Lunch Symposium

Saturday, 7 December 2019 • 12:30 – 14:00 • Function Room 1&2 (2/F)

Leading the shift of T2DM Paradigm: role of SGLT2i beyond glucose control

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Dr. Tong is a Clinical Associate Professor (Honorary) in the Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong, and is a Past President of the Hong Kong Society of Endocrinology, Metabolism and Reproduction. He was a Professor in the Department of Medicine & Therapeutics, The Chinese University of Hong Kong. Dr. Tong was a co-founder of Qualigenics Medical Limited, a technology transfer and health promotion programme company established by the Chinese University of Hong Kong and an industrial partner collaboration. His previous position was the Medical Director of Raffles Medical (Hong Kong) Limited.

Dr. Tong obtained a First Class Honours degree in Pharmacy from The University of Bradford, UK. He received his MBBS (Bachelor of Medicine) and PhD degrees from The University of Newcastle upon Tyne, UK. He has been a UK Medical Research Council Clinical Research Training Fellow, and also received a Peel Travelling Fellowship for his postdoctoral fellowship at the Hospital for Sick Children in Toronto, Canada.

Dr. Tong's research areas include disease management models of diabetes, diabetic kidney disease, obesity, the cellular mechanism of insulin resistance, and the use of traditional Chinese medicine in the treatment of diabetes. His work has been published in many international peer-reviewed scientific journals.

For decades the approach to treat diabetes has been focusing on glycemic control and reduce microvascular complication, however cardiovascular disease (CVD) remains the major leading cause of morbidity and mortality in this population.

Sodium glucose co-transport 2 inhibitor (SGLT2i) blocks the glucose transport at proximal tubule in the kidney and facilitate glycemic level by increase urinary glucose excretion, it also improves several metabolic parameters, including blood pressure, body weight and serum uric acid level. This class of therapeutic agent may also potentially modulate cardiac and renal function via its effects on atherosclerosis, inflammation, oxidative stress, diuresis, renal hemodynamic effect, myocardial function, vascular resistance and 'fuel' metabolism.

The EMPA-REG OUTCOME study, the first published large dedicated CV outcome SGLT2i trial, with the aim to verify CV safety, has revealed significant relative risk reductions of 38% in CV death; 32% in all-cause mortality and 35% in hospitalization for heart failure (HHF) in T2DM patients with established CVD.

In addition, subgroup analysis has found the overall results to be consistent even in Asian population.

As diabetic nephropathy (DMN) is the leading cause of kidney damage and end-stage renal disease (ESRD), also one of the complication that is most devastating to patients' quality of life and survival, therefore it is also worth noting empagliflozin can substantially reduce incident or worsening of nephropathy by 39%; progression to macroalbuminuria by 38%; doubling of serum creatinine ≤ eGFR 45 by 44%; time to first initiate of continuous renal replacement therapy by 55%

Further analysis also demonstrated a lower rate of heart failure readmission, in patients treated with empagliflozin. In the real world setting, EMPRISE study showed that the initiation of empagliflozin was associated with an approximate 40% decrease in risk of HHF, compared with dipeptidyl peptidase-4 (DPP4) inhibitors. Although the exact mechanism of CV benefits of SGLT2i remain uncertain, it appears not to be solely contributed by its glucose-lowering effect.

The recent EASD/ADA consensus statement suggests that in T2DM patients with atherosclerotic CVD, HF or chronic kidney disease, a different approach with a preferential use of glucagon-like peptide-1 receptor agonist or SGLT2i are recommended. The robust and consistent evidence on CV risk reduction demonstrated by the class of SGLT2i supports its wide clinical utilization in T2DM patients. However, clinicians should weigh these benefits against the potential side effects or risks associated with SGLT2i, such as an increase in urogenital infection and a possibility of developing euglycemic diabetic ketoacidosis, prior to the commencement of this class of oral anti-diabetic agent in our patients.