Smoking Counteracts the Benefit of Medications for Kidney Disease

Chicago—Smoking may partly counteract the benefits of treatment with angiotensin converting enzyme inhibitors (ACE inhibitors) for patients with chronic kidney disease (CKD), according to a study presented at Kidney Week 2016. Smoking has been linked to worsening kidney decline, but the exact mechanisms are unclear, according to lead author Bethany Roehm, MD, of Tufts Medical Center in Boston.

“The importance of smoking as a renal risk factor is highlighted by the fact that its negative effects have been shown in subjects of the general population and in patients with primary or secondary renal disease,” said Stephen R. Orth, MD, PhD, FASN, of the Dialysis Center in Bad Aibling, Germany (Hallan SI and Orth SR. N Engl J Med 2015; 373:2103–2116).

Now, Tisha Joerla Tan, MD, of Loyola University Medical Center, and her colleagues have used data from the National Health and Nutrition Examination Survey (NHANES), an annually national representative survey of the US population, to estimate how many US individuals would benefit if the right blood pressure control were applied to those who meet the criteria used in the SPRINT trial. The analysis included adults age 50 or older with a systolic blood pressure between 130 and 180 mm Hg depending on how many antihypertensives they were taking, and one or more risk factors for cardiovascular disease. Individuals with diabetes, a history of stroke, proteinuria greater than 1g/day, heart failure, or an estimated glomerular filtration rate (eGFR) ≤20 mL/min/1.73 m² were excluded from the analysis.

About 18 million US adults met SPRINT criteria and Dr. Tan and her colleagues estimated that applying intensive blood pressure control to these individuals would prevent about 100,000 deaths each year. The researchers also estimated the number of deaths that could be prevented among adults with eGFRs between 20 and 59 mL/min/1.73 m².

“Our analyses also showed that more than 4 million adults with stage 3–4 chronic kidney disease meet SPRINT criteria, and intensive systolic blood pressure lowering was projected to prevent 32,800 deaths per year in this group,” said Dr. Tan in a press release.

The SPRINT trial has demonstrated that intensive lowering of blood pressure can provide cardiovascular benefits and reduce deaths, said George Thomas, MD, director of the Center for Blood Pressure Disorders at the Cleveland Clinic in Ohio. But he also noted it is important to remember that patients with uncontrolled hypertension on multiple medications, diabetes, past strokes, or with severe kidney disease were excluded. And NHANES doesn’t provide all the information needed to determine all SPRINT exclusion criteria, he said.

“Additionally, the risks of intensive therapy need to be kept in mind,” he said. “It is not possible to predict who would experience a benefit and who would experience harm.”

Patients who were intensively treated in the SPRINT trial had higher rates of hypotension, syncopal events, electrolyte abnormalities, and acute kidney injury compared with the standard group, explained Dr. Thomas. Additionally, it may be more difficult to monitor for potential adverse events in practice than in the trial.

“Patients in the trial were very closely followed and blood pressure measurements were done with an automated device following a very strict protocol for measurement,” Dr. Thomas said. “In real-world practice, this may not happen and the adverse events may potentially be higher.”

Longer-term data from the SPRINT trial on quality of life, neurologic effects, and long-term kidney outcomes in intensively treated patients may help clinicians decide who might benefit from tighter blood pressure control, Dr. Thomas said.

In the meantime, he recommended that clinicians carefully measure patients’ blood pressure, and closely monitor patients whose blood pressure is being tightly controlled. This monitoring should include kidney function and electrolyte levels. “Pros and cons of intensive therapy need to be discussed with patients, and blood pressure goals should be individualized rather than taking a one size fits all approach,” Dr. Thomas said.

“Intensive Blood Pressure Lowering Will Prevent Over 100,000 Deaths Annually” (Abstract 2229)

Wider Use of Intensive Blood Pressure Control Could Save Lives

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Hypertension-Associated CKD” (Abstract 2784)

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