Systemic Medication and Hospitalization Trends by Race in Patients with Psoriasis in the United States

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Introduction

The growing evidence of chronic inflammation and sequelae caused by psoriasis[1-5] indicates the need for systemic treatment, including biologics and conventional systemic treatments like methotrexate. However, unconscious bias may lead to discrepancies in systemic medication prescription, with studies showing that non-Caucasian patients are less likely to be prescribed biologics than Caucasian patients[6-8].

Racial identity has been shown to impact rates of comorbidities and hospitalization in patients with psoriasis. African American patients have a higher prevalence of hypertension, diabetes, and obesity, as well as greater skin involvement and psychological impact compared to Caucasian patients with psoriasis[6,9-10]. While a study has linked the length of hospitalization for psoriasis patients to race[11], no studies to date have examined the effect of race on systemic medication prescription for psoriasis in the context of hospitalization.

Methods

Using the 2020 Healthcare Cost and Utilization Project (HCUP) National Inpatient Sample (NIS), all inpatient admissions over the age of 17 with an ICD-10-coded psoriasis diagnosis were included in our cohort.

The impact of racial identity on systemic medication prescription and length of stay was assessed using adjusted logistic and adjusted linear regression models respectively. Both models adjusted for patient demographics, hospital characteristics, and all patient DRG severity and mortality scores. We reported the adjusted beta coefficients and adjusted odds ratios with Caucasian patients as the reference group for both outcomes. Analyses were weighted following HCUP NIS guidelines.

Variables	Non-Caucasian Patients (n = 815,695)	Caucasian Patients (n = 935,785)	p-value
Demographics:			
Age, Mean (95% CI)	58.20 (57.98 – 58.43)	67.38 (67.23 – 67.54)	<0.001*
Race, n (%)			NA
Caucasian	-	935,785 (100.00)	
African American	314,495 (38.56)	-	
Hispanic	355,900 (43.63)	-	
Asian or Pacific Islander	55,500 (6.80)	-	
Native American	17,475 (2.14)	-	
Other	72,325 (8.87)	-	
Sex, n (%)			<0.001*
Male	418,265 (51.28)	488,310 (52.18)	
Female	397,400 (48.72)	447,425 (47.82)	
Median Income Quartile[a], n (%)			
Lowest	328,110 (40.94)	244,200 (26.48)	
2nd	198,325 (24.75)	268,350 (29.10)	
3rd	163,470 (20.40)	223,490 (24.24)	
Highest	111,475 (13.91)	186,035 (20.18)	
Primary Payer, n (%)			<0.001*
Medicare	316,540 (38.88)	572,950 (61.32)	
Medicaid	182,615 (22.43)	68,785 (7.36)	
Private Insurance	224,235 (27. 54)	239,125 (25.59)	
Self-pay	46,315 (5.69)	18,420 (1.97)	
No Charge	3,045 (0.37)	1,730 (0.19)	
Other	41,395 (5.08)	33,415 (3.58)	
Hospital Characteristics:			
Hospital Region, n (%)			<0.001*
Northeast	159,610 (19.57)	173,055 (18.49)	
Midwest	113,790 (13.95)	267,445 (28.58)	
South	348,215 (42.69)	367,810 (39.31)	
West	194,079 (23.79)	127,475 (13.62)	
Hospital Teaching Status, n (%)			<0.001*
Rural	40,015 (4.91)	125,415 (13.40)	
Urban Non-teaching	138,615 (16.99)	188,235 (20.12)	
Urban Teaching	637,065 (78.10)	622,135 (66.48)	

Table 1: *Demographics of Cohort with Psoriasis Diagnosis Stratified by Racial Identity (n = 1,823,630)*

**Indicates statistically significant result for alpha level = 0.05; NA: p-value could not be estimated*
[a]Median household income for patient's zip code

Results

A total of 1,823,630 inpatient patients with psoriasis fit our inclusion criteria and were included in our analysis.

	Length of Stay	p-value	Systemic Medication	p-value
Variables	**Adjusted Beta Coefficient (95% CI)**		**Adjusted Beta Coefficient (95% CI)**	
Patient Race		<0.001*		<0.001*
Caucasian	Ref		Ref	
African American	1.18 (1.06 – 1.29)*		0.95 (0.89 – 1.02)	
Hispanic	1.24 (1.10 – 1.38)*		0.78 (0.72 – 0.85)*	
Asian or Pacific Islander	1.01 (0.75 – 1.27)*		0.83 (0.75 – 0.91)*	
Native American	1.65 (1.27 – 2.04)*		0.85 (0.72 – 1.00)*	
Other	1.18 (0.94 – 1.42)*		0.76 (0.68 – 0.85)*	
Systemic Medication		<0.001*		NA
No	Ref		-	
Yes	-0.89 (-1.00 – [-0.77])*		-	

Table 2. *Length of Stay and Systemic Medication (n = 1,823,630)*

**Indicates statistically significant result for alpha level = 0.05; NA: p-value could not be estimated*

African-American, Hispanic, Asian or Pacific Islander, and Native American patients with psoriasis were found to have a statistically significant longer length of stay compared to Caucasian patients with psoriasis. The length of stay of Native American patients was most impacted, with a length of stay 1.65 (95% CI: 1.27-2.04) days longer than Caucasian patients. Hispanic, Asian or Pacific Islander, and Native American patients were less likely to receive systemic medication compared to Caucasian patients, with Hispanic patients being 0.78 (95% CI: 0.72-0.85) times as likely to receive systemic medication. Notably, African-American patients were not found to be prescribed systemic medications at a statistically significant amount less than Caucasian patients.

Discussion and Conclusions

Disparities in the medication of choice for psoriasis treatment can lead to increased inpatient burden with longer lengths of stay. Systemic medications are a promising option to help mitigate the proinflammatory effects of psoriasis, but racial disparities in the prescription of systemic medications can lead to greater inpatient burden for non-Caucasian hospitalized patients with psoriasis.

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