

# Researchers find that combining melatonin with vancomycin reduces kidney failure

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A study by researchers at the Rutgers Ernest Mario School of Pharmacy finds that melatonin significantly reduces kidney failure in people being treated with the antibiotic vancomycin.

The study, published in the journal *Antimicrobial Agents and Chemotherapy*, examined 303 [hospital patients](#) being treated with vancomycin and found that 101 who also received melatonin had a 63 percent decrease in acute kidney injury.

Globally, antibiotic use is one of the leading causes of drug-induced kidney failure, with more than 13.3 million cases reported each year.

Kidney failure is also associated with an increased risk of death in hospitalized patients. Almost 25 percent of these patients die in hospitals when toxins build up as they also receive antibiotic treatments for various infections.

"We've known from previous studies the ability of vancomycin to induce kidney injury through oxidative stress and mitochondrial damage, and we also knew how melatonin could restore renal mitochondrial function, so making these findings in

this small group of patients was promising and could lead to bigger therapeutic breakthroughs," said the study's lead author, Luigi Brunetti, an associate professor at the Rutgers Ernest Mario School of Pharmacy.

Researchers said one of the reasons they believe melatonin reduces [kidney failure](#) is its ability to alleviate [oxidative stress](#), which causes cell death and a buildup of toxins that damage the kidneys when patients use vancomycin. They postulate that melatonin, a natural supplement commonly used as a sleep aid, restores and repairs this kidney function, facilitating the clearance of toxins from the body.

While many patients recover from acute kidney injuries, some do not, resulting in an increased cost of care for hospitalized patients. Researchers also cautioned that people must only use antibiotics when necessary and not "just in case" because they are not without risk.

The [study](#) was the first to examine such human data, and researchers plan further [clinical studies](#) on a larger and broader population.

"We hope our findings pave the way for larger group studies as [acute kidney injury](#) affects millions of people," Brunetti said.

**More information:** Thomas S. Hong et al, Renoprotective Effects of Melatonin against Vancomycin-Related Acute Kidney Injury in Hospitalized Patients: a Retrospective Cohort Study, *Antimicrobial Agents and Chemotherapy* (2021). [DOI: 10.1128/aac.00462-21](https://doi.org/10.1128/aac.00462-21)

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