Racial/ethnic differences in biologic treatment patterns among patients in the CorEvitas Psoriasis Registry

Clinton W. Enos, MD[1], Julie Z. Yi, BS[1], Robert R. McLean, DSc, MPH[2], Adam P. Sima, PhD[2], Elizabeth A. Kohl, MS, MPH[2], Thomas Eckmann, MPH[2], Abby S. Van Voorhees, MD[1]

[1]Department of Dermatology, Eastern Virginia Medical School, Norfolk, VA; [2]CorEvitas, LLC

Introduction

Racial/ethnic differences are shown to exist in the health status and healthcare utilization of patients with psoriasis.[1-3] Biologic agents are highly effective therapies for the treatment of moderate-to-severe psoriasis. However, there is a paucity of data on racial disparities impacting psoriasis management.
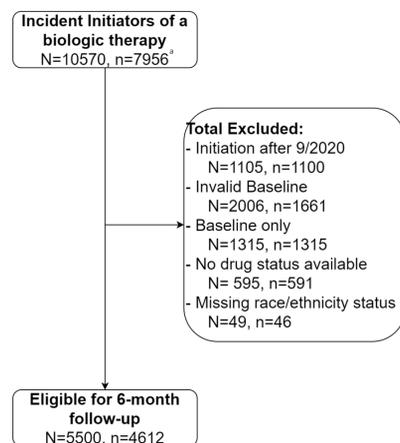
Objective

To assess biologic discontinuation and switching rates after 6-months of therapy among psoriasis patients of different racial/ethnic backgrounds in the US/Canadian CorEvitas Psoriasis Registry

Methods

- The CorEvitas Psoriasis Registry is a prospective, multi-center, non-interventional registry launched in collaboration with the National Psoriasis Foundation (NPF).
- Registry participants who initiated a biologic and had a known 6-month treatment status between April 2015-March 2021 were included.
- Characteristics at biologic initiation were compared across groups using effect sizes.
- Frequencies of discontinuations and switches (stop biologic and start another or add non-biologic therapy) by 6-months were reported. P-values were calculated from Pearson chi-squared test.
- Multivariable-adjusted relative risks (RR) and 95% confidence intervals (CI) for discontinuations and switches were reported in each racial/ethnic group relative to Whites.

Fig 1. Selection flowchart

Incident Initiators of a biologic therapy
N=10570, n=7956[*]

Total Excluded:
- Initiation after 9/2020
  N=1105, n=1100
- Invalid Baseline
  N=2006, n=1661
- Baseline only
  N=1315, n=1315
- No drug status available
  N= 595, n=591
- Missing race/ethnicity status
  N=49, n=46

Eligible for 6-month follow-up
N=5500, n=4612

[a]Total biologic initiations (N); unique patients (n)

Results

Table 1: Patient demographics and health characteristics at biologic initiation among patients in the CorEvitas Psoriasis Registry.

