The effects of SGLT-2 inhibitors on cardiac remodelling in T2DM patients with coronary artery disease

Mohamed Wan Ahmad Syazani[1], Ishak Khairul Nisa'[1], Zainudin Nur Ain Zahidah[3], Huri Hasniza Zaman[2], Jaharudin Azrul Fahmi[4], Zuhdi Ahmad Syadi Mahmood[4], Sukahri Samshol[4], Jamil Amira Hajirah Abdul[2]

[1]Nutrition Unit, Nutrition, Metabolism and Cardiovascular Research Centre (NMCRC), Institute for Medical Research, Malaysia, [2]Faculty of Pharmacy, University Malaya, [3]Centre for Coordination of Clinical Research Network (CCRN), Institute for Clinical Research, Malaysia, [4]Department of Cardiology, Faculty of Medicine, University Malaya

ABSTRACT

Introduction: Sodium-glucose cotransporter-2 (SGLT-2) inhibitors make up an antidiabetic medication that promotes glycosuria. They are known to have an indirect reduction in cardiovascular complications, based on a series of in-depth studies. However, the cardiac remodelling impact of SGLT-2 inhibitors in type 2 diabetes mellitus (T2DM) with coronary artery disease (CAD) patients in Malaysia has not yet been fully explored. Therefore, this study aims to determine the cardiac remodelling effects in T2DM patients with CAD after the initiation of SGLT-2 inhibitors. **Methods:** A quasi-experimental cohort study was carried out by recruiting 360 patients in a single centre (half initiated with SGLT-2 inhibitors, and half not) across a six-month period. Ejection fraction (EF), Left Ventricular End Diastolic Volume (LVEDV), as well as Left Ventricular Mass (LVM) were gauged using echocardiography. **Results:** Currently, a total of 25 patients (19 patients with SGLT-2 inhibitors, and six controls) have successfully completed the study. SGLT-2 inhibitor demonstrated an increment in EF (58.0±5.81% vs 56.0±3.45%, p=0.03), although the reduction of LVEDV (124.7±23.74ml vs 131.9±16.78ml) and LVM (227.4±51.43g vs 195.8±36.37g) were reported to be statistically insignificant. **Conclusion:** SGLT-2 inhibitors have a valuable impact on EF for T2DM patients with CAD independently on LVEDV and LVM, indicating a series of benefits in combating cardiovascular complications, particularly congestive cardiac failures.