

Use of glucocorticoids is associated with increased risk of serious bacterial blood infection

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The risk of life-threatening blood infections by *Staphylococcus aureus* bacteria is more than doubled in users of systemic glucocorticoids compared with non-users. The risk escalates with increasing dose, according to a new Danish population-based case-control study published in *Mayo Clinic Proceedings*.

S. aureus is a bacterium that normally lives harmlessly on the skin. Occasionally it causes [infection](#), which can be fatal if the bacteria enter the bloodstream. Glucocorticoids are potent immunosuppressive drugs when given through the mouth or by injection and are used for treatment of many different medical conditions. Administered in this way, they have an inhibitory effect on immune responses, which depends on the dose, and this may be the explanation for the increase in the risk of this type of staphylococcal infection.

Researchers from the University Hospitals in Aalborg and Aarhus, Denmark and Cologne, Germany analyzed records of nearly 30,000 people using Danish medical registries over a 12-year period. The team investigated the risk of infection while taking into account duration of glucocorticoid use, 90-day cumulative dose, and specific groups of patients who are very frequently prescribed glucocorticoids.

Users of systemic glucocorticoids experienced a 2.5 times increased risk of *S. aureus* infection acquired outside of a hospital, as compared with

non-users. The risk of infection rose gradually with increasing cumulative dose; compared with non-users, patients with a 90-day cumulative dose of less than or equal to 150 mg were 2.4 times more at risk, rising to as high as 6.3 times greater risk among those with a cumulative dose of more than 1000 mg.

Among patients with connective tissue disease or chronic pulmonary disease, the risk of *S. aureus* blood infection was most pronounced in long-term users of glucocorticoids, whereas the risk was highest for new users among cancer patients.

Investigators cautioned that the elevated risk of infection should be weighed against the potential beneficial effects. "Our study provides evidence that use of systemic glucocorticoids is associated with considerable risk of *S. aureus* blood infection, particularly among persons receiving high-dose therapy," explained lead author Jesper Smit, MD, of the Department of Clinical Microbiology, Department of Infectious Diseases, Aalborg University Hospital, and Department of Clinical Epidemiology, Aarhus University Hospital, Denmark. "These results may serve as a reminder for clinicians to weigh carefully the elevated risk against the potential beneficial effect of glucocorticoid therapy. This is especially pertinent in patients who are already vulnerable to infection."

The research group will continue to investigate risk and prognostic factors for *S. aureus* blood infections, including other types of medications.

More information: "Use of Glucocorticoids and Risk of Community-Acquired Staphylococcus aureus Bacteremia: A Population-Based Case-Control Study," by Jesper Smit, MD; Achim Kaasch, MD, DMSc; Mette Sjøgaard, DVM, PhD; Reimar W. Thomsen, MD, PhD; Henrik Nielsen, MD, DMSc; Trine Frøslev, MSc; and Henrik C. Schönheyder, MD,

DMSc, Mayo Clinic Proceedings, Volume 91, Issue 7 (July 2016), [DOI: 10.1016/j.mayocp.2016.04.023](https://doi.org/10.1016/j.mayocp.2016.04.023)

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