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Comparative Effectiveness of Sodium–Glucose Cotransporter-2 Inhibitors for Recurrent Gout Flares and Gout-Primary Emergency Department Visits and Hospitalizations

A General Population Cohort Study

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Author, Article, and Disclosure Information

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Eligible for CME Point-of-Care

Visual Abstract. Comparative Effectiveness of Sodium–Glucose Cotransporter-2 Inhibitors for Recurrent Gout Flares and Gout-Primary Emergency Department Visits and Hospitalizations

Sodium–glucose cotransporter-2 inhibitors (SGLT2is) decrease serum urate levels, but whether this translates into prevention of recurrent flares and gout-primary emergency department visits or hospitalizations is unknown. This propensity score–matched, new-user cohort study compared gout flares and cardiovascular events among patients with gout who initiated use of SGLT2is versus dipeptidyl peptidase-4 inhibitors.

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Abstract

Background:

Sodium–glucose cotransporter-2 inhibitors (SGLT2is) decrease serum urate levels, but whether this translates into prevention of recurrent flares among patients with gout and gout-primary emergency department (ED) visits or hospitalizations is unknown.

Objective:

To compare gout flares and cardiovascular events among patients with gout initiating SGLT2is versus dipeptidyl peptidase 4 inhibitors (DPP-4is), another second-line glucose-lowering agent not associated with serum urate levels or cardiovascular risk.

Design:

Propensity score–matched, new-user cohort study.

Setting:

General population database from 1 January 2014 to 30 June 2022.

Participants:

Patients with gout and type 2 diabetes.

Measurements:

The primary outcome was recurrent gout flare counts ascertained by ED, hospitalization, outpatient, and medication dispensing records. Secondary outcomes included myocardial infarction and stroke; genital infection (positive control) and osteoarthritis encounter (negative control) were also assessed. Poisson and Cox proportional hazards regressions were used with

1:1 propensity score matching (primary analysis) and overlap weighting (sensitivity analysis).

Results:

After propensity score matching, the flare rate was lower among SGLT2i initiators than DPP-4i initiators (52.4 and 79.7 events per 1000 person-years, respectively), with a rate ratio (RR) of 0.66 (95% CI, 0.57 to 0.75) and a rate difference (RD) of −27.4 (CI, −36.0 to −18.7) per 1000 person-years. The corresponding RR and RD for gout-primary ED visits and hospitalizations were 0.52 (CI, 0.32 to 0.84) and −3.4 (CI, −5.8 to −0.9) per 1000 person-years, respectively. The corresponding hazard ratio (HR) and RD for myocardial infarction were 0.69 (CI, 0.54 to 0.88) and −7.6 (CI, −12.4 to −2.8) per 1000 person-years; the HR for stroke was 0.81 (CI, 0.62 to 1.05). Those who initiated SGLT2is showed higher risk for genital infection (HR, 2.15 [CI, 1.39 to 3.30]) and no altered risk for osteoarthritis encounter (HR, 1.07 [CI, 0.95 to 1.20]). Results were similar when propensity score overlap weighting was applied.

Limitation:

Participants had concurrent type 2 diabetes.

Conclusion:

Among patients with gout, SGLT2is may reduce recurrent flares and gout-primary ED visits and hospitalizations and may provide cardiovascular benefits.

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