efficacy in CD, but the association was less pronounced than was reported in UC. (1) The AVA rate was similar to what was observed in prior vedolizumab IV studies. (2) In this study, vedolizumab immunogenicity appeared to be associated with clinical outcome.

References

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DOP17

Identification of biomarkers and mechanistic insight for upadacitinib in ulcerative colitis: Analysis of serum inflammatory mediators in the phase 2b U-ACHIEVE study

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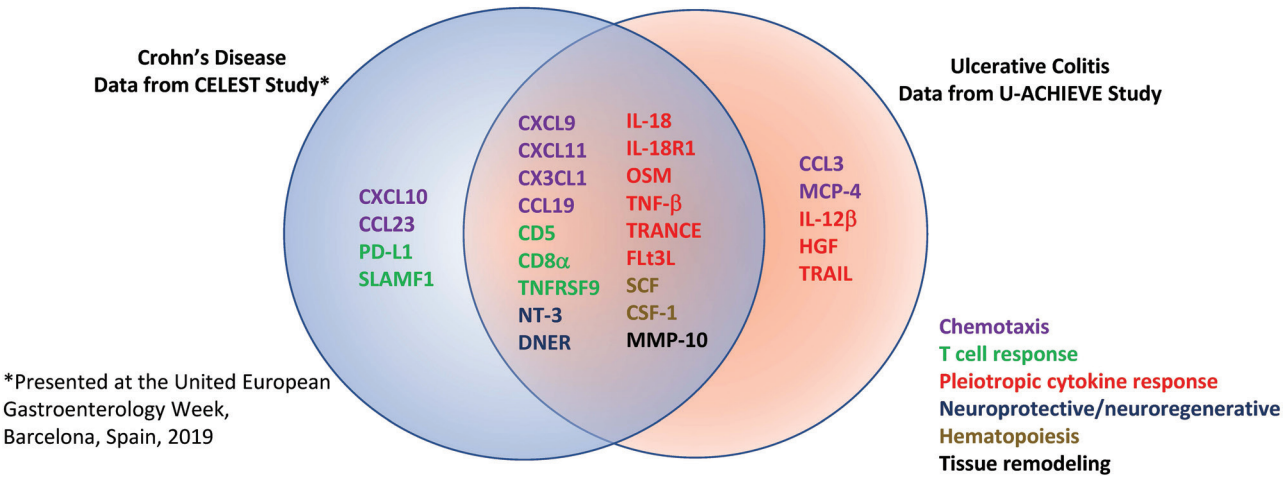
Background: The U-ACHIEVE trial evaluated upadacitinib (UPA), an oral JAK1 selective inhibitor, in patients with moderately to severely active ulcerative colitis (UC). Patient-reported and endoscopic outcomes improved after UPA treatment. This analysis used pharmacodynamic profiling to link changes in serum biomarkers to changes in UC disease activity, and to assess the UPA mechanism of action in UC.

Methods: U-ACHIEVE (NCT02819635) was a randomised, double-blind, placebo (PBO)-controlled phase 2b clinical trial. Adults with an inadequate response, loss of response, or intolerance to corticosteroids, immunosuppressants, or biologic therapies were randomised to receive 7.5, 15, 30, or 45 mg UPA once daily or PBO for 8 weeks (weeks). Serum samples (baseline [BL], weeks 2, 4, and 8) were analysed by OLINK® inflammation panel (92 proteins) and by Singulex immunoassay for interleukin-1b (IL-1b), IL-17A, IL-17F, and IL-22. Protein-level changes were analysed by a mixed-effect model; BL protein level was adjusted as a covariate; treatment group, time point, and their interaction were included as fixed effects. Spearman rank-correlation coefficients were used to determine the relationship between changes of serum biomarker levels and improvements in adapted Mayo scores and endoscopic subscores. Multiplicity adjusted *P* values were calculated using 1000 runs of random permutations.

Results: Paired BL and week 8 serum samples were available from 114 patients (PBO, n = 17; UPA 7.5 mg, n = 21; UPA 15 mg, n = 21; UPA 30 mg, n = 29; UPA 45 mg, n = 26). UPA treatment reduced expression of pro-inflammatory mediators associated with immune cell migration, type I/II IFN responses, T-cell responses, macrophage and dendritic cell activity and increased expression of biomarkers associated with haematopoiesis, neuroprotection and mucosal repair in a dose-dependent manner. Improvements in adapted Mayo score, endoscopic subscore, and stool frequency correlated with increases in CX3CL1, DNER and FLt3L ($p < 0.05$ for all). Endoscopic improvements correlated with reductions in OSM, and improvements in fatigue correlated with increases in CCL25 and NT-3. There was a substantial overlap in biomarkers modulated by UPA in patients with UC and Crohn's disease (Figure).

Conclusion: UPA modulated expression of serum pro-inflammatory mediators found in pathways associated with the pathogenesis of UC, including immune cell migration, type I/II IFN responses, T-cell responses, macrophage and dendritic cell activity, haematopoiesis, neuroprotection, and mucosal repair. Consistent correlations were

Figure. Serum Biomarkers Modulated by Upadacitinib



observed between changes in biomarker expression and improvements in disease activity and symptoms of UC.

