

Having a coronary angiogram

This leaflet explains why an angiogram may be suitable for you and what you can expect. It also outlines the benefits, possible risks and alternatives to this test. If you have any questions or concerns, please do not hesitate to speak with your cardiologist (specialist heart doctor) or nurse.

What is coronary artery disease?

The heart is a muscle and like all muscles in the body it needs to have a good blood supply to work properly. Your heart gets blood from three main blood vessels called the coronary arteries.

In coronary artery disease (also called coronary heart disease) one or more of these arteries narrow, which can prevent enough blood reaching the heart muscle. These narrowings are caused by a build up of "fatty" material called atheroma in the artery walls.

The most common symptom of coronary artery disease is angina, which is a discomfort or tightness in the chest. This can sometimes also be felt in the back, shoulders, arms or neck and may cause breathlessness. From the symptoms you are experiencing, your doctor has recommended you to have an angiogram.

What is an angiogram?

An angiogram is also known as a cardiac catheterisation or cardiac catheter test. It is an x-ray performed under a local

anaesthetic, which gives your doctor important information about:

- your heart muscle and its blood supply;
- the blood pressure inside your heart; and
- how your heart's pumping chambers and valves are working.

Why should I have an angiogram?

You need this test so your cardiologist can find out the cause of your symptoms, for example your chest pain and/or breathlessness. Your cardiologist can then decide what the best treatment is for you, for example medication or a further procedure, such as a balloon or stent angioplasty or a bypass operation.

Asking for your consent

We must by law obtain your written consent for this procedure before we can go ahead with the test. Staff will discuss all the risks, benefits and alternatives with you before asking you to sign a consent form. This form confirms that you agree to have the procedure and understand what it involves. It is your right to have a copy of this form.

If you are unsure about any aspect of the treatment proposed, please do not hesitate to ask to speak with a senior member of staff. You may find the leaflet, **Helping you decide: our consent policy**, helpful.



Are there any risks?

There are risks with any procedure, but it is important to remember that this is the only test that can be used to decide on certain treatments that you may need. The majority of patients (about 99%) have no major problems, but the following complications can occur. It is important to be aware of them before you sign your consent form:

- Bruising at the top of the leg where the catheter has been inserted (usually the groin). This is known as a haematoma and is very common (**about 1 patient in every 20**). This can be uncomfortable and can take a few weeks to disappear.
- Damage to the artery in the groin causing a swelling, known as a 'false aneurysm'. This occurs in **less than 1 patient in every 100** and could increase your length of stay in hospital.
- Some people may have an allergic reaction to the x-ray dye (**less than 1 in every 500 patients**). It is important to tell your nurse if you have had any previous allergic reactions, including reactions to seafood or shellfish.
- Damage to one of the heart arteries, causing some heart damage or a heart attack (**1 in a 1,000 patients**). If this happens we will try to repair the artery with a balloon treatment or an emergency bypass operation.
- The procedure may displace small blood clots. If these move to the brain a stroke can occur. This is rare (**less than 1 in 1,000 patients**).
- Although a rare complication, it is important for you and your relatives to know that an angiogram carries the risk of death. The incidence of this is very low, (**approximately 1 in every 2,500 patients**).

Are there any alternatives?

It is possible to get an idea of the blood supply to the heart muscle using a number of other tests, such as a treadmill test, an exercise echo scan or an exercise nuclear scan. You may have had one of these already. Sometimes your doctor will feel that the angiogram is the first and/or only test you need (depending on your symptoms).

Please feel free to ask your cardiologist more about alternative tests. However, an angiogram is the **only** test that shows your coronary arteries in detail. Therefore it is important when planning any further treatments that you may need.

Your appointment date

The angiogram is usually performed in the day case cardiac suite, which means you can leave hospital on the same day that you have your test. However some patients may be admitted on the evening before the procedure. Please follow the instructions on your admission letter. If you need to contact someone before your admission, for example if you cannot make your appointment date, please phone:

- the cardiac admissions team on 020 7188 7335/1079; or
- the cardiology nurse case managers on 020 7188 0978

Could my appointment be cancelled?

