

## **WHAT IS CARDIAC CATHETERIZATION?**

This is an invasive test to find out whether or not there are any narrowing of the coronary (heart) arteries and how well the heart is pumping. This is also known as a coronary angiogram

### **PURPOSE OF THE PROCEDURE**

There are three main coronary arteries, which supply blood and oxygen to the heart muscle. These arteries are on the surface of the heart and are typically 3 – 4 mm in diameter. There are many branches of these main arteries. If these arteries are narrowed you may complain of angina, chest discomfort or shortness of breath or if suddenly blocked a heart attack. The purpose of the procedure is to determine whether any narrowing of these arteries has occurred and if so to determine the most appropriate treatment for you. It is also possible to obtain information about the pumping efficiency and valves of your heart.

### **PREPARATION FOR PROCEDURE**

- . Procedure is normally done as a day case
- A light breakfast (eg: tea and toast) may be taken on the morning of the procedure unless instructed to fast.
- If on warfarin stop taking it 5 days before the procedure. Other medications should be taken as usual unless your doctor tells you differently.
- You must arrange to be collected on discharge, as you are not allowed to drive or travel home unaccompanied.

### **PROCEDURE**

The test is normally performed in a specially equipped room called a Cardiac Catheterization Laboratory (cath lab) and will typically take about 20 minutes to perform. The scheduling of your test is an approximate estimate only. There can be unforeseen delays. You will receive oral sedation and if required a small amount of intravenous sedation, which will be given through a drip in your arm to help you relax. Usually the blood vessel at the top of the right leg (groin) is used to access the arteries. (Sometimes the left leg or arm may be used.) A local anesthetic is given to numb the skin over the blood

vessel in the right leg. The vessel is punctured with a needle and then a small plastic tube, called a catheter is passed up to the heart arteries under x-ray guidance. A special x-ray dye is then injected which allows pictures of the heart to be seen and information is recorded permanently. This dye is excreted by the kidneys after a couple of hours.

### **Right Heart Catheterization**

Sometimes it is necessary to assess the valves function on the right side of the heart, measure the blood pressure and blood flow in the heart chambers and take blood samples . This can be done as part of the procedure and involves placing a second tube in another blood vessel in the right leg; this is known as right heart catheterization. Your doctor will decide if this is necessary for you.

### **Fractional Flow Reserve**

This procedure is carried out when an angiogram has shown there is a vessel with some degree of narrowing but it is unclear if you would be better managed by medicines or a stent. The doctor may wish to carry out this procedure to determine the significance of the blockage and to decide whether you require a stent or not.

This procedure is carried out in the same way as a coronary angiogram, but this time you will receive extra medication to maximize blood flow in the coronary arteries, this medication may give you unpleasant sensations in the chest however they cease as soon as the medication is stopped and normally this is no longer than 3 minutes . A special guide wire is advanced past the narrowing and the doctor can take a measurement at this time which indicates the severity of the narrowing and helps determine future treatment.

### **What Happens Afterwards?**

When the procedure is complete pressure will be applied to the point of entry for up to 15 minutes after the test. This allows a seal to form

over the puncture site in the artery. You will need to stay in bed for 4-6 hours after the procedure. There will be no stitches, but you may be a little sore and need pain killers for a day or two.

Alternatively, an artery closure device may be used to close the puncture site. This allows you to mobilize after two hours. Your doctor will decide if this device is suitable for you. The doctor will discuss the results with you before you are discharged and make recommendations for further treatment. Because sedation is required to carry out this test and if you are in hospital only for the day it will be necessary for you to be accompanied home by a responsible adult. Some body should also stay with you overnight. You are advised not to drive, operate machinery or undertake heavy physical activity for at least 24 hours afterwards.

## **Percutaneous Coronary Intervention (angioplasty+/- Stent)**

Coronary angioplasty and the insertion of a Stent is a way of opening up blocked / narrowed coronary arteries and increasing the blood flow to the heart muscle.

### **What Preparation Is Needed?**

The treatment requires 2-3 days in hospital. The preparation is the same as for a coronary angiogram and is performed in the same department.

### **What Happens?**

The test may take about 40 minutes to 1.5 hours and is performed under local anesthetic with a sedative to relax you. A doctor and nurse will be present to explain the procedure to you. The initial part of the procedure is the same as for coronary angiography. Once the catheter is in place a thin wire called a guide wire is threaded through the catheter towards the narrowed section of the artery. Over this the doctor will advance the angioplasty catheter that has a balloon at the tip. When the balloon is inflated you may experience some angina-type symptoms. These symptoms are normal but tell your doctor if you experience this. This may be repeated a few times until the artery is opened adequately. You may feel chest pain while the balloon is inflated because it stops blood flow through the artery for a short time. The pain usually disappears after the balloon is deflated.

When necessary a coronary stent is implanted in the same way. A stent which is a metal mesh or coil is designed to prevent the opened section of the artery from narrowing again. The stent remains in place permanently.

### **What happens afterwards?**

You will be given medication which thins the blood during this procedure. Sometimes a small tube, called a sheath is left in the groin until the bodies clotting returns to normal level, approx 1-2 hours. You will have to lay flat for this period and for up to 4 hours after sheath removal. Alternatively an arterial closure device may be used to seal the puncture site. This would allow you to mobilize after 2 hours. You will be kept in hospital overnight. Your doctor will discuss the result of the case and future treatment with you prior to discharge from hospital.

### **Risks and Complications**

Cardiac catheterization carries a slightly higher risk than other heart tests, but is very safe when performed by an experienced team.

Possible complications of any type of catheterization include the following:

- Bruising around the groin is common
- A risk of bleeding, infection, and pain at the groin site.
- A very small risk that the soft plastic catheters could actually damage the blood vessels.
- A blood clot could form on the catheters and later block blood vessels elsewhere in the body.
- The X-ray dye could damage the kidneys (particularly in patients with diabetes)
- An allergic reaction to the x-ray dye
- Disturbances of heart rhythm

Tell your doctor if you have any allergies especially if allergic to seafood or if you have had a bad reaction to x-ray dye or iodine in the past, if you are taking Viagra, or if you might be pregnant.