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Mucosal eosinophil abundance in non-inflamed colonic tissue predicts response to vedolizumab induction therapy in inflammatory bowel disease

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Link to publication in University of Groningen/UMCG research database

achieve clinical remission, and two other achieved clinical response. Endoscopic follow-up data were available in six patients, and three of them experienced endoscopic response.

Figure 1. Outcomes* of risankizumab by week 24 (non-responder imputation analysis)
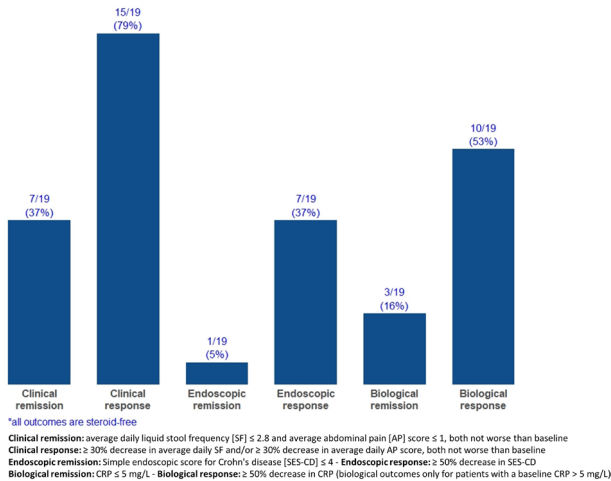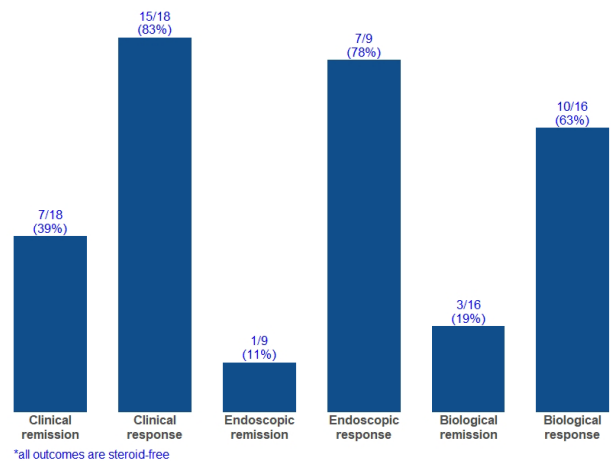

*all outcomes are steroid-free

Clinical remission: average daily liquid stool frequency [SF] ≤ 2.8 and average abdominal pain [AP] score ≤ 1, both not worse than baseline
Clinical response: ≥ 30% decrease in average daily SF and/or ≥ 30% decrease in average daily AP score, both not worse than baseline
Endoscopic remission: Simple endoscopic score for Crohn's disease [SES-CD] ≤ 4 - **Endoscopic response:** ≥ 50% decrease in SES-CD
Biological remission: CRP ≤ 5 mg/L - **Biological response:** ≥ 50% decrease in CRP (biological outcomes only for patients with a baseline CRP > 5 mg/L)

Table 1. Baseline Characteristics

Characteristic	N = 19
Women, n (%)	9 (47)
Age (year), Median (IQR)	38 (30 – 46)
Disease duration (year), Median (IQR)	14 (9 – 20)
C-reactive protein (mg/L), Median (IQR)	15 (5 – 26)
Smoking, n (%)	
Active	3 (16)
Former	1 (5.3)
Never	15 (79)
Body mass index (kg/m²), Median (IQR)	22 (19 – 28)
Faecal calprotectin (ug/g), Median (IQR)	1,800 (539 – 1,800)
Serum albumin (g/L), Median (IQR)	40 (34 – 44)
PRO-liquid stool frequency, Median (IQR)	5 (2 – 8)
PRO-abdominal pain score, Median (IQR)	2 (1 – 2)
Simple endoscopic score for Crohn's disease, Median (IQR)	14 (9 – 16)
Disease location, n (%)	
Ileal	3 (16)
Colonic	3 (16)
Ileocolonic	13 (68)
Upper GI modifier, n (%)	1 (5.3)
Disease behavior, n (%)	
Inflammatory	11 (58)
Fibrostenotic	6 (32)
Penetrating	2 (11)
Perianal modifier, n (%)	2 (11)
History of CD-related resections, n (%)	13 (68)
Concomitant corticosteroides, n (%)	5 (26)
Concomitant immunomodulators, n (%)	4 (21)
Number of previous biologicals , n (%)	
3	1 (5.3)
4	10 (53)
5	6 (32)
6	2 (11)
Number of previous anti-TNF agents, n (%)	
2	17 (89)
3	2 (11)
Family history of IBD, n (%)	4 (21)
Extra intestinal manifestations, n (%)	6 (32)

