

Dziegielewski C¹; Ahuja D^{1,2}; Zou GY^{3,4}; Goodwin S^{4,5}; Boland B¹; McGovern D⁶; Kappelman M^{7,8}; Jairath V^{4,5}; Singh S^{1,9}

1. Gastroenterology, University of California San Diego, La Jolla, CA, United States. 2. Indira Gandhi Hospital, New Delhi, DL, India. 3. Alimentiv Inc, London, ON, Canada. 4. Lawson Health Research Institute, London, ON, Canada. 5. Western University, London, ON, Canada. 6. Cedars-Sinai Medical Center Inflammatory Bowel Disease Center, Los Angeles, CA, United States. 7. The University of North Carolina at Chapel Hill, Chapel Hill, NC, United States. 8. The University of North Carolina at Chapel Hill Center for Gastrointestinal Biology and Disease, Chapel Hill, NC, United States. 9. University of California San Diego Division of Biomedical Informatics, La Jolla, CA, United States.

INTRODUCTION

- The incidence of inflammatory bowel diseases (IBD), including ulcerative colitis (UC) and Crohn's disease (CD), is rising in racioethnic minorities; yet, there is a paucity of data on the efficacy and safety of advanced therapies in these populations.
- Race has been shown to help predict response to therapy in other disease entities, and may play a role in determining optimal medication use in UC.
- To our knowledge, there have been no studies investigating treatment efficacy and safety of advanced therapies beyond anti-TNF agents in minority groups with UC.

AIM

We performed an analysis of individual participant data from clinical trials to determine whether race and ethnicity modify treatment efficacy and safety of advanced therapies in patients with UC.

METHODS

- We pooled patient-level data from ten randomized controlled clinical trials of advanced therapies (tumor necrosis factor [TNF] antagonists including infliximab, adalimumab, golimumab; vedolizumab; ustekinumab; tofacitinib) in patients with moderate-to-severe UC.
- We compared efficacy (primary outcome: induction of clinical remission; secondary outcomes: induction of endoscopic improvement [Mayo endoscopic score {MES} 0 or 1], endoscopic remission [MES 0] and symptomatic remission based on a two-item patient-reported outcome [PRO2]) and safety (serious adverse events; infections) of different advanced therapies in Hispanics, non-Hispanic blacks (NHBs), and Asians vs. non-Hispanic whites (NHWs, reference).
- We used modified Poisson regression to quantify modification of drug effects by race on the risk ratio (RR) scale.
- We adjusted for covariates including baseline endoscopic severity, prior biologic exposure, C-reactive protein, albumin, hemoglobin, and concomitant steroids.

RESULTS

RR of drug vs. placebo (95% confidence interval)	TNF antagonists	Vedolizumab	Ustekinumab	Tofacitinib
NHWs	1.89 (1.6 – 2.22)	2.29 (1.32 – 3.96)	2.08 (1.36 – 3.16)	3.51 (2.11 – 5.87)
Hispanics	0.34 (0.06 – 1.82)	N/A	N/A	1.91 (0.36 – 10.22)
Ratio of RR, Hispanics vs. NHWs (drug effect modification)	0.18 (0.03 – 0.97)	N/A	N/A	0.54 (0.09 – 3.15)
NHBs	1.72 (0.66 – 4.45)	N/A	0.83 (0.20 – 3.46)	0.49 (0.03 – 7.4)
Ratio of RR, NHBs vs. NHWs	0.91 (0.35 – 2.39)	N/A	0.40 (0.09 – 1.76)	0.14 (0.008 – 2.22)
Asians	1.92 (0.88 – 4.18)	2.18 (0.79 – 5.95)	3.92 (0.92 – 16.76)	6.04 (0.92 – 39.87)
Ratio of RR, Asians vs. NHWs	1.01 (0.46 – 2.25)	0.95 (0.30 – 2.99)	1.88 (0.41 – 8.6)	1.7 (0.24 – 12.07)

Table 1. Efficacy of different advanced therapies for induction of clinical remission in patients with moderate-severe ulcerative colitis, by race and ethnicity

CONCLUSIONS

- TNF antagonists may be less efficacious in achieving clinical remission in Hispanics compared with NHWs. Given potentially lower impact of social risk factors on access or adherence to treatment in Phase 3 trials, these differences may be driven by biologic or genetic factors.
- No significant treatment effect modification, or differences in safety outcomes, were observed for other race and ethnic groups for TNF antagonists, or for other non-TNF-targeting advanced therapies in patients with UC.
- Further research into the effect of race and ethnicity on advanced medical therapies in diverse populations with IBD is required.

