



PRESS RELEASE

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DIFFERENT ANTIBIOTICS' EFFECTS ON GUT MICROBES MAY IMPACT HYPERTENSIVE ORGAN DAMAGE

Highlights

- In a preclinical study, altering the intestinal microbiome with narrow-spectrum antibiotics affected organ damage associated with hypertension.
- Results from the study will be presented at ASN Kidney Week 2023 November 1–November 5.

Philadelphia, PA (November 2, 2023) — New research in rodents indicates that altering gut microbes may affect the development of organ damage associated with hypertension. The findings will be presented at ASN Kidney Week 2023 November 1–November 5.

For the study, scientists used narrow-spectrum antibiotics to specifically deplete Gram-negative or Gram-positive bacteria in rats with hypertension. Hypertension-related kidney damage and cardiac hypertrophy were lessened by vancomycin treatment (which targets Gram-positive bacteria). Polymyxin B treatment (which targets Gram-negative bacteria) showed no significant effect. Blood pressure levels for both antibiotic treatments were not significantly different from no antibiotic treatment.

Surprisingly, vancomycin treatment led to a massive increase of *Lactobacilli*, which are considered “good” Gram-positive bacteria. When the researchers examined immune cells isolated from the hypertensive rats’ hearts, kidneys, blood, spleen, and intestines, they observed many pro-inflammatory immune cell types. Vancomycin treatment reduced inflammation in the kidney. Polymyxin B treatment did not alter any inflammatory states.

“Our study shows that modifying the gut microbiota, in this case by oral administration of nonabsorbable antibiotics in a rat model, can ameliorate hypertensive kidney damage and inflammation, independent of blood pressure,” said corresponding author Moritz Immanuel Wimmer of Charité – Universitätsmedizin Berlin. “In the future, we would like to achieve such effects without antibiotics. We also aim to further understand and harness the underlying mechanisms for the kidney protective effects we observed.”

Study: “Targeted Antibiotic Modulation of the Gut Microbiome Ameliorates Hypertensive Organ Damage”

The world's premier nephrology meeting, ASN Kidney Week, brings together approximately 12,000 kidney professionals from across the world. The largest nephrology meeting provides participants with exciting and challenging opportunities to exchange knowledge, learn the latest scientific and medical advances, and listen to engaging and provocative discussions with leading experts in the field.

About ASN

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 nearly 21,000 members representing 140 countries. For more information, visit www.asn-online.org and follow us on [Facebook](#), [X](#), [LinkedIn](#), and [Instagram](#).

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