AORTIC VALVE STENOSIS

WHAT IS AORTIC VALVE STENOSIS?

The aortic valve is between the main pumping chamber of the heart (left ventricle) and the aorta, the big blood vessel that carries blood to all the tissues of the body. The aortic valve has three flexible leaflets called cusps. The purpose of the valve is to prevent the backflow (regurgitation) of blood pumped from the heart.

Stenosis is a narrowing of the valve that obstructs blood flow. Severe stenosis keeps the heart from delivering adequate blood flow to the rest of the body.

HOW DOES IT OCCUR?

Some people are born with an abnormal aortic valve with the valve cusps partially fused, or stuck together. This prevents normal opening of the valve. In some people, the abnormality is severe at birth and requires treatment at a very young age. In other people, abnormal blood flow through the opening leads to deposits of calcium in the valve. Over time, this causes the stenosis to get worse. These people may need valve replacement surgery in adulthood.

The most common cause of aortic stenosis is degeneration of the valve that can occur with aging. The reason this occurs in some people but not in others is not known. It is most common in people over the age of 60. The valve does not open or shut normally, but the main abnormality is trouble with forward flow due to the narrowed opening. There can also be some backflow of blood, since the valve also does not shut properly. Rheumatic fever and some rheumatoid diseases can also cause aortic valve stenosis.

WHAT ARE THE SYMPTOMS?

With mild stenosis there are usually no symptoms. Aortic valve stenosis usually worsens with time. As the valve opening gets narrower, it is more difficult for blood to get pumped from the left ventricle out to the rest of the body. As a result, the left ventricle has to work harder. This makes the heart muscle thicker. It may become stiff.

Eventually, the left ventricle can no longer adapt. Symptoms include chest pain or shortness of breath with exertion. You may also have lightheadedness with activity or bending over. With more severe valve narrowing, you may have fainting spells.

HOW IS IT DIAGNOSED?

Your doctor will ask about your symptoms and examine you. Your doctor will use a stethoscope to hear the distinctive heart murmur caused by the narrowed valve. An electrocardiogram (EKG) may show evidence of thickening of the heart muscle. An echocardiogram, which uses ultrasound waves to image the heart and valves, is the best test to look at the valve and measure the severity of the stenosis or narrowing. A special part of the ultrasound test, called the Doppler exam, measures how severe the stenosis is. A chest x-ray and a low level treadmill exercise test may be needed.

HOW IS IT TREATED?

In the early stages of the disease, you may not need treatment. You will, however, need to take antibiotics before dental work and certain surgeries and invasive procedures. The antibiotics help to prevent infection of the diseased valve. Routine checkups once or twice a year are recommended.

See your doctor if you start having symptoms. This is a sign that you may need surgery. In adults, valve replacement surgery is preferred. Children may have surgery to open the fused valve cusps.

For adults, two types of artificial heart valves are available: mechanical and bioprosthetic. Mechanical valves have an excellent record, yet they require lifelong blood thinning medication and therefore have a higher risk for bleeding problems. Bioprosthetic valves are either specially treated pig valves or valves made from other body tissue. They do not require long-term blood thinners, but they do not last as long as mechanical valves.

Regular checkups after surgery are necessary to monitor the results of the operation, prevent infection, and to check the effect of blood thinner medication for people with mechanical valves.