DIABETES DRUG HAS KIDNEY-PROTECTIVE EFFECTS IN PATIENTS WITH ADVANCED KIDNEY DISEASE

Patients receive similar benefits from canagliflozin as those with earlier stages of kidney disease.

Highlights
• The diabetes drug canagliflozin slowed kidney function decline in patients with diabetes and advanced chronic kidney disease.
• The drug also reduced the risk of developing kidney failure and cardiovascular problems in these patients.

Washington, DC (November 19, 2020) — A recent analysis indicates that a drug shown previously to slow kidney disease progression is effective even in patients with advanced disease. The results appear in an upcoming issue of CJASN.

The Canagliflozin and Renal Events in Diabetes with Established Nephropathy Clinical Evaluation (CREDENCE) trial demonstrated that canagliflozin, a diabetes medication within a class called sodium glucose co-transporter 2 (SGLT2) inhibitors, reduced the risk of kidney failure and cardiovascular events in adults with type 2 diabetes and chronic kidney disease (CKD). Little is known about the use of SGLT2 inhibitors in patients with advanced CKD, however.

To investigate, George Bakris, MD (University of Chicago Medicine) and his colleagues conducted a post hoc analysis of CREDENCE data pertaining to the 174 patients who had advanced CKD, or an estimated glomerular filtration rate (eGFR) below 30 mL/min/1.73 m² at the start of the trial.

The researchers found that canagliflozin slowed CKD progression compared with placebo, with a 66% difference (average eGFR declines of −1.30 vs. −3.83 mL/min/1.73 m² per year). Also, canagliflozin’s effects on kidney, cardiovascular, and mortality outcomes were consistent with those seen for individuals with less advanced CKD.

“Until recently, there were limited data regarding the use of SGLT2 inhibitors in patients with compromised kidney function, and there were few treatment options for this patient population who are at a high risk for developing kidney failure,” said Dr. Bakris. “This research suggests that canagliflozin is a safe treatment option for this patient population that can help to slow the progression of kidney disease.”
An accompanying editorial notes that 2 other clinical trials that are examining the effects of other SGLT2 inhibitors include participants with eGFRs below 30 mL/min/1.73 m².

Study co-authors include Megumi Oshima, MD; Kenneth W. Mahaffey, MD; Rajiv Agarwal, MD; Christopher P. Cannon, MD; George Capuano, PhD; David M. Charytan, MD; Dick de Zeeuw, MD; Robert Edwards, MPH; Tom Greene, PhD; Hiddo J.L. Heerspink, PharmD, PhD; Adeera Levin, MD; Bruce Neal, MB ChB, PhD; Richard Oh, MD; Carol Pollock, MBBS, PhD; Norman Rosenthal, MD; David C. Wheeler, MD; Hong Zhang, MD, PhD; Bernard Zinman, MD; Meg J. Jardine, MBBS, MD; and Vlado Perkovic MBBS, PhD.

The article, titled “Effects of Canagliflozin in Patients with Baseline eGFR <30 mL/min/1.73 m²: Subgroup Analysis of the Randomized CREDENCE Trial,” will appear online at http://cjASN.asnjournals.org/ on November 19, 2020, doi: 10.2215/CJN.10140620.


Disclosures:
All of the authors received research support and consulting fees from Janssen in relation to their roles on the Steering Committee of the CREDenCE trial.

G. Bakris has received research funding paid to the University of Chicago for serving as principal investigator on national clinical trials for Bayer, Janssen, and Novo Nordisk; has served as a consultant for Merck, Relypsa, Novo Nordisk, and AstraZeneca; has served on a steering committee for Vascular Dynamics; has served as Editor of the American Journal of Nephrology and Nephrology, Editor-in-Chief of UpToDate, and Nephrology and Hypertension Section Editor of UpToDate; and has served as Associate Editor of Diabetes Care, Hypertension Research, and Nephrology, Dialysis, and Transplantation.

M. Oshima is supported by the Japan Society for the Promotion of Science Program for Fostering Globally Talented Researchers.
K.W. Mahaffey has received research support from Afferent, Amgen, Apple, Inc, AstraZeneca, Cardiva Medical, Inc, Daiichi, Ferring, Google (Verily), Johnson & Johnson, Luitpold, Medtronic, Merck, National Institutes of Health (NIH), Novartis, Sanofi, St. Jude, and Tenax; and has served as a consultant (speaker fees for CME events only) for Abbott, Ablynx, AstraZeneca, Baim Institute, Boehringer Ingelheim, Bristol-Myers Squibb, Elsevier, GlaxoSmithKline, Johnson & Johnson, MedErgy, Medscape, Mitsubishi, Myokardia, NIH, Novartis, Novo Nordisk, Portola, Radiometer, Regeneron, Springer Publishing, and UCSF.
R. Agarwal has received research funding from GlaxoSmithKline; has received personal fees from Akebia, Bayer, Johnson & Johnson, Boehringer Ingelheim, Takeda, Daiichi Sankyo, Amgen, AstraZeneca, Sanofi, Celgene, Reata, Relypsa, GlaxoSmithKline, Gilead, ER Squibb and Sons, Fresenius, Ironwood Pharmaceuticals, Otsuka, Opko, and Eli Lilly; and has served as Associate Editor of the American Journal of Nephrology and Nephrology, Dialysis, and Transplantation and as an author on UpToDate.

C.P. Cannon has received research grants from Amgen, Boehringer Ingelheim, Bristol-Myers Squibb, Daiichi Sankyo, Merck, Janssen, and Takeda; and has received consulting fees from Aegerion, Alnylam, Amarin, Amgen, AstraZeneca, Boehringer Ingelheim, Bristol-Myers Squibb, Corvidia, GlaxoSmithKline, Innovent, Eisai, Eli Lilly, Kowa, Merck, Pfizer, Regeneron, and Sanofi.

