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Editorial

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The Intertwined Relationship Between Heart Failure and Atrial Fibrillation, How Can We Untangle It?

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▸ See the article "Lower Atrial Fibrillation Risk With Sodium-Glucose Cotransporter 2 Inhibitors Than With Dipeptidyl Peptidase-4 Inhibitors in Individuals With Type 2 Diabetes: A Nationwide Cohort Study" in volume 54 on page 256.

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Atrial fibrillation (AF) and heart failure (HF) are medical burdens and increasing in prevalence. Both are associated with multiple comorbidities and adverse outcomes.[1)2)] They share risk factors that contribute to adverse remodeling. One can exacerbate the other and their combination leads to increased patient morbidity and mortality.[3)]

Diabetes is a shared risk factor for both diseases. Sodium-glucose cotransporter 2 inhibitors (SGLT2i) and dipeptidyl peptidase-4 inhibitors (DPP4i) are newer recommended options for diabetic treatment. Considering the cardiovascular complications in diabetic patients, the cardiovascular benefits of these agents are of medical interest, including the potential reduction of AF risk.

However, studies examining AF risk reduction with SGLT2i have yielded inconsistent results across different methodologies and study populations. In one study, based on the observational and cohort data, SGLT2i was not associated with AF reduction compared with other glucose-lowering drugs, despite its beneficial impact on other cardiovascular outcomes.[4)] Meta-analyses comparing SGLT2i and placebo in randomized controlled studies also yielded inconsistent results regarding new AF occurrence. Notably, the ethnicity of participants in SGLT2i trials was predominantly white approximately 70% to 80%.[5)6)]

In this issue, Kim et al.[7)] reported the beneficial impact of SGLT2i in lowering new-onset AF risk using a total of 42,786 propensity-matched pairs from the Korean nationwide cohort data. This result is concordant with several other studies comparing the risk of new-onset AF between SGLT2i and DPP4i. Studies using the data from Taiwan[8)] and Hong Kong[9)] also demonstrated a 39% and 32% reduction of new-onset AF in the SGLT2i group, respectively. On the contrary, studies conducted in Scandinavian countries with 28,408 and 40,908 patients showed no significant AF risk reduction between SGLT2i and other diabetic treatments.[10)11)] These contrasting results need to be resolved in future studies.

Randomized trials offer high-level evidence. However, assessing AF risk based on previous trials is challenging, as SGLT2i trials were not primarily designed to evaluate AF risk. Furthermore, the study settings were heterogeneous, including diverse AF assessment protocols. Imbalance in ethnicity should be highlighted when interpreting the results of trials.

Data Sharing Statement

The data generated in this study is available from the corresponding author upon reasonable request.

The contents of the report are the author's own views and do not necessarily reflect the views of the *Korean Circulation Journal*.

Therefore, the current article holds strength in its aim to demonstrate AF risk reduction between two recent, widely used diabetic agents. The implications of this research could prove valuable for managing AF risk in diabetic patients. Further studies investigating AF risk between SGLT2i and other diabetic treatments are warranted with the consideration of ethnic differences.

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