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Editorial

Using of Sodium-Glucose Cotransporter-2 (SGLT-2) Inhibitors in Cardiac Diseases

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Diabetes mellitus (DM) is a common health problem characterized by chronic hyperglycemia with an increasing prevalence worldwide [1]. It is one of the leading causes of mortality and morbidity, primarily due to its cardiovascular complications [2]. Recent advances in the treatment of DM and some of the new oral antidiabetics have decreased the mortality caused by cardiovascular complications [3]. Sodium-glucose cotransporter-2 (SGLT-2) inhibitors are a type of hypoglycemic agent that increases urinary glucose and sodium excretion by blocking glucose reabsorption proximal tubule of the kidney. Studies have shown that SGLT-2 inhibitors reduce hospitalizations and mortality due to heart failure and improve prognosis [4]. Other positive cardiovascular effects have been shown to include atherosclerotic plaque regression, blood pressure regulation, weight reduction, prevention of cardiac fibrosis, and improved lipid profiles [5-8].

Phlorizin isolated from apple trees in 1835 was the first natural SGLT inhibitor with a high affinity for both SGLT-1 and SGLT-2 [9]. In the following years, dapagliflozin was developed with more than 1200-fold higher potency for SGLT- 2 than SGLT-1 [10]. Canagliflozin is another phlorizin derivative with 400 folds higher inhibitory activity for SGLT-2 than SGLT-1. This group's third agent is empagliflozin, which has the highest selectivity for SGLT-2 over SGLT-1 (about 2700 folds) [11]. EMPA-REG OUTCOME trial, the positive effects of empagliflozin in heart failure with reduced ejection fraction (HFrEF) has become a new beacon of hope for treatment. So it became debatable whether it was a diabetes drug or a heart failure drug.

As a result, we believe that SGLT-2 inhibitors are an essential part of the treatment, especially in diabetic patients with heart failure. It is seen that SGLT-2 inhibitors will be preferred more in the future, considering the other positive cardiovascular effects.

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