REFERENCES

- Alatab S, Sepanlou SG, Ikuta K, et al.** The global, regional, and national burden of inflammatory bowel disease in 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet Gastroenterol Hepatol.* 2020;5(1):17–30.
- Borrell LN, Elhawary JR, Fuentes-Afflick E, et al.** Race and genetic ancestry in medicine—A time for reckoning with racism. *N Engl J Med.* 2021;384:474–80.
- Nguyen NH, Luo J, Paul P, et al.** Effectiveness and Safety of Biologic Therapy in Hispanic Vs Non-Hispanic Patients With Inflammatory Bowel Diseases: A CA-IBD Cohort Study. *Clin Gastroenterol Hepatol.* 2023;21(1):173–81.e5.

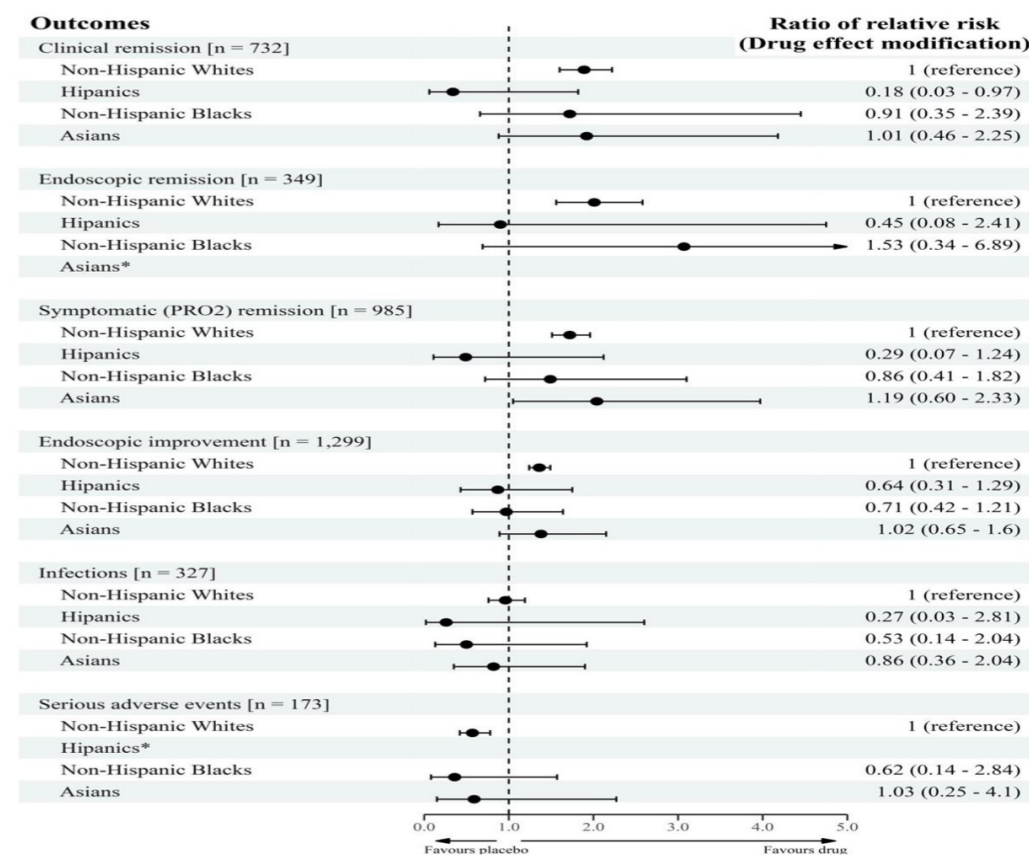


Figure 1. Efficacy and safety of anti-TNF agents in patients with moderate-severe ulcerative colitis, by race and ethnicity
*very low event number, model unstable

ACKNOWLEDGEMENTS

UC San Diego



CONTACT INFORMATION

Claudia Dziegielewski, MD
claudia.dziegielewski@gmail.com

