Adherence and Persistence with SGLT-2 inhibitors among White and Black Diabetic Kidney Disease Patients: Real-World Evidence From a Large US Claims Database

Seth Kuranz

Forian, Inc. | seth.kuranz@forian.com

EPH55

Background

Studies have shown that sodium-glucose-cotransporter-2 inhibitors (SGLT-2i) effectively slow the progression to end stage renal disease (ESRD) among chronic kidney disease (CKD) patients with and without diabetes [1]. Real-world evidence (RWE) on medication adherence and persistence with SGLT-2 inhibitors among diabetic kidney disease (DKD) patients and differences between White and Black patients has not been well characterized in the literature.

Objectives

To compare medication adherence and persistence with SGLT-2i between White and Black DKD patients in CHRONOS, a US claims database.

Methods

DKD patients first treated with an SGLT-2i (index event) between January 1, 2019, and June 30, 2022, were identified in CHRONOS, a linked claims and social determinants of health database. Patients were required to be aged 18 years or older, have stage 3 or 4 CKD, have a history of diabetes, have 12 months of continuous enrollment in the year before the index event, and have a link between the claims and social determinants of health data. Patients with a prescription for an SGLT-2i before their incident CKD diagnosis and patients with only one prescription for an SGLT-2i were excluded (Figure 1).

Measures of adherence and persistence with an SGLT-2i in the year following the index event were calculated using the proportion of days covered (PDC). PDC was calculated by summing the days supply from the first (index event) to the last SGLT-2i prescription and dividing the summed days supply by the total days of follow-up. Days supply totals accounted for overlapping refill dates by adjusting the start date to align with the end date from the previous prescription. The denominator and numerator for the PDC calculation accounted for censoring. Patients were censored if they switched to a new drug class but were not censored if they switched to another SGLT-2i.

- Adherence: PDC greater than 80%.
- Persistence: Continuous medication coverage, without gaps, from index to the end of follow-up, censoring, or 360 days, whichever event occurred first.

Baseline and outcomes characteristics are reported as frequencies and percentages for categorical variables and means and standard deviations (SD) for continuous variables. Logistic regression was used to compare outcomes between White and Black patients, adjusting for demographics, baseline characteristics, and social determinants of health. Adjusted odds ratios and 95% confidence intervals are reported for each outcome. All patient characteristics were defined by ICD-10-CM and NDC codes.
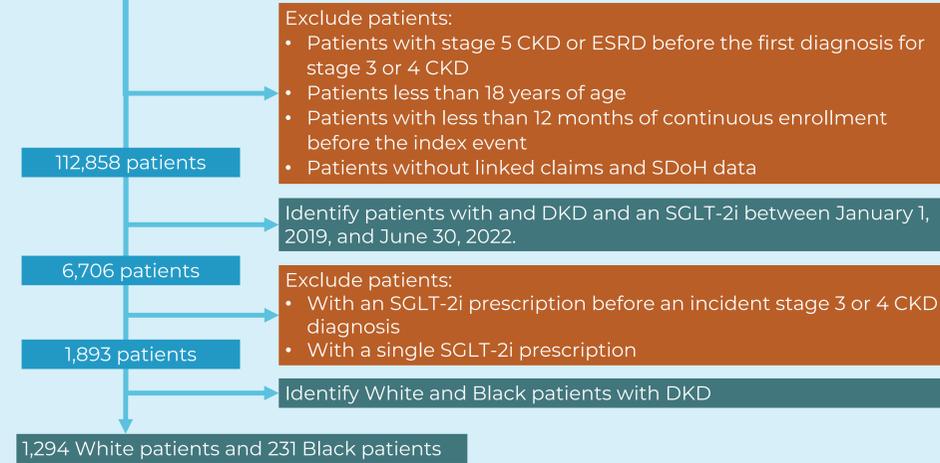

Figure 1. Attrition Criteria and Final Study Sample

Results

White (N=1,294) and Black (N=231) patients initiating an SGLT-2i (Figure 2) were 36.9% and 48.1% female with a mean age of 60.43 (SD: 7.1) and 56.91 (SD: 7.9), respectively. White patients were more likely to have a history of smoking (14.5% vs 6.5%), have completed college or graduate school (49.7% vs 40.7%), have a professional/technical occupation (74.3% vs 59.3%), and have a household income above $50,000 (71.5% vs 46.4%; Table 1).

Adherence and persistence were met by 85.5% and 44.3% of White patients and 78.4% and 37.2% of Black patients, respectively. (Table 1). White patients were 1.4 (1.1-2.1) and 1.4 (1.0-1.9) times as likely as Black patients to meet the definitions of adherence and persistence, adjusting for baseline patient characteristics.

Conclusions

In this analysis, White patients with DKD were more likely than Black patients to be defined as adherent and persistent with SGLT-2i. As the use of SGLT-2i becomes increasingly common among DKD patients, healthcare stakeholders should be aware of disparities between White and Black patients. Further analysis is required to explore predictors associated with adherence and persistence.

1. Mende, C. Chronic Kidney Disease and SGLT2 Inhibitors: A Review of the Evolving Treatment Landscape. Adv Ther (2022) 39:148–164.

Table 1. Baseline Characteristics and Outcomes by Race

	White DKD Patients		Black DKD Patients	
Total (N)	1,294		231	
Baseline Characteristics				
Age at Index (Mean, SD)	60.43	7.15	56.91	7.90
Female (N, %)	478	36.9%	111	48.1%
History of Smoking (N, %)	187	14.5%	15	6.5%
Education (N, %)				
Unknown	106	8.2%	30	13.0%
Completed High School	538	41.6%	107	46.3%
Completed College	416	32.1%	65	28.1%
Completed Grad School	228	17.6%	29	12.6%
Vocational/Technical Training	6	0.5%	0	0.0%
Occupation (N, %)				
Unknown	236	18.2%	81	35.1%
Professional/Technical	961	74.3%	137	59.3%
Student	10	0.8%	2	0.9%
Homemaker	61	4.7%	10	4.3%
Retired	26	2.0%	1	0%
Household Income (N, %)				
Less than $15,000	21	1.6%	21	9.1%
$15,000 - $19,999	53	4.1%	16	6.9%
$20,000 - $29,999	64	4.9%	35	15.2%
$30,000 - $39,999	119	9.2%	29	12.6%
$40,000 - $49,999	112	8.7%	23	10.0%
$50,000 - $74,999	293	22.6%	45	19.5%
$75,000 - $99,999	222	17.2%	23	10.0%
$100,000 - $124,999	132	10.2%	16	6.9%
Greater than $124,999	278	21.5%	23	10.0%
Incident CKD Diagnosis (N, %)				
Stage 3 CKD	1,274	98.5%	225	97.4%
Stage 4 CKD	20	1.5%	6	2.6%
CCI Score (Mean, SD)	1.00	1.34	1.08	1.37
Outcomes				
PDC (Mean, SD)	0.92	0.20	0.89	0.22
Persistence (N, %)	573	44.3%	86	37.2%
Adherence (N, %)	1,106	85.5%	181	78.4%

Note: CCI, Charlson Comorbidity Index; CKD, chronic kidney disease; DKD, diabetic kidney disease;; PDC, proportion of days covered; SD, standard deviation