

## Information for Patients Undergoing an Angiogram/arteriogram

### Introduction:

This leaflet tells you about the procedure known as an angiogram. An arteriogram is an alternative name for this procedure. It explains what is involved and what the possible risks are. It is not meant to replace informed discussion between you and your doctor, but can act as a starting point for such a discussion.

Whether you are having a pre-planned angiogram or as an emergency procedure, you should have sufficient explanation before you sign the consent form.

You are expected to make a rapid recovery from your angiogram and to experience no serious problems. However, it is important that you should know about the minor problems that occur, and about the more serious problems that occasionally occur.

Radiologists are doctors specially trained to interpret the images and carry out more complex examinations. They are supported by radiographers who are highly trained to carry out X-rays and other imaging procedures.

### **\*\*An important note about tablets you may be taking\*\***

If you are taking **WARFARIN** or tablets for diabetes (**METFORMIN – Glucophage**) please telephone the Special Procedures Department in Medical Imaging as soon as you receive an appointment for the imaging (X rays) of your arteries. The telephone number is **01392 402336** selecting option 1 and then option 7 for Special Procedures. They are likely to advise you to stop those tablets around the time of your investigation and treatment.

### What is an angiogram?

An angiogram is a procedure where X-rays are used to examine blood vessels. Normally, blood vessels do not show up on an ordinary X-rays and a special dye, called contrast medium, is injected into the artery through a fine plastic tube called a catheter. X-rays are then taken immediately afterwards, producing detailed images of arteries and veins.

### Why do I need an angiogram?

The reason you require an angiogram is that there may be a problem with your circulation. Previous tests that have been carried out such as a Doppler ultrasound, CT or MRI scanning can provide useful information, but it may not be the best way of obtaining the amount of detail required by an angiogram.

## What are the alternatives?

Duplex US, CT angiography and MR angiography can provide useful diagnostic information. However greater detail might be needed and an angiogram will provide this. There may be a need to widen a narrowed artery and it might be possible to do this at the same time. This is called an angioplasty and will be discussed with you if relevant.

## Who has made the decision?

The Consultant in charge of your case and the Radiologist performing the angiogram believe this is the next step. However, you will also have the opportunity for your opinion to be taken into account, and if, after discussion with your doctors, you do not want the procedure carried out, you can decide against it.

## Who will be performing the angiogram?

A specially trained doctor called a Radiologist. Radiologists have special expertise in using X-ray and scanning equipment, and also in interpreting the images produced. They will look at these images while carrying out the procedure.

Radiographers and Radiology Nurses will be present in the room to assist during the procedure; they will introduce themselves at the start of the procedure.

Occasionally Student Radiographers or Medical Students will be present to observe the procedure.

## Where will the procedure take place?

In the Medical Imaging Department.

## How do I prepare for an angiogram?

- You may need to be an inpatient in the hospital, although many angiograms can be performed as an outpatient / day case.

- You will have had some blood tests performed before the procedure to check that you do not have an increased risk of bleeding.
- You are asked **not** to eat for 4 hours prior to the procedure. You may drink a little water.
- You will need someone to drive you home and to look after you for 24 hours.
- You should be prepared to stay overnight if necessary.
- If you have any allergies or you have previously reacted to intravenous contrast medium, you must let the doctor know. Intravenous contrast medium is the injection we give you during some scans.
- If you are diabetic, please contact the Medical Imaging Department on **01392 402336 selecting option 2, in-patient enquiries, option 6** X-ray Special Procedures.
- If you normally take any medication to thin your blood (anticoagulation or antiplatelet drugs) such as: **warfarin / clopidogrel / aspirin / non-steroidal anti-inflammatory drugs (NSAIDS / brufen / ibrufen / nurofen) / dabigatran (Pradaxa) / rivaroxiban (Xarelto) / Apixaban (Eliquis) / phendione / acenocoumarol – then these may need to be stopped or altered. Please contact the Medical Imaging Department on 01392 402336 selecting option 2, in-patient enquiries and then option 6 for X-ray Special Procedures.**
- Other medication should be taken as normal.

## What happens during an angiogram?

You will lie on the X-ray table, generally flat on your back. You may have a needle put into a vein in your arm, so that the Radiologist can give you a sedative or painkillers. You may have a monitoring device attached to your chest and finger, and may be given oxygen through small tubes in your nose.

The Radiologist will keep everything as sterile as possible, and may wear a theatre gown and operating gloves. The skin near the point of

insertion, probably the groin, will be cleaned with antiseptic, and then the rest of your body will be covered with a theatre towel.

The skin and deeper tissues over the artery will be anaesthetised with local anaesthetic, and then a needle will be inserted into the artery. Once the Radiologist is satisfied that this is correctly positioned, a guide wire is placed through the needle, and into the artery. Then the needle is withdrawn allowing a fine plastic tube called a catheter to be placed over the wire and into the artery.

