Lower risk of atrial fibrillation development associated with SGLT-2 inhibitors in type 2 diabetic patients compared to DPP-4 inhibitors: a nationwide cohort study

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Background: Accumulating evidence shows that sodium-glucose co-transporter-2 (SGLT-2) inhibitors reduce cardiovascular outcomes. However, this favorable effect is unclear for newly atrial fibrillation (AF) development compared to other anti-diabetic drugs.

Purpose: We investigated the association of SGLT-2 inhibitor for newly AF development compared to dipeptidyl peptidase-4 (DPP-4) inhibitors in patients with type 2 diabetes.

Methods: Using the Korean National Health Insurance Service database, among 2,160,911 type 2 diabetes patients (age ≥20 years) between 1 May 2016 and 31 December 2018, we studied 42,806 patients with SGLT-2 inhibitors and 448,715 patients with DPP-4 inhibitors who had not prior AF diagnosis. Propensity score-matching (1:1 ratio) was used to correct for differences between the groups.

Results: During a median follow-up of 1.3 years, after propensity score matching, compared with patients with DPP-4 inhibitors (n=42,786), patients with SGLT-2 inhibitors (n=42,786) have shown lower incidence and risk of AF (2.7 and 3.3 per 1000 person-years; hazard ratio 0.73, 95% confidence interval 0.55-0.97; p=0.028) and an absolute rate difference of −0.7 [95% confidence interval (CI) −1.3 to −0.1, p=0.034] per 1000 person-years by on-treatment analysis. In intention-to-treat analysis, these results were consistent (2.6 and 3.2 per 1000 person-years; hazard ratio 0.83, 95% confidence interval 0.66-1.03; p=0.092) with an absolute rate difference of −0.5 [95% confidence interval (CI) −1.2 to −0.1, p=0.093] per 1000 person-years. In subgroup analysis, SGLT-2 inhibitors were associated with lower risks of AF in heart failure compared to their counterparts in intention-to-treat analysis (p for interaction=0.036).

Conclusion: Based on this nationwide cohort of type 2 diabetes patients treated with SGLT-2 inhibitors or DPP-4 inhibitors, SGLT-2 inhibitors were associated with protection against newly AF development after adjusting for clinical confounders.

Incidence rates and adjusted HR