Unfortunately it is possible that your test could be cancelled or delayed. If we need to cancel your test, we will contact you as soon as possible to let you know the situation and re-book your procedure for a date convenient for you.

What should I do before the procedure?

You should take all your regular morning medicines **except**:

- **Metformin** – you should not take this on the day of your angiogram or for the next 48 hours afterwards.
- **Insulin** – you should only take half of your regular dose with your breakfast. Ward staff will advise you what to do after the procedure depending on your blood sugar level, so please make sure you bring your insulin into hospital with you.
- **Warfarin** – in most circumstances you should stop your warfarin 48 hours before your angiogram. You should check this with your doctor, especially if you have had a heart valve operation, recurrent deep vein thrombosis (DVT) or pulmonary embolism (PE).

If you are taking antibiotics on the days before your procedure please let the admissions team or nurse case managers know.

Please bring all your current medication with you and/or a list of what you are taking.

If there is a possibility that you could be pregnant please let the admissions team or the nurse case managers know as soon as possible, as x-rays used in this procedure can damage your developing baby.

You should have a light breakfast before 6am on the morning of your angiogram, but you **must not eat** anything else until after your angiogram. You can drink fluids freely up until you have the angiogram.

You need to have a shower or bath on the morning of the procedure. You will also need to shave your right groin area.

Coming to hospital

We aim to give you a bed to you as soon as you arrive, however sometimes this is not possible. You may be asked to wait in the patient dayroom until a bed becomes available. This will **not** delay your procedure.

When you arrive at the ward you will be seen by a doctor or nurse who will take your medical history and perform a medical examination. We may insert a small tube (cannula) into one of the veins in your hand or arm in case you need medicine during the procedure. We may also take some blood for routine blood tests.

What happens during the procedure?

The procedure is carried out in an x-ray room and takes about 30 minutes. You will be asked to lie on a narrow table and will be connected to an ECG (electrocardiogram) machine. This machine will monitor your heart rate and rhythm throughout the procedure.

If you are anxious before or during the procedure ask for some sedation, which is medication to help you to relax. However, this will not put you to sleep: you will be awake and able to talk during the procedure.

A large artery or vein in your groin is usually used for an angiogram. Your nurse will clean your groin area with a cleaning solution and place a sterile cover around the area. Your cardiologist will numb your groin area with an injection called a local anaesthetic. This stings at first but will then settle. For more information please ask for a copy of the leaflet, **Having an anaesthetic**.

Your cardiologist will then thread a thin tube (sheath) into your artery or vein using a needle. This allows a long, flexible tube called a catheter to be placed into the artery or vein without any

blood loss or the need for more needles. Using an x-ray machine the catheter will be directed through the blood vessels and into your heart.

Some cardiologists prefer to do this test through a blood vessel in your arm. Your cardiologist will explain this to you in more detail if this method is chosen.

Fluid called contrast dye will be injected through the catheter into your heart arteries. Because this fluid can be seen under x-ray, your cardiologist will be able to view and take 'pictures' of your heart and its blood supply. Pictures will be taken from a number of different angles so that any narrowings can be seen clearly. This will help in planning any procedures that you might need. A picture may also be taken of the heart's main pumping chamber. You may feel a hot flush and a few palpitations when this is done.

When your cardiologist is satisfied with the pictures, the catheter is taken out of your artery. Your cardiologist or nurse will remove the sheath and press firmly on your groin area for 5-10 minutes to stop any bleeding. You will then be transferred onto a trolley and taken back to your bed on the ward.

Your nurse will take your blood pressure and check your groin area regularly for the next couple of hours. You will need to stay in bed and rest for 2-3 hours and for the first 1-2 hours you will need to lie flat, to allow the blood vessel in your groin to heal.

You will be able to eat and drink during this time, but you will need to stay lying down. Your nurse will encourage you to drink plenty of fluids to help the contrast dye pass through your body. It leaves through your urine, but it is colourless, so you will not notice it. Your nurse will tell you when you can get up and move around.

When will I get the results?