Characteristic	White N = 4128	Black N = 193	Asian N = 460	Hispanic N = 535	Other[a] N = 184	Effect Size[b]
Age, mean (SD)	51.0 (14.3)	50.9 (13.8)	49.9 (15.6)	46.3 (12.9)	45.3 (15.1)	0.117
Female	2057 (49.8%)	122 (63.2%)	159 (34.6%)	251 (46.9%)	85 (46.2%)	0.101
Health Insurance Type						
Private	3087 (74.8%)	136 (70.5%)	297 (64.6%)	378 (70.7%)	105 (57.1%)	0.094
Medicare/Medicaid	975 (23.6%)	54 (28.0%)	141 (30.7%)	114 (21.3%)	53 (28.8%)	0.056
Current smoker	732 (17.9%)	21 (11.4%)	64 (14.0%)	56 (10.8%)	47 (26.1%)	0.161
Daily alcohol use	685 (17.7%)	24 (13.6%)	35 (8.1%)	67 (13.7%)	21 (12.3%)	0.124
BMI (kg/m^{2})						0.190
<25	702 (17.3%)	20 (10.8%)	166 (36.3%)	62 (12.0%)	40 (22.2%)	
25-29.9	1178 (29.1%)	48 (25.9%)	180 (39.4%)	160 (30.9%)	54 (30.0%)	
≥30	2171 (53.6%)	117 (63.2%)	111 (24.3%)	295 (57.1%)	86 (47.8%)	
Comorbid conditions						
CVD[c]	478 (11.6%)	28 (14.5%)	36 (7.8%)	44 (8.2%)	23 (12.5%)	0.049
Hypertension	1557 (37.8%)	98 (50.8%)	175 (38.0%)	162 (30.3%)	59 (32.1%)	0.072
Hyperlipidemia	1131 (27.4%)	53 (27.5%)	153 (33.3%)	127 (23.7%)	41 (22.3%)	0.050
Diabetes Mellitus	602 (14.6%)	37 (19.2%)	94 (20.4%)	115 (21.5%)	41 (22.3%)	0.075
Depression	906 (22.0%)	25 (13.0%)	32 (7.0%)	80 (15.0%)	42 (22.8%)	0.117
Anxiety	979 (23.7%)	22 (11.4%)	26 (5.7%)	91 (17.0%)	45 (24.5%)	0.135
Psoriasis Duration (SD)	16.0 (14.0)	11.8 (11.0)	12.2 (10.1)	12.5 (10.7)	12.5 (12.2)	0.121
Psoriatic Arthritis	1715 (41.5%)	66 (34.2%)	135 (29.3%)	161 (30.1%)	74 (40.2%)	0.094
BSA, Mean % (SD)	13.5 (15.5)	16.0 (17.9)	15.3 (15.2)	15.9 (16.4)	17.1 (19.3)	0.068
BSA, categorical						0.103
Mild [0,3)	623 (15.1%)	26 (13.6%)	33 (7.2%)	55 (10.3%)	22 (12.0%)	
Moderate [3,10)	1994 (48.4%)	84 (44.0%)	211 (45.9%)	230 (43.1%)	73 (39.7%)	
Severe (10,100]	1502 (36.5%)	81 (42.4%)	216 (47.0%)	249 (46.6%)	89 (48.4%)	
PASI, Mean (SD)	7.5 (7.1)	9.8 (10.4)	10.3 (7.9)	10.3 (9.4)	11.0 (9.9)	0.157
PASI, categorical						0.159
Mild [0, 5]	1910 (46.3%)	83 (43.5%)	134 (29.1%)	167 (31.2%)	52 (28.3%)	
Moderate (≥5, 12]	1497 (36.3%)	58 (30.4%)	182 (39.6%)	213 (39.8%)	79 (42.9%)	
Severe (>12, 72]	715 (17.3%)	50 (26.2%)	144 (31.3%)	155 (29.0%)	53 (28.8%)	
Biologic-naïve	1407 (34.1%)	64 (33.2%)	160 (34.8%)	207 (38.7%)	72 (39.1%)	0.034
Biologic Class						0.039
TNFi	705 (17.1%)	37 (19.2%)	72 (15.7%)	100 (18.7%)	35 (19.0%)	
IL-17i	1701 (41.2%)	71 (36.8%)	212 (46.1%)	209 (39.1%)	70 (38.0%)	
IL-23i or IL-12/23i	1722 (41.7%)	85 (44.0%)	176 (38.3%)	226 (42.2%)	79 (42.9%)	

Abbreviations: body mass index (BMI), cardiovascular disease (CVD), body surface area (BSA), Psoriasis Area Severity Index (PASI)
[a]Other race/ethnicities include multiracial, Native American, Native Hawaiian, other Pacific Islander, or other.
[b]Cohen's w (continuous) and f (categorical); small, medium, and large differences are indicated by 0.1, 0.3, and 0.5 for Cohen's w and 0.1, 0.25, and 0.4 for Cohen's f.
[c]Cardiovascular disease includes baseline history of any of the following: cardiac revascularization procedure, ventricular arrhythmia, cardiac arrest, myocardial infarction, acute coronary syndrome, unstable angina, coronary artery disease, congestive heart failure; Cerebrovascular disease includes baseline history of any of the following: stroke, TIA, peripheral vascular disease, peripheral arterial disease.

Fig 2. Frequency of discontinuation/switches by 6-months for biologic initiators in the CorEvitas Psoriasis Registry.

Discontinuation (P= 0.299): White 2.6%, Black 4.1%, Asian 1.7%, Hispanic 3.6%, Other 2.2%
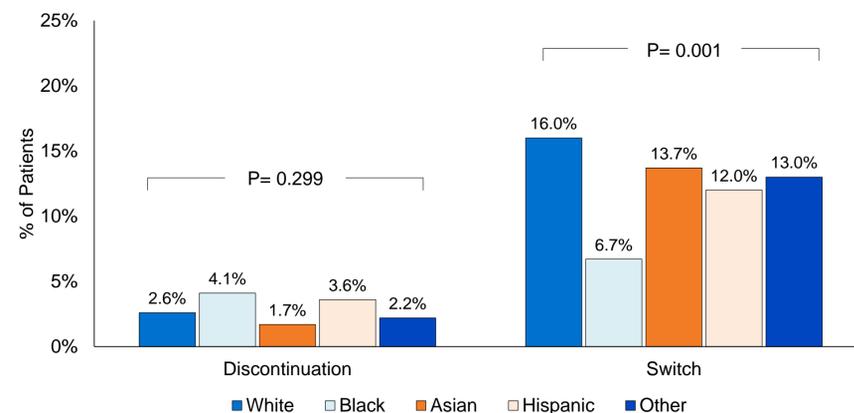Switch (P= 0.001): White 16.0%, Black 6.7%, Asian 13.7%, Hispanic 12.0%, Other 13.0%