DOP18

Impact of adherence to anti-tumour necrosis factor therapy on clinical outcomes in Crohn's disease: A nationwide population-based study

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Background: The impact of compliance with anti-tumour necrosis factor (TNF) on the clinical outcomes of Crohn's disease (CD) is not well unknown. We performed a nationwide population-based study to investigate the impact of adherence to anti-TNF therapy on clinical outcomes in CD patients.

Methods: Using the National Health Insurance claims data, we collected data on newly diagnosed patients with CD between 2004 and 2015. Given that infliximab was listed in the National Health Insurance Service in 2006 and adalimumab in 2010, data only after the listing date were extracted. A total of 2784 patients were included according to inclusion criteria. Medication adherence was measured based on the following three criteria, including the ratio of delayed visit, the ratio of the number of visits, and the ratio of actual administration, and was assessed at four-point in time from the initial administration: 14, 22, 39, and 48 weeks.

Results: A total of 2179 patients received infliximab, and 605 patients received adalimumab. The mean cumulative actual to predetermined prescription ratio (CAPPR) at 14 and 48 weeks was 1.07 and 1.17, respectively. CAPPRs of infliximab users were higher than those of adalimumab users (1.06 and 1.21 vs. 1.02 and 1.04 at 14 and 48 weeks, respectively). As hospital visits were delayed one more day, risk of perianal surgery (odds ratio [OR] 1.21, 95% confidence interval [CI] 1.089–1.333), corticosteroid use (OR = 1.008, 95% CI 1–1.016), and hospitalisation (OR = 1.05,95% CI 1.002–1.108) at 48 weeks were significantly increased. Moreover, as CAPPR decreased by 1 percent point, risk of bowel resection (OR = 1.589, 95% CI 0.713–3.542), perianal surgery (OR = 1.246, 95% CI 0.868–1.79), and hospitalisation (OR = 1.128, 95% CI 0.998–1.276) at 14 weeks were significantly increased.

Conclusion: Our data indicate that adherence to anti-TNF therapy affects major clinical outcomes of CD in the short- and mid-term period. Intervention to improving adherence to anti-TNF therapy is highly needed for better clinical outcomes in CD.

DOP Session 3 - Improving care of IBD

DOP19

Real-world healthcare resource utilisation among patients with inflammatory bowel disease administered vedolizumab for 6 months

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Background: Inflammatory bowel disease (IBD) is associated with high healthcare resource utilisation. Vedolizumab (VDZ) is a gut-selective monoclonal antibody that binds the α4β7 integrin and is indicated for the treatment of adult patients with moderately to severely active ulcerative colitis (UC) or Crohn's disease (CD). We investigated real-world healthcare resource utilisation for these patients in the 6 months after initiating VDZ treatment.

Methods: This retrospective, non-interventional, cohort study examined healthcare resource utilisation for adults with IBD treated with VDZ at Mt Sinai Medical Center (New York, NY) between June 1, 2014, and May 31, 2019. IBD-related healthcare resource utilisation (emergency room [ER] visits, hospitalisations, procedures, corticosteroids) and VDZ treatment patterns (induction, persistence, adherence) were assessed for 6 months after first VDZ infusion. Discontinuation was defined as a ≥90-day gap between infusions or stopping VDZ treatment <6 months after the first infusion. Patients who had ≥90-day gaps were not counted as discontinuing if they experienced clinical benefit that continued beyond the 6-month period.

IBD-related resource utilisation in the 6 months after first VDZ administration

	CD		UC		All		
	Events (rate/100 pt-months)	Pts, n (%)	Events (rate/100 pt-months)	Pts, n (%)	Events	Pts, n (%)	Rate/100 pt-months (95% CI)
ER visits	43 (0.32)	32 (8.7)	26 (0.17)	22 (4.4)	70	55 (6.3)	0.24 (0.18–0.33)
Hospitalisations	40 (0.30)	36 (9.8)	50 (0.33)	42 (8.3)	90	78 (8.9)	0.31 (0.25–0.39)
Urgent or elective surgical hospitalisations	38 (0.28)	34 (9.2)	48 (0.32)	40 (7.9)	86	74 (8.4)	0.30 (0.24–0.38)
Procedures	66 (0.49)	59 (16.0)	115 (0.76)	114 (22.6)	183	175 (19.9)	0.64 (0.55–0.73)

Results: 880 patients treated with VDZ were assessed. Mean age was 39.6 years; 51.6% of patients were female. 369 (41.9%) and 504 (57.3%) patients were diagnosed with CD and UC, respectively. 81.4% of patients received 3 VDZ induction doses by Day 98; 69.0% received 4 doses by Day 120. The rates of ER visits, hospitalisations and elective surgical or urgent hospitalisations and procedures among VDZ-treated patients were <1 per 100 pt–months. Steroids (oral or IV) were prescribed to 42.2% of patients during the 6-month period. In the 2 months after their last infusion, 81.6% of patients who received ≥3 VDZ doses were steroid-free. Timing of the last infusion was variable. Overall VDZ persistence was 68.0% (65.0% and 70.2% for CD and UC, respectively; Figure). Most patients (67.2%) had ≥80% of days covered in a 180-day period

Figure. VDZ Persistence over 6 months