

#0099

**Lower Serum Uric Acid Level in Patients with Gout Concurrent Type 2 Diabetes Mellitus Treated with Sodium-glucose Cotransporter 2 Inhibitors Compared to Dipeptidyl Peptidase-4 Inhibitors: A Population-Based Cohort Study**

**Author/s:**

Shu-Yen Chan MD MSc, Pin-Chia Huang MSc, Kevin Sheng-Kai Ma DDS PhD

**Organizations/Affiliations:**

Department of Internal Medicine, Weiss Memorial Hospital, Chicago, IL, USA, Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA, USA,

**Abstract**

**Introduction:** Gout commonly coincides with T2DM or cardiometabolic conditions. Previous studies suggested that antidiabetic medications may have lower gout incidence. However, the mechanism remains unclear, and a direct real-world large-scale comparison is lacking. Thus, this study aims to assess serum uric acid (SUA) level-lowering effects of SGLT2i versus DPP4i in gout patients with concurrent T2DM.

**Methods:** Conducted from 2008 to 2023 across 92 US healthcare organizations with over 200 million patients, this population-based cohort study focused on individuals with gout and T2DM. Inclusion criteria involved age over 18, gout concomitant T2DM, and available SUA data. Propensity score matching was used to eliminate baseline covariates. The primary outcome was SUA levels, with hazard ratios estimated between SGLT2i and DPP4i groups using Cox proportional hazards model and Kaplan-Meier analyses.

**Results:** A total of 11,495 gout patients with T2DM were included. 3,593 SGLT2i users, were 1:1 propensity score matched to DPP4i users. In the SGLT2i arm, only 598 experienced SUA exceeding 6 mg/dL, compared to 920 in the DPP4i group. The odds ratio for SUA > 6 mg/dL was lower with SGLT2i treatment (OR: 0.580, 95%CI=0.517-0.651). Additionally, SGLT2i users had lower odds ratios for gout-related endpoints, including initiation of urate-lowering therapy (RR: 0.830, 95%CI= 0.788, 0.875), hospitalization (RR: 0.423, 95%CI=0.302, 0.594), myocardial infarction (RR: 0.651, 95%CI=0.516, 0.822), and heart failure (RR: 0.711, 95%CI=0.642, 0.787).

**Conclusion:** Our study indicates that SGLT2i is more effective in lowering SUA levels in gout patients with T2DM than DPP4i, which could provide valuable suggestions for future clinical management.