

Inflammation behind heart valve disease

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Research from Karolinska Institutet in Sweden shows, that a specific inflammatory factor may be important in the development of the heart valve disease aortic stenosis. The results suggest that anti-inflammatory medication could be a possible new treatment.

Aortic stenosis is the most common heart valve disease, which is caused by calcium deposits and a narrowing of the [aortic valve](#). This is typically seen in the elderly, but can also be caused by a congenital defect. Aortic stenosis is currently treated by surgical replacement of the diseased valve, but research is on-going for identifying medicines which can delay the progress of the disease.

In a new study presented in the scientific journal *Circulation*, researchers from Karolinska Institutet show that specific pathways of [inflammation](#) are important underlying factors in the development of aortic stenosis.

By studying heart valves from patients undergoing surgery for various valve diseases, the researchers have shown that [immune cells](#) and a group of inflammatory substances called leukotrienes can be found in calcified [heart valves](#). The most significant inflammation was seen in patients with the narrowest valves on ultrasound examination. The researchers have also shown in [cell cultures](#) that leukotrienes stimulate the calcification of heart valve cells.

There are similarities between atherosclerosis (calcification of the arteries) and aortic stenosis. However, lipid-lowering medicines known as statins which are capable of preventing atherosclerosis have proved

ineffective in preventing calcification of the aortic valve.

"The results suggest that anti-inflammatory medication could be a future treatment for aortic stenosis, and it would mean a lot to these patients, most of whom are elderly, if we could slow the disease to the extent that they do not need surgery", says associate professor and cardiologist Magnus Bäck, one of the researchers behind the study.

More information: Nagy E, Andersson DC, Caidahl K, Eriksson MJ, Eriksson P, Franco-Cereceda A, Hansson GK and Bäck M, Upregulation of the 5-lipoxygenase pathway in human aortic valves correlates with severity of stenosis and leads to leukotriene-induced effects on valvular myofibroblasts, *Circulation* 14 March 2011. circ.ahajournals.org/

Provided by Karolinska Institutet

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