

New research suggests first-line anti-staph drug oxacillin safer than nafcillin

March 14 2016

Nafcillin and oxacillin, two antibiotics commonly prescribed in hospitals, have been used without preference for one over the other. Costs and effectiveness are similar for both. But a new study suggests that oxacillin is significantly safer than nafcillin. The research is published ahead of print March 14th in *Antimicrobial Agents and Chemotherapy*, a journal of the American Society for Microbiology.

In the study, the investigators reviewed both laboratory and clinical hospital records of patients who had received either antibiotic during April 2012 through June 2013. "Patients who received nafcillin were significantly more likely to have decreased [potassium levels](#), and altered [kidney function](#)," said principal investigator Ryan K. Shields, PharmD, MS, assistant professor of Medicine, and of Clinical and Translational Sciences at the University of Pittsburgh.

This is the first investigation of adverse side effects of anti-staphylococcal penicillins to include electrolyte imbalances as a study end point. Thus, it was particularly striking that low potassium was the most common adverse effect the study identified, said Shields.

Half of all patients taking nafcillin developed low potassium, as compared to 17 percent of those on oxacillin. While low potassium doesn't always cause symptoms, it can elevate blood pressure, and lead to [abnormal heart rhythms](#).

Nearly one fifth (18 percent) of patients receiving nafcillin suffered

altered kidney function, compared to one out of about 17 (6 percent) of patients on oxacillin. Altered kidney function can lead to kidney damage.

Adverse events forced discontinuation of treatment in 18 percent of patients on nafcillin, as compared to only two percent of those on oxacillin.

The impetus for the study was the anecdotal observation by numerous Infectious Diseases physicians at the University of Pittsburgh Medical Center that [adverse side effects](#) were more common among patients receiving nafcillin. Consensus guidelines—developed by top experts—recommend both antibiotics as first line treatments for methicillin susceptible *Staphylococcus aureus* infections, without preference for either. This study now calls that recommendation into question.

Provided by American Society for Microbiology

Citation: New research suggests first-line anti-staph drug oxacillin safer than nafcillin (2016, March 14) retrieved 3 May 2024 from <https://medicalxpress.com/news/2016-03-first-line-anti-staph-drug-oxacillin-safer.html>

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