Your doctor will usually explain the results of your test to you immediately or come to see you once you are back on the ward. The findings of the angiogram can be any of the following:

- your coronary arteries are normal, which means you don't have heart disease. In this case you will be referred back to your GP for further tests to investigate your symptoms;
- the disease in your coronary arteries is minimal and therefore your symptoms can be managed by medication, which your doctor will discuss with you;
- you may need an angioplasty and stent procedure to treat your blocked arteries. Your doctor and nurse will discuss this with you in more detail; or
- you may need a heart operation (bypass surgery). If this is the case your doctor will discuss the options with you.

When can I leave hospital?

You can leave the hospital once you are able to move around without any problems and your nurse is happy with your recovery. You must have a responsible adult to help you home after your angiogram. You can travel by car (as a passenger only) or public transport.

What happens after I go home?

Wound care

It is normal for your groin to be tender for a few days after the angiogram. It is also normal for a bruise to develop. **However, if you notice any of the following please contact your GP:**

- a hard tender lump under the skin around the area of incision (although a pea sized lump is normal);
- any increase in pain, swelling, redness and/or discharge at the site;
- a cold foot on the same side as the angiogram; or
- a raised temperature/fever.

If your groin starts to bleed you should lie down and apply pressure to the area keeping your leg as straight as possible. You should do this for about four hours, but if the bleeding does not stop after 10 minutes dial 999.

You can bathe and shower when you get home but avoid rubbing the wound site. Do not put creams, talcum powder or soap directly onto the groin site for up to a week after the angiogram to avoid irritation and reduce the likelihood of infection.

Chest pain

Your chest is likely to feel tender after the procedure. This is normal and should settle within a few days. However if the discomfort continues and is similar to your angina pain, use your GTN spray as prescribed. If your pain lasts longer than 10 minutes after using your GTN spray, dial 999 or go to your nearest Accident and Emergency (A&E) department.

Food and drink

You can eat and drink as usual but avoid alcohol for 24 hours. You should also drink plenty of non-alcoholic fluids to clear the contrast fluid from your body.

Returning to normal activities

When you are able to return to work depends on your job and on the results of the angiogram. Please follow the advice given to you by your doctor and nurse. You will also need to speak to your doctor about when to start exercising; again this will depend on the result of the angiogram.

Driving

Please do not drive on the day of your test or the following day. This will allow time for your groin area to heal. You can start driving two days after the procedure, as long as you feel comfortable and have not had any problems with your groin.

Some of the information in this leaflet has been adapted with permission from the King's College Hospital leaflet, Coronary angiogram and coronary angioplasty/stent.

Where can I get further information?

The **cardiology nurse case managers** are available for further information or advice, Monday to Friday, 9am to 5pm. Please phone **020 7188 0978**

For any other issues relating to heart disease please contact the **British Heart Foundation** Information Line on **08450 70 80 70** or visit www.bhf.org.uk

Driver Vehicle and Licensing Agency (DVLA). Write to: Drivers Medical Group, DVLA, Swansea SA99 1TU. Phone **0870 240 0009**, e-mail drivers.dvla@gtnet.gov.uk or visit www.dvla.gov.uk. Patients with impaired hearing can call **01792 782 787**.

PALS

If you need information, support or advice about our services, you can contact our Patient Advice and Liaison Service (PALS). Ask a member of hospital staff to direct you to the PALS office or phone **020 7188 8801** at St Thomas' or **020 7188 8803** at Guy's or email pals@gstt.nhs.uk

Language Support Services

If you need an interpreter or information about the care you are receiving in the language or format of your choice, please phone **020 7188 8815**, fax **020 7188 5953** or email languagesupport@gstt.nhs.uk

Knowledge & Information Centre (KIC)

If you want more information about health conditions and support groups or want to search the internet please visit the KIC on the ground floor, North Wing, St Thomas' Hospital. Phone **020 7188 3416**, e-mail kic@gstt.nhs.uk or visit www.kic.gstt.nhs.uk

Guy's and St Thomas' NHS Foundation Trust

St Thomas' Hospital, Lambeth Palace Road, London SE1 7EH **Guy's Hospital**, St Thomas Street, London SE1 9RT

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