The renal outcome post contrast exposure in patient with diabetes and SGLT2 inhibitor

Chih-Chin Kao, Chih-Wei Chen, Ming-Tsang Chuang, Yi-Cheng Lin, Mai-Szu Wu, Chun-Yao Huang
Department of Internal medicine, Taipei Medical University Hospital, Taiwan

Objectives: Contrast-induced nephropathy (CIN) is increasingly prevalent as the increased age and comorbidities. Though most CIN can be reversible, some may progress to AKD and subsequent CKD. SGLT2 inhibitor has been known to bring better renal outcomes. However, whether it protects contrast-induced kidney injury is not known well. Therefore, we aimed to investigate the renal outcomes post-contrast exposure in patients with diabetes and SGLT2 inhibitor.

Methods: We used the Taipei Medical University Clinical Research Database (TMUCRD), composed of clinical data from 3 teaching hospitals. which stores electronic health data of 3 million patients. Patients with diabetes and exposure to contrast in CT-imaging studies or catheter-based angiography from 2016 to 2020 were included. The primary outcome was major kidney adverse event (MAKE), which included acute kidney disease (AKD), chronic kidney disease (CKD), renal replacement therapy (RRT), new onset of urinary albumin-creatinine ratio (uACR), eGFR decline ≥ 40% and all-cause mortality. We used overlap weighting to reduce confounding factors, as in observational studies.

Results: A total of 12,421 patients were included in this study, of them, 920 and 11501 patients were categorized to SGLT2 inhibitor users and non-SGLT2 inhibitor users, respectively. SGLT2 inhibitor user had lower MAKE risk as compared with non-SGLT2 inhibitor i user (incidence rate: 37.9 v.s. 53.4 per 1,000 person months, P value = 0.0002) after exposure to contrast media. The incidence rate of AKD, CKD, and eGFR decline ≥ 40% were significantly lower in SGLT2 inhibitor user. However, there were no significantly different in the risk of RRT, new onset of uACR or all-cause mortality.

Conclusions: In this retrospective cohort study, we found that SGLT2 inhibitor user was associated with lower MAKE comparing with non-SGLT2 inhibitor user after contrast exposure in patients with diabetes.