Impact of Race on ANTI-TNF Immunogenicity in Patients with Inflammatory Bowel Disease

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INTRODUCTION

Immunogenicity is a major contributor to anti-tumor necrosis factor (anti-TNF) treatment failure in inflammatory bowel disease (IBD). Immunomodulator and anti-TNF combination therapy is associated with a decreased risk of immunogenicity. Anti-TNF immunogenicity was recently linked to HLA-DQA1*05 genotype. This study aims to determine the impact of race on rates of immunogenicity and treatment outcomes of IBD pts on anti-TNF combination therapy.

METHODS

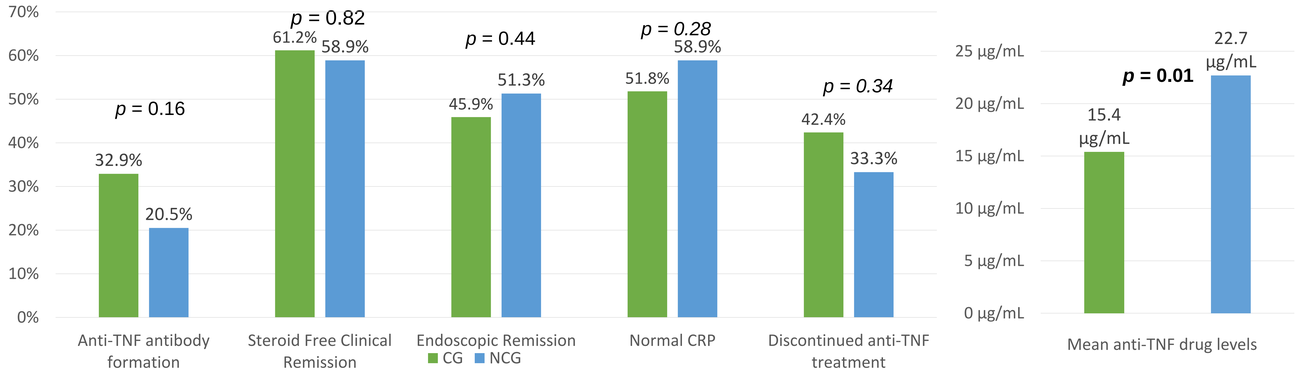
This was a single-center, retrospective study of IBD pts who have been treated with immunomodulators and anti-TNF combination therapy between 2012 and 2020. Our primary outcomes were the rates of anti-TNF antibody formation and mean anti-TNF drug levels between Caucasian group(CG) and non-Caucasian group(NCG**)** on combination therapy. Secondary outcomes included steroid-free clinical remission (SFCR), endoscopic remission (ER) (absence of ulcers/erosions in CD and Mayo endoscopic score ≤ 1 for UC), & normal serum C-reactive protein (CRP) (defined as ≤ 5. mg/L). Continuous variables were analyzed using unpaired student's t-test. Categorical variables were analyzed using a chi-square test.

RESULTS

Table 1: Comparison of Characteristics Between Caucasian vs. Non-Caucasian Race

Outcomes	Caucasian (n=85), n (%), mean (SD)	Non-Caucasian (n=39), n (%), mean (SD)	*p* value
Baseline Characteristics			
Age (years)	34.7 (13.7)	34.7 (11.7)	0.98
Male sex	47 (55.3)	21 (53.9)	0.88
Smoking	7 (8.2)	6 (15.4)	0.23
Follow up (months)	36.4 (27.1)	41.9 (31.8)	0.3
Disease Characteristics			
Disease type, *Crohn's disease* *Ulcerative colitis* *Indeterminate colitis* *Pouchitis*	 53 (62.4) 29 (34.1) 2 (2.3) 1 (1.2)	 32 (82.1) 5 (12.8) 2 (5.1) 0	0.07
Prior bowel resection	21 (24.7)	15 (38.5)	0.12
Presence of extra intestinal manifestations	24 (28.2)	14 (35.9)	0.81
Medication Factors			
Methotrexate	10 (11.8)	6 (15.4)	0.77
Infliximab	61 (71.8)	26 (66.7)	0.56
Escalated anti-TNF Dose	69 (81.2)	29 (74.4)	0.39
Labs (immediately pre combination therapy)			
CRP	12.5 (21.4)	6.8 (7.6)	0.15
Albumin	3.9 (0.6)	4.1 (0.4)	0.16

Figure: Outcomes of Caucasian vs. Non-Caucasian Race



- A total of 124 patients were included (CD; 68.5%, UC; 27.4%, indeterminate colitis; 3.2%, pouchitis; 0.9%).
- A total of 87 patients were on infliximab & 37 patients were on adalimumab.
- Combination therapy with thiopurine was employed in 87.1% while 12.9% were on methotrexate.
- There were no significant differences between CG vs NCG in terms of baseline and disease characteristics (Table 1).
- The outcomes of both groups are shown in Figure.

CONCLUSION

In our cohort, Caucasian patients on anti-TNF combination therapy for IBD had significantly lower anti-TNF drug levels as compared to the non-Caucasian group. However, there was no significant difference between rates of anti-TNF antibody formation and clinical outcomes between the groups. Larger studies are needed to clarify impact of race on anti-TNF therapy.