

Procedure information Sheet - Heart Valve Surgery

Introduction

There are different causes of heart valve problems. 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.

- **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.
- **Calcified 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.

Types of artificial valves

1. **Biological valve:** It is made of bovine pericardium (lining of a cow's heart) or porcine aortic valve tissue. They do not long term 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.
2. **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% risk of bleeding or stroke yearly.

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Pre-operative preparation

1. **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.
2. **Medication:** All medication should be continued except warfarin and antiplatelet drugs which should be stopped 4 days before operation.

Possible risks and 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 heartbeats (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.).

Post-operative information

A. Hospital care

➤ Intensive Care Unit (ICU) →→ General ward

1. Right after your surgery, you will be transferred to ICU.
2. Tubes and lines include: Breathing tube (endotracheal tube), Heart monitor, Pacing wires, Arterial line, Intravenous infusion line, Urinary catheter.
3. 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.
4. As your condition improved, all tubes and lines will be removed on post surgery day 2, and then you may be transferred to general ward.
5. You may use the incentive spirometer to take deep breaths and cough 10-20 times an hour to prevent fluid build-up in your lungs.
6. You may 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.

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7. Wound care: you may feel temporary numbness in the chest due to injury of the nerves during surgery.

B. Home care after discharge

➤ **Wound care**

1. Your wound may itch or feel sore, tight or numb for a few weeks. Some bruising around the wound is also normal.
2. Your legs may swell a little, try get up once an hour and walk around for a few minutes. Please consult your doctor if persistent leg swelling.

➤ **Medication:** only take all medications prescribed by your doctor upon discharge.

➤ **Exercise**

1. Walking exercise represents the best form of exercise for your recovery. Continue the walking program provided by your physiotherapist.
2. One month after surgery, you may be able to walk at least 1-1.5 miles/day. (Around 30 minutes).
3. 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.
4. You should not drive until your doctor gives his approval (Approximately 3-5 weeks post surgery) in order to protect your breastbone from injury.

Remark

The above-mentioned procedural information is not exhaustive, other unforeseen complications may occur in special patient groups or individual differently. Please contact your physician for further enquiry.

Reference: http://www21.ha.org.hk/smartpatient/tc/operationstests_procedures.html

I acknowledge that the above information concerning my operation/procedure has been explained to me by Dr. _____. I have also been given the opportunity to ask questions and receive adequate explanations concerning my condition and the doctor's treatment plan.

Name:

Pt No.: Case No.:

Sex/Age: Unit Bed No:

Case Reg Date & Time:

Attn Dr:

Patient / Relative Signature: _____

Patient / Relative Name: _____

Relationship (if any): _____

Date: _____