New oral diabetes drugs may also protect patients' kidney health

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A recent study indicates that a new class of oral diabetes drugs may help protect patients' kidney health in addition to lowering their blood sugar levels. The findings appear in an upcoming issue of the *Journal of the American Society of Nephrology* (*JASN*).

Agents that inhibit the sodium-glucose cotransporter 2 (SGLT2) in the kidney lower blood sugar by augmenting excretion of glucose in the urine. In addition, this new class of anti-diabetes medication lowers blood pressure and body weight. The effects of SGLT2 inhibitors on kidney function have not been thoroughly assessed, however.

To investigate, a team led by Hiddo Lambers Heerspink, PhD (University Medical Center Groningen, in the Netherlands) analyzed 2 years of data from a randomized controlled trial comparing the SGLT2 inhibitor canagliflozin and another diabetes drug called glimepiride. (Glimepiride is a sulfonylurea, which increases insulin release from cells in the pancreas.) The analysis included 1450 patients with type 2 diabetes receiving metformin who were randomly assigned to either once-daily canagliflozin 100 mg, canagliflozin 300 mg, or glimepiride uptitrated to 6 to 8 mg. Estimated glomerular filtration rate (eGFR) was measured to assess kidney function.

Glimepiride, canagliflozin 100 mg, and canagliflozin 300 mg groups had eGFR declines of 3.3, 0.5, and 0.9 ml/min per 1.73 m2 per year, respectively. Patients receiving glimepiride, canagliflozin 100 mg, or canagliflozin 300 mg had reductions in HbA1c (a measure of blood

sugar) of 0.81%, 0.82%, and 0.93%, respectively, at 1 year and 0.55%, 0.65%, and 0.74%, respectively, at 2 years.

The findings indicate that canagliflozin slows the progression of kidney function decline to a greater extent than glimepiride, while having similar blood sugar-lowering effects.

"Since glycemic control was only modestly different between canagliflozin and glimepiride, our results suggest that potential kidney protective effects of canagliflozin may be unrelated to glycemic control," said Dr. Heerspink. "Our results are especially important since many patients with diabetes are at risk of progressive kidney function loss and canagliflozin may offer a new and improved therapeutic opportunity for these patients."

In an accompanying editorial, Ian de Boer, MD and Steven Kahn, MB, ChB (University of Washington and VA Puget Sound Health Care System) noted that the kidney-protective effects of SGLT2 inhibitors add to exciting results suggesting that this class of medications may also reduce cardiovascular events such as heart attacks and strokes. "The apparent renal and cardiovascular benefits of SGLT2 inhibitors will encourage primary care physicians and endocrinologists to use these agents more frequently in the care of patients with type 2 diabetes," they wrote. "Of course, adverse effects, costs, alternative agents, and individual patient characteristics must also be taken into account."

More information: "Canagliflozin Slows Progression of Renal Function Decline Independently of Glycemic Effects," August 18, 2016, DOI: 10.1681/ASN.2016030278.

Editorial "SGLT2 Inhibitors—Sweet Success for Diabetic Kidney Disease?" August 18, 2016, DOI: 10.1681/ASN. 2016060650.

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