

Ohio State testing new approach for aortic valve stenosis

A new approach to aortic valve replacement holds promise for better outcomes and more treatment options for patients who are considered inoperable today.



Gross pathology of rheumatic heart disease: aortic stenosis. Aorta has been removed to show thickened, fused aortic valve leaflets and opened coronary arteries from above. Autopsy. (Image: CDC/Dr. Edwin P. Ewing, Jr, via Wikimedia Commons)

The cardiothoracic surgery and interventional cardiology teams at The Ohio State University Medical Centre are participating in a randomised clinical trial comparing the safety and efficacy of a catheter-based delivery system to traditional open heart surgery for the treatment of patients with aortic valve stenosis. The procedure, performed at Ohio State's Richard M. Ross Heart Hospital, is only available for patients considered a "very high risk" or "extreme risk/inoperable" for conventional surgery requiring cardiopulmonary bypass.

"Surgical aortic valve replacement currently is the only effective treatment for patients with severe aortic valve stenosis," says Dr. Juan Crestanello, a cardiothoracic surgeon at Ohio State's Medical Centre and the local principal investigator with Dr. John P. Cheatham, director of interventional cardiology at Nationwide Children's

Hospital and a professor of paediatrics and internal medicine, cardiology, at The Ohio State University College of Medicine. "Some patients are poor candidates for surgery due to age, frailty or some other complicating medical condition. This new approach provides another option for those patients," adds Crestanello.

Implanted via catheter

The new approach, in which pig tissue is formed into a valve, allows a catheter to be inserted into the leg or arm artery through which the new valve is implanted - without the use of cardiopulmonary bypass.

Enrolment of patients in the transcatheter group is expected to be completed within 18 months, with all trial patients being followed for five years. Screening studies include echocardiograms, CT angiograms of the thoracic and abdominal aorta and a cardiac catheterisation to rule out significant coronary artery disease.

Patients locally are evaluated at the Ross Heart Hospital's Heart Valve Clinic. According to Crestanello and Cheatham, this is beneficial since it provides comprehensive evaluation of patients with valvular heart disease in a single setting to achieve maximum efficiency and create a convenient patient experience. The clinic also offers multidisciplinary evaluation by physicians specialised in advanced imaging technologies, cardiac haemodynamic and coronary interventions, and anaesthesia.

A common ailment

Aortic valve stenosis occurs when the aortic valve narrows, preventing blood from flowing properly into the aorta and the rest of the body. The heart's left ventricle must work harder than normal to pump blood, which can lead to symptoms such as fatigue, fainting with exertion, difficulty catching your breath, abnormal heartbeats and chest pain. Problems with valves can be a cause of heart failure.

Among the causes of stenosis are changes due to aging with calcification of the leaflets, congenital abnormality of the valve, and infections in the heart such as rheumatic fever and endocarditis. Aortic stenosis is common among elderly patients and leads to significant deterioration of functional status and ultimately limits survival.

This multi-centre CoreValve US Pivotal Trial is sponsored by Medtronic, Inc., Minneapolis, MN. Ohio State is one of 40 sites in the United States participating in this study.

Source: Ohio State University

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