Table 2. Multivariable-adjusted relative risks for the association of race/ethnicity with drug status at 6-months among biologic initiators, using White patients as the reference group.

Outcomes	Black RR (95% CI)	Asian RR (95% CI)	Hispanic RR (95% CI)	Other RR (95% CI)	P-value[a]
Discontinuation	1.52 (0.72, 3.22)	0.63 (0.27, 1.46)	1.50 (0.89, 2.54)	0.92 (0.30, 2.84)	0.305
Switch	0.43 (0.26, 0.73)	0.90 (0.69, 1.16)	0.79 (0.61, 1.02)	0.91 (0.61, 1.34)	0.011

[a]P-value originating from a Poisson regression assessing no difference in each outcome among any group. Models are adjusted for patient BMI, comorbid disease, duration of disease, health insurance status, age, sex, baseline PASI, biologic history (bio-naïve or bio-experienced).

Table 3. Frequencies of type of switch and reasons for switch by 6-month follow-up among biologic initiators in the CorEvitas Psoriasis Registry.

	White N = 4128	Black N = 193	Asian N = 460	Hispanic N = 535	Other N = 184
Total number of switches, n (%)	659 (16.0%)	13 (6.7%)	63 (13.7%)	64 (12.0%)	24 (13.0%)
Stop initial and start new therapy	495 (75.1%)	7 (53.8%)	44 (69.8%)	53 (82.8%)	17 (70.8%)
Add biologic therapy	58 (8.8%)	1 (7.7%)	4 (6.3%)	6 (9.4%)	5 (20.8%)
Add non-biologic therapy	106 (16.1%)	5 (38.5%)	15 (23.8%)	5 (7.8%)	2 (8.3%)
Reason for switch					
Adverse events[a]	2 (0.3%)	0 (0.0%)	1 (1.6%)	0 (0.0%)	0 (0.0%)
Poor response[b]	602 (91.4%)	12 (92.3%)	60 (95.2%)	59 (92.2%)	22 (91.7%)
Other	53 (8.0%)	1 (7.7%)	2 (3.2%)	4 (6.3%)	2 (8.3%)
Missing reason[c]	2 (0.3%)	0 (0.0%)	0 (0.0%)	1 (1.6%)	0 (0.0%)

[a]The 'Adverse Events' group includes (1) a safety-related reason mentioned in the primary response, or (2) any of the 'other' reasons is mentioned in the primary response but another safety-related reason in the secondary response. Adverse event reasons can be serious or minor side effects, fear of future side effects, pregnancy, and concerns about Covid-19.
[b]Poor Response includes the following: inadequate initial response; failure to maintain initial response; active disease; alternative mechanism.
[c]A case is classified as "Missing" if no reason is provided for the first and second responses. Other reasons include patient preference, improved compliance, improve tolerability, co-pay/patient cost, denied by insurance, frequency of administration, route administration, and other.

Results

- Patient demographics, health characteristics, and treatment history were similar across groups.
- Unadjusted discontinuation rates at 6-months were similar across groups (Fig 2).
- Black patients had lower unadjusted rates of drug switching (6.7%) than White, Asian, and Hispanic patients (12.0%-16.0%; Fig 2).
- In adjusted analyses, Black patients were 57% less likely to switch therapy relative to Whites (Table 2).
- Among switchers, Black patients had the lowest proportion of patients starting another biologic and the highest adding a non-biologic therapy (Table 3).
- Across all groups, over 90% of switches were due to poor response (Table 3).

Conclusion

Among patients in care, our data shows evidence of racial disparities among Blacks. Black patients in our study were less likely than Whites to switch biologic therapy by 6-months. Among switchers, Black patients had the lowest frequency of starting a different biologic. While sample sizes in the non-White groups were limited and results should be interpreted cautiously, our findings suggest that racial disparities may exist in the management of psoriasis among these patients with access to systemic therapies. Further research to understand why differences in treatment patterns exist is necessary to advance health equity.

References

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