

Fact Sheet: Aortic Stenosis

Up to 1.5 million people in the United States suffer from aortic stenosis, a progressive disease that affects the aortic valve of their hearts. Approximately 250,000 of these patients suffer from severe symptomatic aortic stenosis, often developing debilitating symptoms that can restrict normal day-to-day activities, such as walking short distances or climbing stairs. These patients can often benefit from surgery to replace their ailing valve, but only approximately two-thirds of them undergo the procedure each year. Many patients are not treated because they are deemed inoperable for surgery, have not received a definitive diagnosis, or because they delay or decline the procedure for a variety of reasons.

Patients who do not receive an aortic valve replacement (AVR) have no effective, long-term treatment option to prevent or delay their disease progression. Without it, severe symptomatic aortic stenosis is life-threatening – studies indicate that 50 percent of patients will not survive more than an average of two years after the onset of symptoms.

Overview of the Disease

A healthy aortic heart valve allows oxygen-rich blood from the lungs to flow from the left ventricle of the heart to the aorta, where it then flows to the brain and the rest of the body. Severe aortic stenosis causes narrowing or obstruction of the aortic valve and is most often due to accumulations of calcium deposits on the valve's leaflets (flaps of tissue that open and close to regulate the flow of blood in one direction through the valve). The resulting stenosis impairs the valve's ability to open and close properly. When the leaflets don't fully open, the heart must work harder to push blood through the calcified aortic valve. Eventually, the heart's muscles weaken, increasing the patient's risk of heart failure.

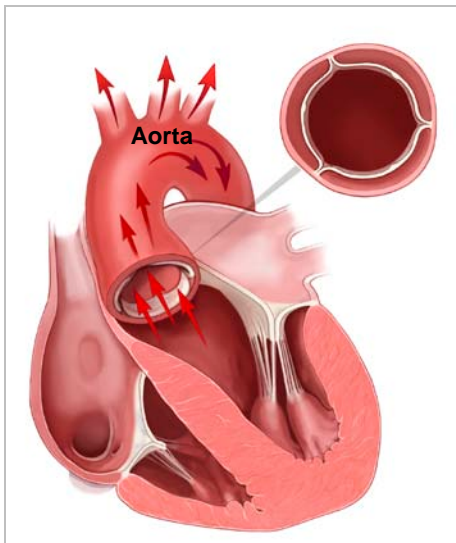


Fig. 1 depicts the leaflets of a healthy aortic heart valve which open wide to allow oxygen-rich blood to flow unobstructed in one direction. The blood flows through the valve into the aorta where it then flows out to the rest of the body.

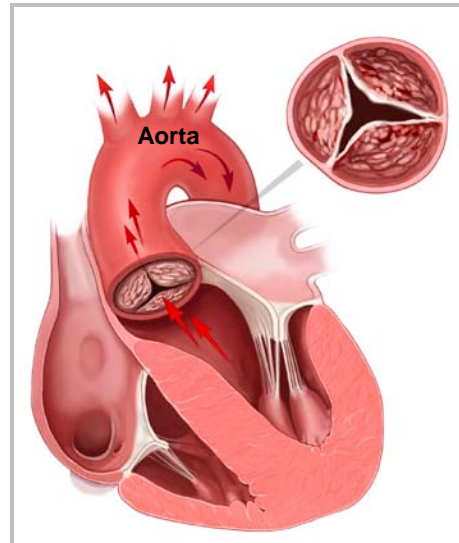


Fig. 2 depicts the leaflets of a stenotic or calcified aortic valve unable to open wide, obstructing blood flow from the left ventricle into the aorta. The narrowed valve allows less blood to flow through and as a result, less oxygen-rich blood is pumped out to the body, which may cause symptoms like severe shortness of breath.

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Aortic stenosis is typically a disease of the elderly, as a buildup of calcium on heart valve leaflets occurs as one gets older. Aortic stenosis most typically occurs in patients older than 75 years of age. In a minority of cases, a congenital heart defect, rheumatic fever, radiation therapy, medication or inflammation of the membrane of the heart can also cause the valve to narrow.

Symptoms

Patients with severe aortic stenosis may experience debilitating symptoms, such as:

- Severe shortness of breath leading to gasping – even at rest
- Chest pain or tightness
- Fainting
- Extreme fatigue
- Lightheadedness/dizziness
- Difficulty exercising
- Rapid or irregular heartbeat

Diagnosis

Identification of severe aortic stenosis can be confirmed by examining the heart and listening for a heart murmur, which is typical of the disease. This can be performed by using imaging tests such as an echocardiogram or electrocardiogram (ECG or EKG), chest x-ray or ultrasound. Receiving an appropriate diagnosis and getting treated quickly is critical, as once patients begin exhibiting symptoms, the disease progresses rapidly and can be life-threatening.

Treatment

Surgical AVR is the gold standard and an effective treatment of severe aortic stenosis and has been proven to provide symptomatic relief and long-term survival in adults. During the surgical valve replacement procedure, the damaged “native” heart valve is removed and replaced with a prosthetic valve. Surgical AVR is recommended for virtually all adult patients who do not have other serious medical conditions.

For patients who have been deemed inoperable for traditional open-heart surgery by a surgeon, a new procedure called transcatheter aortic valve replacement (TAVR) is now available as a treatment option. In November of 2011, the Food and Drug Administration (FDA) approved the Edwards SAPIEN Transcatheter Heart Valve for the treatment of patients with severe symptomatic native aortic valve stenosis who have been determined by a cardiac surgeon to be inoperable for open aortic valve replacement and in whom existing co-morbidities would not preclude the expected benefit from correction of the aortic stenosis. This new transcatheter procedure allows the diseased native heart valve to be replaced without open-heart surgery.

References

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