

## Transcatheter Aortic Valve Implantation (TAVI) Surgery

### Understanding Aortic stenosis

Your heart has four chambers, each with its own valve that helps direct blood flow through the heart, to the lungs for oxygenation, and then back to the heart before being pumped out to the rest of the body. These valves open and close with each heartbeat to ensure blood flows in the correct direction.

The aortic valve is one of the heart's valves and helps control the flow of blood from the heart to the rest of the body. Aortic stenosis occurs when this valve becomes thickened, stiff, or inflamed. This can develop due to infection, rheumatic fever, or a congenital abnormality, and in older people the valve may gradually become calcified over time. These changes limit the movement of the valve leaflets, reducing how effectively blood flows to the body and to the coronary arteries, which supply blood to the heart muscle.

As the valve leaflets become increasingly stiff, it is harder for blood to pass through the valve. To compensate, the heart muscle must work harder, causing it to stretch and thicken over time, which can eventually lead to heart failure. When aortic stenosis becomes severe and symptoms appear, the condition can be life-threatening.

### Symptoms of Aortic Valve Stenosis

- Shortness of breath
- Fatigue
- Dizziness/fainting
- Chest pain
- Swelling ankles and/or feet
- Irregular heart rhythm
- Reduced exercise capacity

It is important to note that some people with aortic stenosis have no symptoms.

### Treatment of Aortic Valve Stenosis

Treatment options for Aortic Stenosis vary from person to person and may include balloon valvuloplasty, transcatheter aortic valve implantation/replacement (TAVI), or open-heart surgery. While there is no medication that can correct aortic stenosis, some medicines can help manage and relieve symptoms. The decision on best treatment is made by a multidisciplinary team made up of doctors, surgeons, case managers and patients.

## TAVI procedure

The TAVI procedure will take place in the Cardiac Catheter Lab or Hybrid theatre. It is a minimally invasive procedure. It uses small entry points through arteries in your groin, arm or neck to insert the new valve rather than open-heart surgery and may be suitable for patients who are not ideal candidates for major surgery.

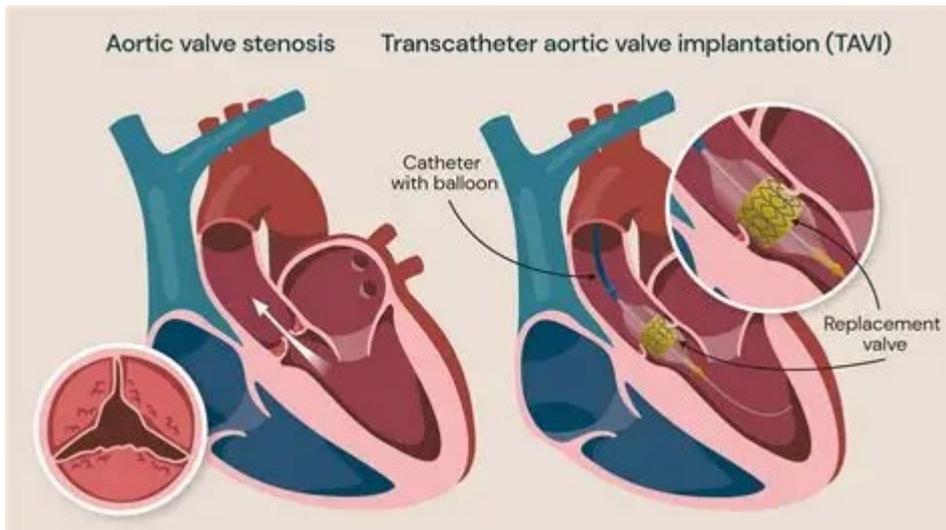
Before the procedure, you will have several tests to make sure TAVI is right for you. These may include:

- An echocardiogram (heart ultrasound)
- A CT scan
- An angiogram (to look at your heart arteries)
- Blood tests

These tests help your doctors plan the safest and most effective approach.

During the procedure you will receive either sedation or a general anaesthetic. This will be decided by your anaesthetist in consultation with your cardiologist. If you have sedation only, the anaesthetist will use a type of medication that helps you relax and feel sleepy. You will also have local anaesthetic medication injected into the entry site, so you do not feel any pain when the catheters are inserted into your blood vessels. If your doctors decide you require a general anaesthetic, you will receive medication that puts you completely to sleep. Once you are asleep your doctor will place a breathing tube in your mouth and throat. This helps monitor your breathing and oxygen levels during the procedure.

Most commonly, the new valve is inserted through a large blood vessel in the groin. After numbing the area, a thin tube (catheter) is guided through the artery up to your heart using X-ray and ultrasound guidance. The replacement valve is packed into the tip of the catheter and positioned inside your diseased valve. The valve is made from natural tissue (usually cow or pig heart tissue) and supported by a metal frame. When released, it expands and pushes the old valve aside. The new valve immediately begins working. Once your doctors confirm it is functioning properly, the catheter is removed. The metal frame remains in place and becomes incorporated into your heart tissue over time.



## After the procedure

You will be transferred to the Coronary Care Unit (CCU) for close monitoring, usually for at least one night. Your heart rhythm, blood pressure and overall condition will be carefully observed. Most patients stay in hospital for one to two days. If needed, you may stay slightly longer for monitoring.

Before discharge, you will receive detailed instructions about:

- Medications
- Wound care
- Activity levels
- Follow-up appointments

It is common to have some bruising or mild discomfort in the groin area, which usually settles within a few days.

Many patients notice a significant improvement in symptoms such as breathlessness and fatigue within weeks of the procedure. You can gradually return to normal activities, although full recovery may take several weeks.

Attending all follow-up appointments is important to ensure your new valve is functioning well and to support your recovery.