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Are SGLT2 Inhibitors Beneficial or Harmful for ADPKD Patients?

Fumihiko Hattanda
Hokkaido University Hospital, Japan

In recent years, sodium-glucose cotransporter 2 (SGLT2) inhibitors have emerged as a key therapeutic option for the management of chronic kidney disease (CKD), demonstrating significant benefits in improving both renal and cardiovascular outcomes, not only in patients with diabetic kidney disease but also in those with non-diabetic kidney disease. These findings have been demonstrated in large-scale, randomized, double-blind, placebo-controlled trials such as the EMPA-KIDNEY and DAPA-CKD. However, patients with autosomal dominant polycystic kidney disease (ADPKD) were excluded from these studies, and the efficacy and safety of SGLT2 inhibitors in ADPKD patients remain uncertain. Moreover, preclinical studies using ADPKD animal models have reported controversial results, with some suggesting that SGLT2 inhibition may accelerate cyst progression, raising concerns about potentially harmful effects in ADPKD. Recently, several clinical studies from Japan have reported the effect of SGLT2 inhibitors in patients with ADPKD. Although these studies are small, preliminary prospective studies have suggested that SGLT2 inhibitors, particularly when used in combination with tolvaptan, may contribute to the suppression of renal function decline and kidney volume enlargement. In this presentation, we will review the potential effects of SGLT2 inhibitors on ADPKD, including findings from our basic research using ADPKD models. Additionally, we will provide an overview of recent clinical investigations conducted in Japan and introduce the design of upcoming trials evaluating the use of SGLT2 inhibitors in patients with ADPKD.

Keywords: autosomal dominant polycystic kidney disease, ADPKD, sodium-glucose cotransporter 2 inhibitors, SGLT2 inhibitors, chronic kidney disease