Figure 2. Outcomes* of risankizumab by week 24 (data as observed analysis)

*all outcomes are steroid-free

Conclusion: In this real-world, multi-refractory cohort, clinical remission and endoscopic response were both observed by week 24 in more than one third of CD patients initiating RZB. RZB was well tolerated with no safety issues.

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Mucosal eosinophil abundance in non-inflamed colonic tissue predict response to vedolizumab induction therapy in inflammatory bowel disease

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Background: Vedolizumab has shown efficacy, safety and tolerability as treatment for patients with inflammatory bowel disease (IBD). However, vedolizumab induction therapy only shows clinical response and remission in roughly 55% and 30% of IBD patients, respectively. Vedolizumab binds and blocks migration of T-lymphocytes and eosinophils. In this study, we aimed to explore the predictive value of mucosal eosinophils and serum eotaxin-1, an eosinophil chemoattractant, regarding response to vedolizumab induction therapy.

Methods: 84 IBD patients treated within the University Medical Center Groningen (UMCG) (37 Crohn's disease [CD], 47 ulcerative colitis [UC]) were included. In a subset of 24 IBD patients (9 CD, 15 UC) histopathological data were analyzed for eosinophil counts in high power fields (hpf) in non-inflamed colon ascendens tissue prior to vedolizumab treatment. In another subset of 64 IBD patients, (28 CD, 36 UC) baseline serum eotaxin-1 was quantified prior to vedolizumab treatment. Clinical response or remission was defined as a decrease of the Harvey Bradshaw Index (HBI) for CD or Simple Clinical Colitis Activity Index (SCCAI) for UC together with physician's global assessment (PGA). Serum eotaxin-1 was externally assessed as a biomarker for response to vedolizumab induction therapy in 100 IBD patients derived from the GEMINI 1 & 2 trials.

Results: Baseline eosinophil mucosal count was significantly higher in vedolizumab induction therapy responders, compared to primary non

