

Major discovery in the treatment of aortic valve stenosis

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A team of scientists from the Université de Montréal and the Montreal Heart Institute Research Centre, led by Dr. Jean-Claude Tardif, has completed an important study that show how a new type of medication can lead to an improvement in the aortic valve narrowing.

This type of treatment based on raising high-density lipoproteins (HDL), the so-called good cholesterol level in patients suffering from aortic valve stenosis, could potentially transform the treatment approach of this disease, notably by avoiding open heart surgery. Study results have been published on-line in the *British Journal of Pharmacology*.

Renewed hope for patients

“We are delighted to see that the new type of drug used, based on HDL, led to the regression of the aortic valve stenosis in an experimental model,” underlined Dr. Jean-Claude Tardif, director of the Montreal Heart Institute Research Centre and professor of medicine at the Montreal Heart Institute and the Université de Montréal.

“This important discovery warrants further clinical studies on patients suffering from this frequent disease. This new medical option could possibly provide us with an alternative to the cardiac surgery of aortic valve replacement.”

What is aortic valve stenosis?

Aortic valve stenosis is the most common form of heart valve disease in Western countries. In Canada, it could affect some 150,000 persons. The disease is characterized by a narrowing of the aortic valve opening, causing a difference in blood pressure between the heart and the rest of the body, which is particularly dangerous for the patient.

The main symptoms of severe aortic valve stenosis are exercise intolerance, angina and syncope (fainting). Its frequency in the population aged over 65 is two percent to four percent. Its major complications are, in addition to the need for cardiac surgery, heart failure and sudden death. The disease therefore represents a major health problem with dramatic consequences if replacement surgery is not performed in time. In the United States, about 50,000 patients a year must undergo aortic valve replacement surgery.

Details on the study

The study was conducted on animals fed a diet rich in cholesterol until aortic valve stenosis was detected by echocardiography, the medical imaging ultrasound system used for humans. The animals were then divided into two groups: a control group given injections of a neutral solution, and a group treated for two weeks with injections of a drug based on raising the “good cholesterol” (ApoA-I mimetic peptide).

The findings were particularly interesting, since after only 14 days of treatment, the aortic valve opening in subjects had returned again to almost normal in the treated group, whereas it had improved by a mere 13 percent by eliminating the high-fat diet in the control group.

What’s more, the thickness of the aortic valve decreased by 21 percent in the treated group, while remaining unchanged in the control group. Microscopic analysis revealed that valve lesions were significantly

less extensive in the treatment group than in the control group. The treatment also reduced aortic valve calcifications.

Source: University of Montreal

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