

Fewer infections in mechanical heart valves

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Infections in surgically implanted heart valves are more common in patients who have been given a biological prosthetic valve than in those with a mechanical one, a study from Karolinska Institutet published today in the journal *Circulation* shows.

Some 1,500 people undergo [aortic valve replacement](#) every year in Sweden, about 75 per cent of whom receive a biological valve (from a pig or calf), the remainder a mechanical one. A complication that carries a high fatality risk is [prosthetic](#) valve endocarditis, which occurs when the new valve is infected by bacteria. Until now, there have been no figures on whether the [infection](#) frequency differs between the two valve types. It has also been unknown how common infections in an artificial heart valve are. The present study included over 26,500 patients who received a [prosthetic heart valve](#) between 1995 and 2012, 940 of whom developed prosthetic valve endocarditis.

The risk of infection in the artificial valve was about 50 per cent higher with a biological prosthesis than with a mechanical. The follow-up time was up to 18 years.

"We hadn't expected this large difference," says Natalie Glaser, doctoral student at Karolinska Institutet's Department of Molecular Medicine and Surgery. "Our results are important as they tell us more about complications following the surgical replacement of aortic valves."

The current European cardiology guidelines state that there is no difference in the incidence of infection between the two types of

implant. Dr Glaser argues that this could be because former studies were too small to reveal any difference and were done on patients who were operated on decades ago.

The present study has also provided updated figures on the commonality of the complication, which affected a total of around 0.5 per cent of patients per year. It also shows that the fatality rate was as high as 16 per cent within a month of diagnosed infection and 50 per cent within five years.

"The choice of [valve](#) prosthesis is very much decided by the patient's age," says principal investigator Ulrik Sartipy, heart surgeon at Karolinska University Hospital and docent at Karolinska Institutet's Department of Molecular Medicine and Surgery. "Biological valves are usually used for older [patients](#) for medical reasons, partly because such valves do not require life-long treatment with anticoagulants. In our study, those who had received biological valves were on average 13 years older than those who were given mechanical ones, but this we've compensated for in our comparison."

More information: Natalie Glaser et al. Prosthetic Valve Endocarditis After Surgical Aortic Valve Replacement, *Circulation* (2017). [DOI: 10.1161/CIRCULATIONAHA.117.028783](#)

Provided by Karolinska Institutet

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