Using a ROC curve, Fcal >100 µg/g was the best threshold to predict clinical relapse after TDE (AUC = 0.84; Se = 0.76; Sp = 0.86; PPV = 0.77; NPV = 0.85). In multivariate analysis, clinical remission > 6 months before TDE (HR 0.57[0.33–0.99]; p = 0.044) was associated with decreased risk of relapse while current steroids medication (HR = 1.67[1.00–2.79]; p < 0.0001) was a risk factor. Fcal > 100 µg/g was predictive of clinical relapse (HR = 3.96[2.47–6.35]; p < 0.0001) in the whole cohort but also in patients with anti-TNF agents (n = 85 patients; p < 0.0001), anti-integrins (n = 32; p = 0.003), no biologics (n = 43; p = 0.049) or attempting to discontinue steroids (n = 37; p = 0.001). One patient (1/98) and 7 patients (7/88, 8.0%) with baseline Fcal < 100 µg/g relapsed within 3 months and 6 months, respectively. 74 Fcal measurements were performed in 52 patients after TDE. Monitoring Fcal > 200 µg/g (AUC = 0.96; Se = 0.93, Sp = 0.93, PPV = 0.97, NPV = 0.98) was highly predictive of clinical relapse in multivariate analysis (HR = 31.8[3.5–289.4], p < 0.0001) in the whole cohort but also in patients with anti-TNF agents (p < 0.003), no biologics (p = 0.049) or attempting to discontinue steroids (p = 0.001). There were no differences with regard to diagnostic performance between the sMaRIA and the original MaRIA for detecting active disease (p = 0.7) and severe disease (p = 0.5). The sMaRIA accurately detected changes in lesion severity in response to a therapeutic intervention and was as reliable as endoscopy for the assessment of mucosal healing.

Conclusions: Simplified MaRIA index allows a faster and easier assessment of inflammation in CD by keeping high accuracy for both diagnosis and therapeutic response. Main advantages over MaRIA includes a less time consuming calculation and that it is not conformed by missing segments.

P246
The association of serum 7α-hydroxy-4-cholesten-3-one (7C4) with Bile Acid Diarrhoea in patients with inflammatory bowel disease

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Background: Bile acid diarrhoea (BAD) in inflammatory bowel disease (IBD) is often due to bile acid malabsorption (BAM) from ileal resection (IR). BAM increases 7α-hydroxy-4-cholesten-3-one (7C4) production, a bile acid precursor. This study aimed to investigate relationships between 7C4 concentrations and BAD in IBD.

Methods: Patients were recruited at the University of San Diego, California. Demographics, serum samples, clinical and endoscopic scores were prospectively collected. IR, bile acid sequestrants (BAS) use and diarrhoea (>3BM/day) were retrospectively collected. Endoscopic remission (ER, ulcerative colitis [UC]: Mayo endoscopic score <2, Crohn’s disease [CD]: Simplified Endoscopic Score CD <3, <2/segment), pouchitis (n = 1), colostomy (n = 1), and parenteral nutrition use (n = 3) was assessed. 7C4 concentration were measured by liquid chromatography and mass spectrometry (Prometheus Laboratories Inc.)

