Predictors of Discontinuation of Angiotensin Converting Enzyme Inhibitors Use Among Medicare Beneficiaries Using Sodium-Glucose Cotransporter 2 Inhibitors

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Hypothesis

- **Background**: Sodium-glucose cotransporter 2 inhibitors (SGLT2is) provide cardiovascular (CV) and renal benefits in T2D patients, and angiotensin-converting enzyme Inhibitors (ACEis) are key for reducing CV risks. However, little is known about ACEi use in SGLT2i users.
- **Hypothesis**: ACEi discontinuation in SGLT2i users will be influenced by patient demographics, comorbidities, and concurrent medication use.

Study Sample

Beneficiaries who filled at least one prescription for SGLT2is between 04/01/2013 – 12/31/2018. (*N* = 27,967)

→ Excluded beneficiaries who did not have continuous enrollment for 12 months before the first SGLT2i prescription date. (*N* = 17,328)

Beneficiaries who continuously enrolled in Medicare Part D for 12 months prior to the first SGLT2i prescription date. (*N* = 10,639)

→ Excluded beneficiaries who did not have type 2 diabetes diagnosis prior to the first SGLT2i prescription date. (*N* = 922)

Final cohort: SGLT2i initiators. (***N* = 9,717**)
Index date: date of the first ACEi prescription date filled after SGLT2i initiation between 04/01/2013 – 12/31/2020

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Methods

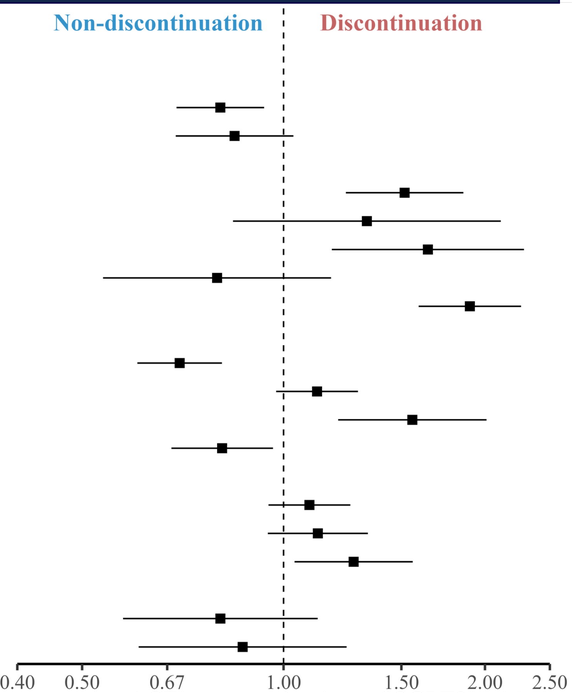
- **Data sources:** Using 2012-2021 Medicare data from a 5% random sample of Medicare beneficiaries.
- **Follow-up**: Patients were followed from the index date until **death**, **disenrollment**, **one year after the index date**, or **end of the study** (12/31/2020).
- **Outcomes**: ACEi discontinuation, defined as having a treatment gap larger than 60 days .
- **Predictors (listed in the figure)**:
  - ***Demographics*** – age, gender, and ethnicity
  - ***Social determinants*** – receipt of low-income subsidy and Medicaid eligibility
  - ***Clinical characteristics*** – chronic conditions
  - ***Use of other medications*** – metformin, insulin, ARBs, diuretics
- **Statistical Analysis**: Multivariate logistic regression models were constructed to estimate the odds ratio (OR) of each covariate.

Conclusions

- ✓ About **one-quarter** of ACEi users discontinued their therapy after SGLT2i initiation.
- ✓ **Patient demographics**, **comorbidities**, and **medication use** were associated with ACEi discontinuation in T2D patients initiating SGLT2is.

Results

Covariates	OR (95% CI)
Demographics	
Age (year)	
(65, 75] vs ≤ 65	0.80 (0.69-0.94) *
> 75 vs ≤ 65	0.84 (0.69-1.03)
Ethnicity	
Black vs White	1.52 (1.24-1.86) *
Hispanic vs White	1.33 (0.84-2.11)
Asian vs White	1.64 (1.18-2.29) *
Other vs White	0.80 (0.54-1.18)
ACEi initiation	1.90 (1.59-2.26) *
Use of other medications	
Metformin	0.70 (0.60-0.81) *
Insulin	1.12 (0.97-1.29)
ARB	1.56 (1.21-2.01) *
Diuretic	0.81 (0.68-0.96) *
Chronic conditions	
Chronic kidney disease	1.09 (0.95-1.26)
Congestive heart failure	1.13 (0.95-1.34)
Stroke or transient ischemic attack	1.27 (1.04-1.56) *
Other chronic conditions	
1-2 diseases vs 0 disease	0.80 (0.58-1.12)
3-6 diseases vs 0 disease	0.87 (0.61-1.24)



- ➢ Among 9,717 SGLT2i initiators, 4,798 (**49.38%**) were active ACEi users at the time of SGLT2i initiation.
- ➢ 1,221 patients (**25.45%**) discontinued their ACEi within 12 months of SGLT2i initiation.
- ➢ **Higher odds** of ACEi discontinuation were observed in:
  - ➢ **African or Black American** (aOR = 1.71, 95% CI: 1.34-1.97).
  - ➢ **ARB users** (aOR = 1.56, 95% CI: 1.21-2.01).
  - ➢ Patients with a **history of stroke** (aOR = 1.27, 95% CI: 1.04-1.56).
- ➢ **Lower odds** of ACEi discontinuation were observed in **metformin users** (aOR = 0.70, 95% CI: 0.60-0.81) and **diuretic users** (aOR = 0.81, 95% CI: 0.68-0.96).