Effects of sodium-glucose cotransporter-2 inhibitors on cardiovascular outcomes in patients with atrial fibrillation and type 2 diabetes mellitus

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Background: A sodium-glucose cotransporter-2 inhibitor (SGLT2i) improves clinical outcomes in patients with type 2 diabetes (T2DM) and cardiovascular disease. Also use of SGLT2i was associated with a reduction of atrial fibrillation (AF) burden. We investigated the effect of SGLT2is on clinical outcomes in patients with T2DM and AF.

Methods: This was a retrospective study using a clinical data warehouse (CDW) constructed from 7 medical centers. We analyzed 11,043 patients with AF and T2DM. The patients were classified to the SGLT2i group and the control group according to the SGLT2i use. We performed 1:2 propensity score matching analysis. The primary endpoint was a composite of all-cause death or hospitalization due to heart failure events. The secondary endpoints were acute myocardial infarction, stroke, renal function decline and an initiation of dialysis.

Results: The propensity score matched population consisted of 467 patients in the SGLT2i group and 848 patients in the control group. During a mean follow up of 31.8 (± 21.0) months, the incidence of the primary endpoint was significantly lower in the SGLT2i group (9.6% vs. 16.9%, hazard ratio [HR] 0.624 [0.446 – 0.873]). SGLT2i was associated with reduced all-cause death (HR 0.292 [0.144 – 0.591]) and non-significantly lower risk of heart failure hospitalization (HR 0.734 [0.509 – 1.060]). There was no significant difference in the incidence of myocardial infarction, ischemic stroke, renal function decline and an initiation of dialysis between the two groups. In multivariate analysis, age, renal dysfunction, prior heart failure, and the absence of SGLT2i were independent predictors for the worse outcome.

Conclusion: SGLT2 inhibitor was associated with a lower incidence of all-cause mortality or heart failure hospitalization in patients with AF and T2DM.