G. Capuano is a full-time employee of Janssen Research & Development, LLC.

D.M. Charytan has received fees paid by Janssen Pharmaceuticals to the Baim Institute for work on the CREDENCE trial steering committee and as Scientific Lead; and received salary support from the Baim Institute for this work through October 2018. After that time, he received consulting fees from Baim. He has consulted for Amgen, AstraZeneca, Medtronic/Covidien, Zoll, Fresenius, Daiichi Sankyo, Douglas and London, Eli Lilly, Merck, Gilead, GlaxoSmithKline, and Novo Nordisk; has served on data safety and monitoring boards for AstraZeneca and Allena Pharmaceuticals; has served on a CEC for Merck and PLC Medical; and has received research support from Amgen and Medtronic.

D. de Zeeuw has served on advisory boards and/or as a speaker for Bayer, Boehringer Ingelheim, Fresenius, Mundipharma, and Mitsubishi Tanabe; has served on steering committees and/or as a speaker for AbbVie and Janssen; and has served on data safety and monitoring committees for Bayer.

R. Edwards is a full-time employee of Janssen Research & Development, LLC.

T. Greene has received consulting fees from Janssen, Durect, and Pfizer; and research support from AstraZeneca and Boehringer Ingelheim.

H.J.L. Heerspink has served as a consultant for AbbVie, Astellas, AstraZeneca, Boehringer Ingelheim, Fresenius, Gilead, Janssen, Merck, and Mitsubishi Tanabe; and has received grant support from AbbVie, AstraZeneca, Boehringer Ingelheim, and Janssen.

A. Levin serves as a scientific advisor to Boehringer Ingelheim, AstraZeneca, and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), is on the data safety and monitoring board for NIDDK, Kidney Precision Medicine, University of
Washington Kidney Research Institute Scientific Advisory Committee, and is funded by Canadian Institute of Health Research, and Kidney Foundation of Canada. She has received fees for time as CREDENCE National Coordinator from Janssen, directed to her academic team.

B. Neal is supported by an Australian National Health and Medical Research Council Principal Research Fellowship; holds a research grant for this study from Janssen; and has held research grants for other large-scale cardiovascular outcome trials from Roche, Servier, and Merck Schering-Plough; and his institution has received consultancy, honoraria, or travel support for contributions he has made to advisory boards and/or the continuing medical education programs of Abbott, Janssen, Novartis, Pfizer, Roche, and Servier.

R. Oh is a full-time employee of Janssen Research & Development, LLC.

C. Pollock has received honoraria for serving on advisory boards and as a speaker for Merck Sharpe & Dohme, AstraZeneca, and Boehringer Ingelheim/Eli Lilly.

N. Rosenthal is a full-time employee of Janssen Research & Development, LLC.

D.C. Wheeler has received fees and travel funding from Janssen for his role as a member of the CREDENCE steering committee. He has also received fees for advisory boards, steering committee roles, or scientific presentations from Amgen, AstraZeneca, Bayer, Boehringer Ingelheim, GlaxoSmithKline, Mitsubishi, Mundipharma, Napp, Ono Pharma, Tricida, and Vifor Fresenius.

H. Zhang has received consulting fees from Janssen.

B. Zinman has served as a consultant and received honoraria from AstraZeneca, Boehringer Ingelheim, Eli Lilly, MSD, Novo Nordisk, and Sanofi and has received grant support from Boehringer Ingelheim, Novo Nordisk, and AstraZeneca.

M.J. Jardine is supported by a Medical Research Future Fund Next Generation Clinical Researchers Program Career Development Fellowship; is responsible for research projects that have received unrestricted funding from Baxter, Amgen, Eli Lilly, and Merck Sharp & Dohme; serves on a steering committee sponsored by CSL; has served on advisory boards sponsored by Akebia, Baxter, Boehringer Ingelheim, MSD, and Vifor; and has spoken at scientific meetings sponsored by Janssen and Amgen, with any consultancy, honoraria, or travel support paid to her institution.

V. Perkovic has received fees for advisory boards, steering committee roles, or scientific presentations from AbbVie, Astellas, AstraZeneca, Bayer, Baxter, Bristol-Myers Squibb, Boehringer Ingelheim, Dimerix, Durect, Eli Lilly, Gilead, GlaxoSmithKline, Janssen,
Merck, Mitsubishi Tanabe, Mundipharma, Novartis, Novo Nordisk, Pfizer, Pharmalink, Relypsa, Retrophin, Sanofi, Servier, Vifor, and Tricida.

The content of this article does not reflect the views or opinions of The American Society of Nephrology (ASN). Responsibility for the information and views expressed therein lies entirely with the author(s). ASN does not offer medical advice. All content in ASN publications is for informational purposes only, and is not intended to cover all possible uses, directions, precautions, drug interactions, or adverse effects. This content should not be used during a medical emergency or for the diagnosis or treatment of any medical condition. Please consult your doctor or other qualified health care provider if you have any questions about a medical condition, or before taking any drug, changing your diet or commencing or discontinuing any course of treatment. Do not ignore or delay obtaining professional medical advice because of information accessed through ASN. Call 911 or your doctor for all medical emergencies.

Since 1966, ASN has been leading the fight to prevent, treat, and cure kidney diseases throughout the world by educating health professionals and scientists, advancing research and innovation, communicating new knowledge, and advocating for the highest quality care for patients. ASN has more than 21,000 members representing 131 countries. For more information, visit [www.asn-online.org](http://www.asn-online.org).

###