A new class of drugs called SGLT2 Inhibitors may provide another treatment option for kidney disease

Sodium-glucose cotransporter 2 (SGLT2) inhibitors are a new class of medications prescribed to prevent further decline of kidney function in patients with diabetic kidney disease. These drugs also show promise in protecting kidney function for a type of nephrotic syndrome called IgA nephropathy.

SGLT2 inhibitors were designed to block the function of a molecule, SGLT2, that helps balance sodium and glucose levels. Understanding how this drug works in the kidney is important to determine who will benefit from this treatment and when it might be most effective.

NEPTUNE biopsies helped locate SGLT2 in kidneys

Kidney biopsy samples from different research studies, including NEPTUNE, were used to develop a library of all the molecules in the kidney and where they are present under different conditions of health and disease. Researchers set out to learn where, and how much, SGLT2 can be found in healthy kidneys and then compare these findings to amounts noted in diabetic kidney disease and nephrotic syndrome. SGLT2 was found in the filters of the kidney, called the glomeruli, previously only reported in animal studies. The amount of SGLT2 in the tubules, involved in urine production, varied across patients with nephrotic syndrome, diabetic kidney disease, and healthy kidneys.

Patients with diabetic kidney disease seemed to have the lowest amount of SGLT2, and yet, SGLT2 inhibitors have been shown to improve kidney outcomes in these patients. More research is needed to learn how the amount of kidney SGLT2 might relate to the benefits of taking SGLT2 inhibitors. SGLT2 inhibitors may be more commonly prescribed, in the future, for various kidney diseases, given the promising results from recent clinical trials. Studies like this help explain how these medications affect the kidneys, and can help doctors decide when they should be prescribed.

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