ASN LEADING THE FIGHT AGAINST KIDNEY DISEASE

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Press Release

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ORAL ANTIBIOTICS LINKED TO INCREASED KIDNEY STONE RISK

Risk appears to be highest among children.

Highlights

- Use of oral antibiotics was linked with an increased risk of developing kidney stones.
- Risk decreased over time but was still elevated several years after antibiotic use.
- Risk was highest for young patients.

Washington, DC May 10, 2018) — The potential to promote antibiotic resistance in bacteria isn't the only reason to avoid using antibiotics when possible. A new study reveals that antibiotics are also linked with an increased risk of developing kidney stones, with the greatest risk among children. The findings appear in an upcoming issue of the *Journal of the American Society of Nephrology* (*JASN*).

For reasons that are unclear, the prevalence of kidney stones—or nephrolithiasis—has increased 70% over the last 30 years, with the most disproportionate increase experienced by children and adolescents. Because perturbations in bacterial communities residing in the intestines and urinary tract have been associated with nephrolithiasis, a team led by Gregory Tasian MD, MSc, MSCE and Michelle Denburg MD, MSCE (The Children's Hospital of Philadelphia) examined whether the use of antibiotics might affect individuals' risk of developing the condition.

For their study, the investigators determined the association between 12 classes of oral antibiotics and nephrolithiasis in a population-based study within 641 general practices providing electronic health record data for >13 million children and adults from 1994 to 2015 in the United Kingdom. The team matched 25,981 patients with nephrolithiasis to 259,797 controls by age, sex, and practice at the date of diagnosis (termed the index date).

Exposure to any one of five different antibiotic classes 3–12 months before the index date was associated with nephrolithiasis. Risks were increased 2.3-times, 1.9-times, 1.7-times, 1.7-times, and 1.3-times for sulfas, cephalosporins, fluoroquinolones, nitrofurantoin/methenamine, and broad-spectrum penicillins, respectively. The risk of

nephrolithiasis decreased over time, but it remained elevated at 3–5 years after the antibiotic prescription. Also, the risk was greatest for exposures at younger ages. Previous research has shown that children receive more antibiotics than any other age group, and 30% of antibiotics prescribed during ambulatory care visits are inappropriate.

“These findings demonstrate that exposure to certain antibiotics is a novel risk factor for kidney stones and that the risk may be greatest when exposure to these antibiotics occurs at younger ages,” said Dr. Tasian. “Consequently, these results suggest that the risk of nephrolithiasis may be decreased by reducing inappropriate antibiotic exposure and choosing alternative antibiotics, particularly for those patients who are at increased risk of stone formation.”

Study co-authors include Thomas Jemielita, PhD, David S. Goldfarb, MD, Lawrence Copelovitch, MD, Jeffrey Gerber MD, PhD, MSCE, and Qufei Wu, MS.

Disclosures: The authors have no conflicts of interest to declare.

The article, entitled “Oral Antibiotic Exposure and Kidney Stone Disease,” will appear online at http://jasn.asnjournals.org/ on May 10, 2018, doi: 10.2215/ASN.2017111213.

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