Projected Climate Change and Rise in Obesity Levels Expected to Increase Burden of Stone Disease

Panel discusses emergency department follow-up care, changes in climate and the impact statins have on kidney stones

San Diego, CA, May 6, 2016 — Kidney stones are one of the most common problems of the urinary tract, resulting in more than 300,000 emergency room visits each year. It is estimated that 8.8 percent or roughly one in 11 Americans will have a kidney stone at some point in their life, and that number is expected to increase as a result of climate change, combined with other major risk factors. Three studies highlighting the projected impact of climate, demographics, follow up care and the use of statins on kidney stones will be presented at the 111th Annual Meeting of the American Urological Association (AUA) on Friday, May 6 at 11:00 a.m. at the San Diego Convention Center in San Diego, CA.

The press session will be moderated by Tim Averch, MD, AUA spokesperson, director of the University of Pittsburgh School of Medicine (UPMC) Kidney Stone Center and UPMC professor of urology.

Study Details
Publication Number: PD47-10

Follow-Up Care After ED Visits for Kidney Stones—A Missed Opportunity: Examining MarketScan’s Commercial Claims and Encounters Database 2003-2006, researchers from University of Michigan in Ann Arbor, MI, sought to investigate whether patients followed the recommended follow-up care after being discharged from the emergency department for kidney stones. Researchers identified adults, ages 18 to 64 with an emergency department visit for kidney stones, then determined which patients had follow-up care within 90 days of the emergency visit. Researchers compared the patients with follow-up care to those without follow-up care over a variety of sociodemographic characteristics. The study found a substantial portion of individuals did not seek follow-up care for kidney stones once they were discharged from the emergency room.

Further results showed:

- Of the 70,294 identified patients who visited the emergency room for a kidney stone, only 53 percent sought follow-up care within 90 days; however, 66 percent of those who did seek follow-up care were seen by a urologist
- Those who did not seek follow-up care were more likely to be younger in age, have non-salaried employment and live in a rural area
- Follow-up care was associated with 36 percent higher odds of receiving secondary prevention, which included pharmacological therapy

Study Details
Publication Number: PD31-12

Statin Intake Reduces Kidney Stone Formation: Obesity, high cholesterol and high triglycerides are pro-inflammatory states that may increase an individual’s risk for developing kidney stones. Statins, on the other hand, hold anti-inflammatory properties that may reduce the risk of stone formation; however, little research on this notion is documented. As a result, scientists from the state of Illinois sought to investigate the impact of statins on kidney stone formation. Analyzing data on more than 101,250 patients who were diagnosed with hyperlipidemia and then prescribed a statin and/or developed a new kidney stone, researchers concluded those who took a statin were less likely (3.8 percent) to develop new stones compared to non-statin users (4.7
percent), suggesting a potential protective effect.

**Study Details**
Publication Number: MP46-01

A Novel Predictive Model for Evaluating the Impact of Climate Change and Other Risk Factors on Nephrolithiasis in the U.S.: Over the next 35 years, projected changes in climate, demographics and obesity levels, are expected to have an increased impact on the prevalence of kidney stones and health care expenditure, according to researchers from Winston-Salem, NC. Although individual studies quantifying the impact each of these risk factors has had on stone disease, have been generated, a single study predicting their combined impact on the future of stone disease, has not.

Therefore, based on data pertaining to obesity, age, race, gender and mean annual regional temperature, a model accounting for nonlinear relationships was developed. Linear adjustments were added to account for each percent increase in the overweight and obese population, as well as each degree Fahrenheit in mean annual temperature. This model was applied to projected population, racial distribution, age and temperature changes (US Census, PEW Research Group and Environmental Protection Agency data), as well as, prevalence of obesity (Centers for Disease Control and Prevention) in order to estimate how kidney stone prevalence will change over the next 35 years.

Results showed:

- Over the next 35 years, the kidney stone rate will increase from 8.8 percent to 10.6 percent, driven primarily by an increasingly obese population
- When combined with the expected population increase, this increased rate represents nearly twice the current stone disease burden rate and more than $4 billion in healthcare expenditures

“The data from these studies show how important it is for patients to learn more about the risk factors for stone disease and how to prevent reoccuring kidney stones,” said Dr. Averch. “Climate, obesity and age are predicted to impact stone rates in the coming years, which is why preventative measures such as lowering cholesterol and simple follow-up care are important to mitigating future stone development while providing patients with more comprehensive care.”

**NOTE TO REPORTERS:** Experts are available to discuss this study outside normal briefing times. To arrange an interview with an expert, please contact the AUA Communications Office at 410-689-3932 or e-mail cfrey@AUAnet.org.

**About the American Urological Association:** The 111th Annual Meeting of the American Urological Association takes place May 6 – 10 at the San Diego Convention Center in San Diego, CA.

Founded in 1902 and headquartered near Baltimore, Maryland, the American Urological Association is a leading advocate for the specialty of urology, and has more than 21,000 members throughout the world. The AUA is a premier urologic association, providing invaluable support to the urologic community as it pursues its mission of fostering the highest standards of urologic care through education, research and the formulation of health policy.

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