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Dapagliflozin alter EVs miRNAs in patients with IgA nephropathy

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Objectives : Extracellular vesicle (EV) containing microRNAs (miRNAs) play a crucial role in regulating gene expression in a variety of tissue and contribute to the pathophysiology of various renal disease. Sodium glucose co transporter 2 inhibitors (SGLT2i) has improved renal outcomes in IgA nephropathy (IgAN). This study aims to explore how dapagliflozin affect EVs-miRNAs in IgAN patients.
Methods : We prospectively enrolled 26 biopsy-proven IgAN patients who had not previously been treated with SGLT2i. The participants were received dapagliflozin (10 mg/day). Serum samples were collected both before treatment and after 6 months of dapagliflozin therapy. Using RNA sequencing, we assessed the serum EV-miRNAs profile of all participants.
Results : The cohort predominantly consisted of male (n=15, 64%) with a mean age was 48.6 ± 12.2 years. Dapagliflozin reduced estimated GFR over the study period (73.9 ± 23.7 vs 69.8 ± 21.5 mL/min, p = 0.012). RNA sequencing revealed differential expression of 21 miRNAs in before and after dapagliflozin. Biological pathway analysis of these miRNA indicated that they are likely involved in proteoglycan in cancer and Hippo signaling pathway (Figure 1).
Conclusions : Dapagliflozin alters the EVs-miRNAs expression profile in IgAN patients. These miRNAs may be promising candidates for the predicting prognosis and treatment of IgAN.

igan fig1.png