

Heart Valve Surgery 心臟瓣膜手術

What causes diseases of the heart valves?

Among the major causes of valve problems are:

- Congenital heart disease
Problems with the heart valves may be present from birth.
- Rheumatic heart disease
Some infections with the bacteria called "streptococcus", are followed in several weeks to months by a delayed inflammatory reaction called "rheumatic fever". The delicate valvular structures can be damaged at that time leading to progressive malformation.
- Infective endocarditis (Bacterial infection)
It is an infection of the endocardium, the lining that covers the inner walls of the heart's chambers and the valves. It occurs when bacteria, fungi or other micro-organisms multiply on the valves' inner lining which cause holes in the valve, distort it and completely disrupt its function.
- Calcific degeneration
It is a process in which calcium deposits build up on the valve especially in the elderly people. This type of degeneration usually causes aortic stenosis or mitral regurgitation.
- Specific damage from other cardiac disease
Valve dysfunction can occur secondarily to other cardiac diseases, such as coronary artery disease, which makes papillary muscles become hypoxic or infarct, and then the impaired contractile function of these muscles can lead to a leaky tricuspid or mitral valve.

Surgical Treatment

If medications are not successful or valve condition worsens, interventional procedures and/or surgery may be necessary. These may include heart valve repair or replacement.

Types of artificial valves

- Biological valve
It is made of bovine pericardium (lining of a cow's heart) or porcine aortic valve tissue. They do not require anticoagulation but only last 10-15 years and therefore a second operation may be necessary when the life of the valve has worn out.
- Mechanical valve
It is made of titanium and metal, so they are more durable and last for a lifetime. However, they require lifelong anticoagulants (blood thinner) with a 1-2%/year risk of bleeding or stroke.

Pre-operation Preparation

The waiting time for operation depends on the severity of your heart disease. Good

preparation and essential investigations during waiting period will be beneficial in relieving your symptoms, improve your body resistance, minimize post operative complication, and enhance your successful and speedy recovery.

- **Smoking**
Quit smoking is your first thing to do. Smoking makes you more prone to developing pneumonia and pulmonary complications after surgery. It also makes your heart work harder, and accelerates the atherosclerotic process.
- **Medication**
All medication should be continued except warfarin and antiplatelet drugs which should be stopped 4 days before operation.

Possible Post-operative Complications

1. Bleeding (need transfusion of blood and coagulation factors)
2. Myocardial infarction and heart failure (treat with medications and heart assist devices)
3. Irregular heart beats (regulate with medication or occasionally electrical conversion)
4. Kidney failure (may need dialysis; temporarily or at times permanently)
5. Brain damage (resulting in transient mental impairment, or permanent stroke or unconsciousness)
6. Infection (of the wound, lung and other organs)
7. Numbness and weakness (peripheral nerve damage of the leg and forearm wounds)
8. Thromboembolism (e.g. blocked bypass grafts, deep vein thrombosis, stroke, limb ischaemia, etc.)
9. Other organ damage or rare complications (e.g. liver, stomach or intestine, etc.)
10. Operative Mortality Rate: 3-7% (depends on pre-operative conditions and other risk factors, such as left ventricular function, history of stroke, carotid artery disease, diabetes mellitus and previous heart surgery.)

After Surgery

Intensive Care Unit (ICU)

- Right after your surgery, you will be transferred to ICU.
- Tubes and lines include: Breathing tube (endotracheal tube), Heart monitor, Pacing wires, Arterial line, Intravenous infusion line, Urinary catheter
 - Chest tubes
There will be 2 to 3 plastic tubes placed in your chest to drain fluid from around your heart and lungs to prevent fluid collecting in your chest and affect the normal heart and lung function.

High Dependency Unit (HDU)

- You may be ready to leave ICU for HDU after 24 hours. Most of the lines and tubes will have been removed by the time you are transferred to HDU.

General Ward

- As your condition improved, all the tubes and lines will be removed on post surgery day 2, and then you will be transferred to general ward.
- You must use the incentive spirometer to take deep breaths and cough 10-20 times

an hour to prevent fluid build-up in your lungs.

- You will be arranged to sit out from bed on post surgery day 2, physiotherapist will teach you to perform limb exercise to promote circulation and prevent swelling or deep vein thrombosis.

Wound care

- You may feel temporary numbness in the chest due to injury of the nerves during surgery.

Recovery at Home

Incision care

- Your incisions may itch or feel sore, tight or numb for a few weeks. Some bruising around the incision is also normal.
- Your legs may swell a little, try get up once an hour and walk around for a few minutes. If persistent leg swelling, please consult your doctor.

Medication

- Only take all medications prescribed by your doctor upon discharge.

Exercise

- Walking exercise represents the best form of exercise for your recovery. Continue the walking program provided by your physiotherapist.
- One month after surgery, you may be able to walk at least 1-1.5 miles/day. (Around 30 minutes).
- While the breastbone (sternum) is healing at the first 6-8 weeks, avoid lifting greater than 10 pounds (5kg), pushing/pulling heavy objects, or working with your arms overhead. You may resume full activity after 12 weeks, as stated by your doctor.
- You should not drive until your doctor gives his approval (approximately 3-5 weeks post surgery) in order to protect your breastbone from injury.

Remarks

This is general information only and the list of complications is not exhaustive. Other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For further information please contact your doctor.