Results: 26 CD patients with IR (97 samples) and 11 UC patients (13 samples, no IR) were included. IR patients had higher mean 7C4 concentrations than those without (107.5 vs. 28.4 ng/ml, p < 0.0001). Patients with diarrhoea (n = 17, samples = 30) had higher 7C4 than those without (n = 27, samples = 54, 133.5 vs. 70.3ng/
ml, \( p = 0.001 \). This remained when analysing only IR patients (132.1 vs. 84.6ng/ml, \( p = 0.04 \)). Using receiver operating characteristic analysis, 7C4 >100ng/ml was associated with diarrhoea (63% sensitivity, 76% specificity, AUC 0.71, diarrhoea in 61% with 7C4 >100ng/ml vs. 21% with 7C4 ≤100ng/ml, \( p < 0.001 \)). A 7C4 threshold of >50ng/ml (sensitivity 73% specificity 52%, AUC 0.71) was associated with diarrhoea with higher sensitivity (47% vs. 22%, \( p = 0.02 \)). In those with IR <50 cm, 7C4 was higher with diarrhoea than without (200.8 vs. 28.6 mg/ml, \( p < 0.001 \)). Patients receiving BAS had higher 7C4 than without BAS (217.5 vs. 74.8ng/ml, \( p < 0.001 \)). Of patients with diarrhoea, those receiving BAS had higher 7C4 than those without (253.3 vs. 89.3ng/ml, \( p < 0.001 \)). ER patients with IR (\( n = 8 \), samples = 22) had higher 7C4 compared with without IR (\( n = 10 \), samples = 12, 68.5 vs. 16.3ng/ml, \( p < 0.001 \)). ER patients with diarrhoea (\( n = 2 \), samples = 2) trended to higher 7C4 than those without (\( n = 18 \), samples = 28, 64.4 vs. 36.7ng/ml, \( p = 0.06 \)). In ER patients, a >50ng/ml 7C4 threshold (sensitivity 100%, specificity 73%, AUC 0.90) yielded increased diarrhoea (22% vs. 0%, \( p = 0.04 \)).

Conclusions: 7C4 concentrations are associated with BAD in IBD, regardless of IBD disease activity or IR length. 7C4 >100ng/ml is suited as a confirmatory test in suspected BAD. 7C4 <50ng/ml is suited as a screening test for BAD and as either a screening or confirmatory test in those with ER. BAS are associated with increased 7C4 concentrations, regardless of diarrhoea.

P248
IL-33/ST2 levels can predict mucosal response to anti-TNF therapy in ulcerative colitis
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Background: Tumour necrosis factor (TNF) inhibitors (anti-TNF) are considered to be effective in inducing mucosal healing in patients with moderate-to-severe ulcerative colitis (UC). The role of IL-33 and its receptor, ST2, in intestinal inflammation is incompletely understood, with both pro-inflammatory and regulatory properties described. Recent evidence has shown that anti-TNF is able to modulate the IL-33/ST2 axis in inflammatory conditions. The aim of our study was to explore the potential role of the IL-33/ST2 axis in the mucosal healing process mediated by anti-TNF therapy in UC.

Methods: Endoscopic MAYO score was calculated before the first anti-TNF infusion (T0) and after 6 weeks (T2). 24 UC patients (MAYO score at T0 ≥2), grouped into 12 responders with mucosal healing (MAYO score ≤1) and 12 non-responders to anti-TNF at T2 (MAYO score ≥2) were enrolled. 10 healthy controls undergoing routine colonoscopy for screening were also enrolled. At each time point, serum samples were collected and ELISA performed to assess IL-33/ST2 protein levels. Intestinal biopsies were also taken from the rectum and IHC was done to evaluate mucosal IL-33/ST2 expression and localisation.

Results: IL-33 protein levels were significantly increased in responders vs. non-responders, both at T0 and T2. Among responders, IL-33 protein was slightly reduced at T2 vs. T0, while unchanged in non-responders. Interestingly, significantly higher levels of ST2 were found in responders vs. non-responders at T0, while no differences between groups were found at T2. Among responders, ST2 levels were dramatically reduced at T2 vs. T0. No significant differences were found in non-responders at both time points. Healthy controls showed significantly lower levels of both IL-33 and ST2 compared with other groups. IHC confirmed these observations. In particular, IL-33 and ST2 staining was more intense within the inflamed and ulcerated mucosa of responders compared with non-responders at T0. After 6 weeks, ST2 staining was even more evident in responders, notably localised to the healed mucosa in close proximity to areas of re-epithelialisation. Little to no staining for both IL-33 and ST2 was present in healthy controls.

Conclusions: Our results suggest a possible role for IL-33/ST2 in predicting gut mucosal wound healing in patients with moderate-to-severe UC treated with anti-TNF. Further studies are underway to determine mechanisms of action that support these findings.

P249
Endoscopic score vs. faecal biomarkers for predicting relapse in patients with ulcerative colitis after clinical remission and mucosal healing
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Background: Achieving endoscopic remission or decreasing the level of faecal biomarkers as an ideal therapeutic goal in ulcerative colitis...