

New method helps rule out heart valve infection

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A risk assessment system developed by researchers at Lund University in Sweden shows which patients, with a certain type of streptococcal bacteria in the blood, need to be examined for a heart valve infection – a serious condition requiring prolonged medical treatment.

"Our assessment system can help reduce unnecessary examinations of low-risk patients," says Torgny Sunnerhagen, one of the researchers behind the study.

If a blood sample shows the presence of what is known as alpha-streptococci, there is a risk that the person suffers from infective endocarditis, a heart valve infection. In order to determine whether or not this is the case, the patient must undergo echocardiography, a type of ultrasound examination of the heart, which can be technically difficult to implement and is often unpleasant.

Previously, there has been a lack of supporting documentation and evidence to help healthcare professionals determine when such an examination is to be performed on patients.

Researchers at Lund University have now developed a risk assessment system, HANDOC, which distinguishes which patients with alpha-streptococci in the blood are at high and low risk respectively of suffering from infective endocarditis.

The study was based on medical records from 340 adult patients in

Skåne, whose blood samples showed the presence of alpha-streptococci. In 26 of them, infective endocarditis was confirmed. The researchers mapped the factors that distinguished these patients from those who were not diagnosed with infective endocarditis. Based on the result, an assessment system was constructed.

The researchers observed several factors that differed between patients with alpha-streptococci in the blood who had developed endocarditis, and patients who had not. These factors included which bacterial species had affected the patient, the detection of a heart murmur, how long the patient had been ill, where they had fallen ill (in hospital or not), and whether the patient had any underlying heart disease. The [risk assessment](#) system scores these factors and provides evidence of whether or not the patient needs to be investigated for [infective endocarditis](#).

The researchers then tested the assessment system on 399 other patients with these alpha-streptococci and showed that the system had good reliability. Magnus Rasmussen, associate professor of infection medicine at Lund University and physician in the department for infectious diseases at Skåne University Hospital, hopes that the HANDOC system can lead to faster treatment of patients with [streptococcal bacteria](#) in the bloodstream.

"Clinical microbiology has taken strides when it comes to determining bacterial strains, but it's not always clear what this information will mean to the care of the patients. With this assessment system, we have created an easy-to-use tool systematising how clinicians should treat patients with alpha-streptococci in the [blood](#)," says Magnus Rasmussen.

All patients studied were from, and had been tested within, the same healthcare system.

"The risk is small that this would affect the outcome of the study. We

now want to continue and see what happens when HANDOC is applied in healthcare. Will the result be that other types of patients to a greater extent will be examined using echocardiography? We're also working on developing a similar system for another type of bacteria that can also cause a [heart](#) valve infection," says Torgny Sunnerhagen.

More information: Torgny Sunnerhagen et al. HANDOC – a handy score to determine the need for echocardiography in non-beta-hemolytic streptococcal bacteremia, *Clinical Infectious Diseases* (2017). [DOI: 10.1093/cid/cix880](#)

Provided by Lund University

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