MES (r = 0.58) and UCEIS (r = 0.56). Using the Pearson correlation test, RD correlates strongly with the RHI (r = 0.65) (Figure 1).