Heart Valve Replacement

Definition: The heart valves play a key role in creating one-way flow with each opening and closing. Pressure changes on either side of the valves open the latches at the right time and then close to prevent backflow in the opposite direction.

The four heart valves are:

Tricaspid valve, Pulmonary valve, Mitral valve, Aortic valve

If a valve is only slightly damaged, your doctor may prescribe medication to treat it, but if the valve is damaged acutely, surgery may be needed to repair or replace the valve.

Valve repair:

Valve repair surgery can usually be performed to treat congenital valvular defects and has had particularly good results in treating mitral valve defects. Valve repair methods that can be used in treatment according to the patient's condition include:

Cumisurotomy: This method is used to treat insufficiency due to narrowing of the outflow tract in cases where the valve leaflets are thickened and possibly stuck together. The surgeon opens the valve by opening points at the junction of the slats.

Valvuloplasty: This surgery is performed to strengthen the slats and also to allow them to close completely. This support is obtained through a ring that is placed by the surgeon on the outside of the open space of the valve.

Reshaping: In this procedure, the surgeon makes an incision in a slat. After the slats are sewn together again, the valve closes properly.

Decalcification: In this method, the deposited calcium in the leaves is removed. By removing the calcium, the slats will close properly.

Repair of Structural Support: In this surgery, the fibers that support the valve are shortened or replaced (these fibers are known as cordia tendinia and butterfly muscles). When these fibers have the right length, the valves close properly.

Patching: In this procedure, the surgeon covers the tear or hole in the valve with a patch of soft tissue (patch).

Because it is possible for blood to attach to these valves and cause clots to form on them, patients who use these valves need to use anticoagulants for the rest of their lives.

Valve replacement:

Severe damage to the valve means the need to replace the valve. Valve replacement is commonly used to treat problems with aortic valves or mitral valves with significant damage. This surgery is also used to treat any complication in the heart valves that threatens a person's life. In some cases, where more than one valve is damaged, the patient will need more than one reconstructive surgery and valve replacement.
Two types of valves are used for replacement, which are:

**Mechanical valves:**

These valves are usually made of plastic, carbon alloys or other metals. Mechanical valves are durable and can be used for a long time.

**Biological valves:**

These valves come from the tissues of animals or other humans who have donated their hearts. In some cases, the patient’s own tissue can be used to replace the valve. Patients with biological valves do not need to use anticoagulants, but these valves do not have the strength of mechanical valves and usually need to be replaced every two years. Biological valves destroy much faster in children and young people, so their use is only suitable for the elderly.

**Nursing Care:**

- The nurse examines the signs and symptoms of heart failure and pulmonary embolism.
- Patients undergoing valve replacement should be monitored in the intensive care ward.
- Care focuses on improving anesthesia and stabilizing the hemodynamic status. Vital signs are monitored every 5-15 minutes.
- Intravenous medications may be prescribed to increase or decrease blood pressure and to treat dysrhythmias. The nurse should monitor how they are administered and their possible side effects.
- Patients are examined every 4-1 hours and, if necessary, with special attention to the respiratory, cardiovascular and nervous systems.
- The nurse teaches the patient about long-term anticoagulant therapy. Patients taking warfarin or coumadin should have an INR between 2- 3.5.
- These patients usually have to take warfarin for 3 months, if the patient has a cardiac arrhythmia such as AF, the duration of the drug is increased.

Teach the patient that if they have surgery or dental surgery, they must use antibiotics before the operation because during the operation, bacteria can enter the bloodstream and, if transferred to a replaced valve, it can lead to a serious disease called bacterial inflammation of endocarditis.

If you have any questions or ambiguities, call the following number:

023-33437824, Cardiac Surgery ward