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New treatment options for bloodstream infections

Study shows efficacy and safety of oral antibiotic therapy in the form of pills for Staphylococcus aureus bloodstream infections. Currently, infusions are the standard treatment / published in 'The Lancet Infectious Diseases'.

An international clinical trial led by Professor Dr med. Achim Kaasch, Head of the Institute for Medical Microbiology and Hospital Hygiene at the Otto von Guericke University of Magdeburg and Professor Dr med. Harald Seifert, former deputy director of the Institute for Medical Microbiology, Immunology and Hygiene at the University Hospital Cologne, was able to gain decisive new insights into the treatment of bloodstream infections with the pathogen Staphylococcus aureus (SAB). The research shows that in patients with a low risk of developing infectious complications, an early switch to oral antibiotic therapy is as effective and safe as continuing the intravenous standard treatment. This new therapy approach enables easier treatment and faster discharge from hospital for patients. The results of the study, in which researchers from Magdeburg and Cologne as well as scientists from the Heinrich-Heine-University Düsseldorf and the German Center for Infection Research (DZIF) were involved, have been published under the title 'Efficacy and safety of an early oral switch in low-risk Staphylococcus aureus bloodstream infection (SABATO): An international, open-label, randomized, controlled, non-inferiority trial' in the journal The Lancet Infectious Diseases.

The bacterium Staphylococcus aureus is one of the most common pathogens worldwide, which can cause severe bloodstream infections – also called sepsis or blood poisoning. An estimated 30,000 people in Germany fall ill each year from this infection alone, and about 25 per cent of those affected die within the first three months. Professor Kaasch explained: "If SAB is not adequately treated, there is a serious risk that the infection will spread to other parts of the body. Even after successful treatment, an infection can often have a negative effect on the recovery process for several months."

The standard intravenous treatment of SAB with antibiotics is carried out in hospital for at least 14 days. The research group focused on the question whether oral therapy with pills is as effective as conventional intravenous treatment in patients with SAB. "We found that an early switch to oral antibiotic therapy after 5 to 7 days of intravenous treatment is as safe and effective as the established standard intravenous therapy," said Kaasch. Nevertheless, according to the microbiologist, a careful assessment of patients for signs and symptoms is necessary to clarify whether infectious complications already exist. Only if these are excluded can oral switch therapy be considered.

The results of this groundbreaking study mark a significant advance in the treatment of Staphylococcus aureus bloodstream infections and give rise to hope for better treatment for patients worldwide. "With these findings, it is possible to simplify treatment and to discharge patients more quickly," Kaasch emphasized.

In further studies, the researchers want to investigate various questions regarding the diagnosis and treatment of SAB. "The evaluation of a switch to oral antibiotic therapy after initial intravenous treatment is now particularly relevant in patients with complicated Staphylococcus aureus bloodstream infections," explained Professor Seifert from the University Hospital Cologne and initiator of the study. "There are no findings on this yet."

The study is a multi-centric, controlled, non-inferiority clinical trial. It was conducted at 31 study sites in Germany, France, the Netherlands and Spain. The goal of such a study is to show that a new treatment method achieves equivalent results to the standard therapy. In total, data from over 5,000 patients were collected. The study included 213 participants, with 108 randomly assigned to the oral group and 105 to the intravenous group. It was funded by the German Research Foundation.

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