The Radiologist uses the X-ray equipment to make sure that the catheter and the wire are moved into the right position, and then the wire is withdrawn. A special dye, contrast medium, is then injected through the catheter and X-rays are taken. Once the Radiologist is satisfied that the X-rays show all the information required, the catheter will be removed. A Doctor or Nurse will then apply pressure to the wound until the bleeding has stopped, or a special "stitch or plug" will be positioned across the wall of the artery to seal off the wound.

## Will it hurt?

Some discomfort may be felt in the skin and deeper tissues during the injection of the local anaesthetic. After this, the procedure should not be painful. There will be a Nurse, or another member of clinical staff, standing nearby looking after you. If the procedure does become uncomfortable they will be able to arrange for you to have a painkiller through the needle in your arm. As the dye, or contrast medium, passes around your body, you may get a warm feeling, which some people can find a little unpleasant.

## How long will it take?

Every patient's situation is different, and it is not always easy to predict how complex or how straightforward the procedure will be. Depending on the location of the procedure, for example, if looking at a large artery in the leg, this could take half an hour, if looking at smaller arteries it may be more complex and take longer possibly up to an hour. As a guide expect to be in the X-ray room for two hours altogether.

## What happens after an angiogram?

You will be taken back to your ward on a trolley. Nurses on the ward will carry out routine observations, such as taking your pulse and blood pressure, to make sure that there are no problems. They will also look at the skin entry point to make sure there is no bleeding from it. You will generally stay in bed for a few hours, until you have recovered. You may be allowed home on the same day, or kept in hospital overnight.

## What happens to the results?

A report of the procedure will be recorded in your notes immediately and also sent to your Consultant/Doctor within 48 hours.

## What happens next?

It may sometimes be possible for you to get home on the day of your treatment, if it is done early in the day and if everything has settled well. Somebody would need to drive you home and to be with you overnight. We would discuss all this with you.

The day after treatment, you can resume normal activity immediately. This includes walking any distance you want. You may bath or shower 24 hours after the angioplasty. There should be no problem with passing urine or opening your bowels normally after angioplasty.

## Are there any risks or complications?

An angiogram is a safe procedure, but there are some risks and complications that can arise. There may be a small bruise around the site where the needle has been inserted and this is quite normal. There is a chance that the bruise may become very large and uncomfortable, but this does not happen very often.

If a large bruise develops, there may be a risk of it getting infected, and this would be treated with antibiotics. In some hospitals, a large bruise is treated by having a small operation to drain it.

As with any mechanical device, there is also the possibility the catheter may fail. There is a small risk of damaging the artery itself.

## Bleeding

If bleeding from the groin continues, whilst you are in hospital, an operation may be needed to repair the bleeding artery.

## Infection

Infection of the angiogram wound or of blood clot beneath it is a very rare problem.

## False aneurysm

This is also very rare. It means that the artery does not seal off normally, so that blood can flow into a space outside the artery wall. Treatments include injection of a clot forming solution or an operation.

## Contrast

The contrast dye used for angiography contains iodine. Prior to IV contrast being given you will be asked if you have any known allergies or kidney problems. Adverse or allergic reactions are very rare and occur in approximately 0.15% (15 in 10,000). Most occur immediately. If you have symptoms our staff will arrange to monitor and treat you as needed.

Rarely delayed allergic reactions can occur in this case seek urgent medical advice.

**Despite these possible complications, the procedure is normally very safe, and is carried out with no significant side-effects at all.**

## Finally....

Some of your questions should have been answered by this leaflet, but remember that this is only a starting point for discussion about your treatment with the doctors looking after you.

Make sure you are satisfied that you have received enough information about the procedure, before you sign the consent form.

## Contact us

If you found reading your leaflet difficult, you do not understand what it means for you if you have any queries or concerns you can contact us on: **01392 402336** and we can talk it through or alternatively you can email us **rduh.radiologyappointments@nhs.net**

## How to get to your appointment

Please refer to the enclosed "Welcome to the Medical Imaging Department" leaflet or use the Trusts website for the latest information:

**[www.royaldevon.nhs.uk/our-sites/royal-devon-and-exeter-hospital-wonford/](http://www.royaldevon.nhs.uk/our-sites/royal-devon-and-exeter-hospital-wonford/)**

For more information on the Medical Imaging Department, please visit our website:

**[www.royaldevon.nhs.uk/services/medical-imaging-radiology-x-ray/medical-imaging-eastern-services/](http://www.royaldevon.nhs.uk/services/medical-imaging-radiology-x-ray/medical-imaging-eastern-services/)**

*Modified with acknowledgment of, and permission from, the Royal College of Radiologists.*

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