

Coronary Artery Bypass Graft Surgery

冠狀動脈搭橋手術

Coronary Heart Disease (CHD)

Coronary heart disease happens when the arteries that supply blood to heart muscle become hardened and narrowed. This is due to the buildup of cholesterol and other material, called plaque, on their inner walls. This process is called atherosclerosis, commonly called 'hardening of the arteries'. As the buildup grows, less blood can flow through the arteries. As a result, the heart muscle can't get the blood or oxygen it needs. This can lead to chest pain (angina) or a heart attack. Most heart attacks happen when a blood clot suddenly cuts off the hearts' blood supply, causing ischemia, damage to muscle tissue that results 'infarction' or even permanent injury in the heart which causes death.

Coronary Artery Bypass Surgery (CABG)

Coronary artery bypass graft surgery is the most common open-heart procedure. This surgery increases blood flow to the heart by creating a detour and re-routing the blood flow around the blocked portion of the artery.

A surgeon creates a graft to bypass blocked coronary arteries using a vessel from another part of your body. The most common vessel used is a vein from the lower extremity called the Greater Saphenous Vein (or GSV), that runs from just inside the ankle bone to the groin. Another major vessel used for bypass grafts is the Left Internal Mammary Artery (LIMA). This vessel lies on the undersurface of the sternum (breastbone), making it easily accessed during surgery. Radial artery of your non-dominant arm can also be harvested as a graft.

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 aspirin or plavix which should be stopped 7 days before operation, whereas warfarin should be stopped 4 days before operation. Please confirm with your attending doctor.

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: 1 to 3% (depends on pre-operative conditions and other risk factors, such as left ventricular function, history of stroke, carotid artery disease, diabetes mellitus, etc.)

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, (leg or arm incision site numbness for CABG cases) due to manipulation 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.
 - A pair of anti-embolic stockings will be given to you upon discharge.
 - Wear anti-embolic stockings at least 6 weeks post surgery or more if your ankles are still swollen to prevent leg swelling and promote circulation.

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.