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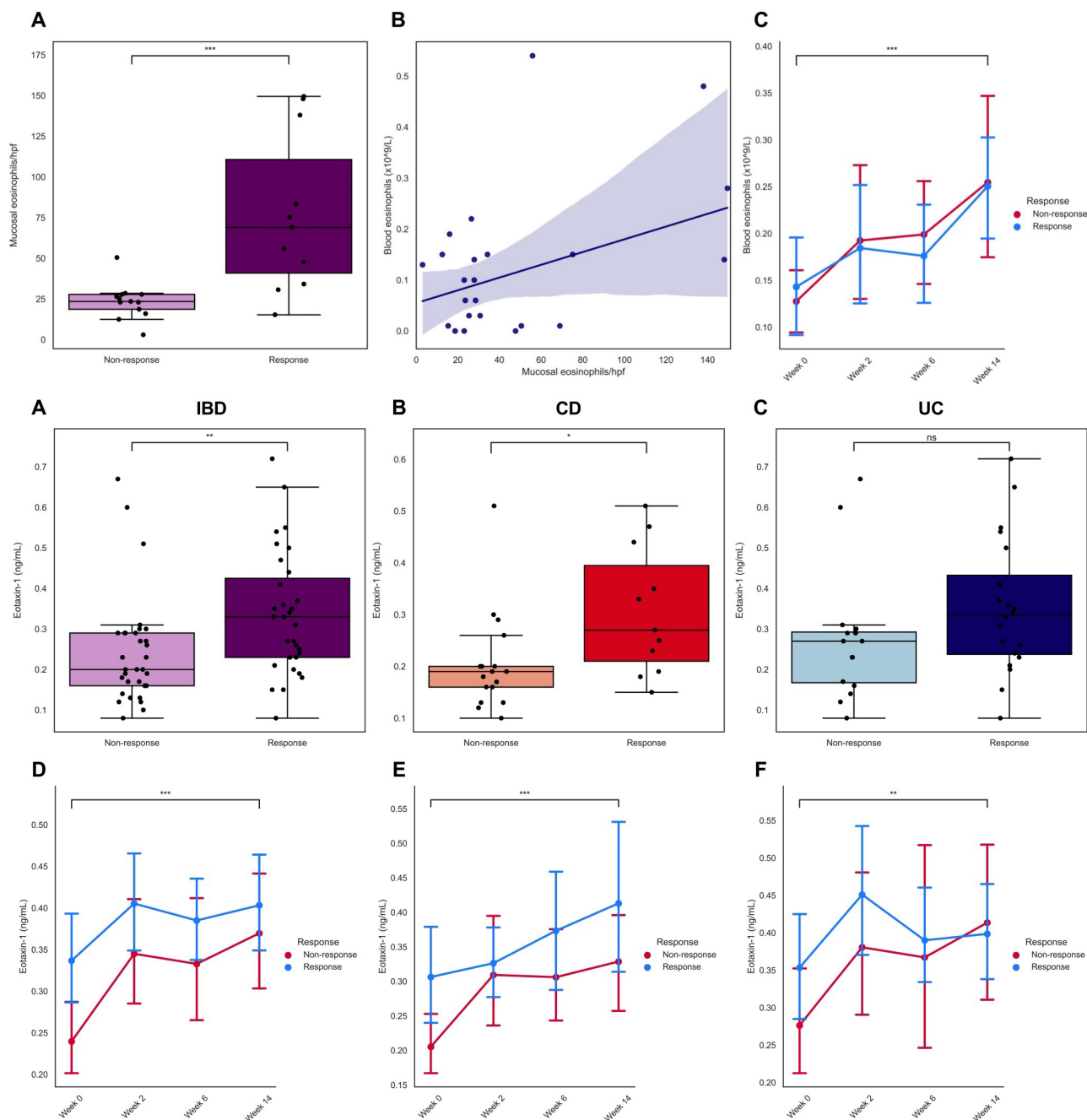
responders (69[34–138] vs. 24[18–28] eosinophils/hpf respectively, $P<0.01$). Baseline serum eotaxin-1 levels in the UMCG cohort were significantly elevated in therapy responders, compared to primary non-responders (0.33 vs. 0.20 ng/mL, $P<0.01$). The final prediction model based on mucosal eosinophil count showed an area under the curve (AUC) of 0.90 and serum eotaxin-1 an adjusted AUC of 0.79 The optimal with balanced cut-off value for eosinophil count was > 30 eosinophils/hpf with a sensitivity of 90.9% and specificity of 92.3% (Youden's index 0.83). Results derived from the GEMINI I & II cohorts did not show any associations between eotaxin-1 levels and therapy response.

Conclusion: Mucosal eosinophil abundance in non-inflamed colon ascendens biopsies can predict vedolizumab induction therapy response in IBD patients. More studies are warranted to confirm these preliminary results and further investigate the additional value of eotaxin-1 regarding predicting vedolizumab therapy response.

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Non-medical switch between adalimumab biosimilars and from the originator adalimumab to biosimilars in inflammatory bowel disease patients – a multicentre study on efficacy and drug sustainability

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