



PATIENT INFORMATION SHEET

Coronary Angiography, Angioplasty and Stenting

What is it?

A coronary angiogram is a special x-ray procedure in which we take pictures of the coronary arteries after injecting a dye which allows us to see blood flowing inside the arteries to show whether they are narrowed or blocked. Although a coronary CT can be done it involves a much bigger radiation dose and may not show the inside of the arteries when there are heavy deposits of calcium in the wall.

We are also able to measure blood flow using special flow wires, allowing us to decide whether a narrowing is actually limiting blood flow. Using a combination of pictures (the angiogram) and flow data helps us decide on treatment options, often proceeding to treatment with a balloon (angioplasty) or stent (stenting) at the same time.

Preparation and precautions for the test

You must have nothing to eat or drink for at least six hours before your procedure. Anticoagulants (warfarin, dabigatran) are almost always stopped a number of days before the procedure, in consultation with your treating cardiologist. However, anti-platelet drugs such as aspirin, clopidogrel or prasugrel are usually continued for the procedure, as stenting is usually not done if you are not currently taking anti-platelet drugs.

If you take diabetic medication you need to bring your tablets and insulin with you but withhold all medication on the morning of your procedure. In the case of metformin (Diabex, Diaformin) this is stopped 24 hours before and 48 hours after your procedure.

How is it done?

This test is done as a day stay procedure in hospital by a cardiologist who will explain the procedure to you before it is done. You will need to change into a hospital gown; a plastic tube or 'cannula' will be inserted in a vein and a blood sample taken. You may be given a sedative medication as a tablet or in the cannula. You will be awake and able to communicate throughout the procedure. A large x-ray camera will be above the table to take pictures of the procedure.

The cardiac catheterisation laboratory, or 'cath lab', is a specialised x-ray room where your coronary angiography/

angioplasty/stenting will be performed. It is a sterile area, so everyone in the room will wear gowns, masks, and caps. You will lie flat on your back and during the entire procedure your condition will be monitored closely - ECG, heart rate, blood pressure, breathing rate, and oxygen level. Images of the catheter being moved through the body into the heart and the structures of the heart as the dye is injected are displayed on video monitors.

The catheter site (groin or wrist) will be cleansed again with antiseptic soap, sterile towels and a sheet will be placed around this area. Local anaesthetic will be injected into the skin and the cardiologist will make a small cut in the skin at the insertion site before putting a plastic tube into the blood vessel which is advanced towards the heart and then into the opening of the coronary arteries in the aorta where dye is injected to see if there are any blockages and where they are located.

It is very important for you to remain still during the procedure. When the dye is injected, you may notice a feeling of warmth or even a hot flash. Occasionally a little pressure or discomfort is felt but this sensation will last for only a few seconds. When the procedure has been completed (either angiography, or angioplasty/stenting), the catheters and sheath will be removed. The entire procedure will take 45-60 minutes. To avoid bleeding from the puncture site, either firm pressure will be applied on your skin or a biodegradable 'plug' (AngioSeal or similar) may be inserted if your procedure was done via the groin.

When is an angioplasty done?

If coronary disease is found and angioplasty/stenting is possible and appropriate, the interventional cardiologist may perform these procedures immediately following the angiogram if they and your treating cardiologist agree this is appropriate. This involves positioning a small wire well beyond the narrowed area inside the artery which is then used as a guide to place appropriate balloons and stents precisely. A balloon will be inflated first to open the artery, followed by placing a stent to keep the artery open. The stents we currently use are made of steel (bare metal or BMS), some of which have a drug coating on their surface (drug eluting stents or DES).

The lining of the artery (endothelium) is disrupted by angioplasty and the stenting procedure which means the artery could clot off ('in stent thrombosis'). Aspirin and other antiplatelet drugs such as clopidogrel (Iscover, Plavix) are

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given to prevent this occurring early on in the procedure and during your recovery from it. Regrowth of the endothelium occurs over time but can be excessive leading to narrowing inside the stent or 'restenosis'. Drug eluting stents have been developed to reduce the chance of restenosis but slow down the normal healing process of the artery which means the risk of late stent thrombosis lasts longer in those treated with DES. We therefore prescribe longer term treatment (at least 12 months) with a combination of blood thinners (antiplatelet medicines, generally Aspirin and Clopidogrel or Prasugrel) compared to patients treated with a BMS (at least one month).

Aftercare

You will be asked to rest in bed for between 1 and 4 hours depending on whether the procedure is done via the wrist or groin. If your groin was punctured, it is important to keep your leg straight for the duration of the monitoring period, alternatively if your wrist was punctured, avoid bending that wrist or using your hand during the monitoring the period. You will have frequent observations of your pulse and blood pressure, and checks made of your puncture site by the nursing staff.

Chest pain after the procedure should be reported to the nursing and medical staff promptly. If you have had an angiogram only, you are usually allowed to leave hospital on the day of the procedure depending on the results of the test and the advice of your treating and interventional cardiologist. If you have an angioplasty and stenting, you will stay in the hospital at least overnight and usually be allowed home the next morning.

A follow-up appointment will be made with your cardiologist usually within a week or two and you will be discharged with appropriate medications. Please see your family doctor one week after your procedure to have the puncture site checked. The test results will generally be discussed with you at your follow up appointment with your cardiologist.

After discharge from hospital you should not drive for 48 hours after the procedure. Drink plenty of fluids over the next eight hours as this helps flush the X-ray contrast out of your system. If possible, have someone stay with you at home the night of your procedure. The plastic dressing can be removed from the puncture site (wrist or groin) the day after the procedure following your shower.

You should avoid heavy lifting the week after the procedure.

If a wrist puncture was done, use your arm sparingly for the next one to two days, not flexing the affected wrist for a minimum of 24 hours. Do not lift heavy weights for at least one week following the procedure.

If the puncture site (wrist or groin) suddenly bleeds or becomes very painful with a large lump under the dressing, lie down immediately and press firmly on the puncture site, calling for help. The person assisting you should call an ambulance, as you may be experiencing bleeding from a major artery. They should press firmly on the puncture site until the ambulance arrives.

If a closure device was used in the femoral artery in the groin and there is redness, swelling or tenderness in the area this could be due to infection and you need to seek medical attention promptly.

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