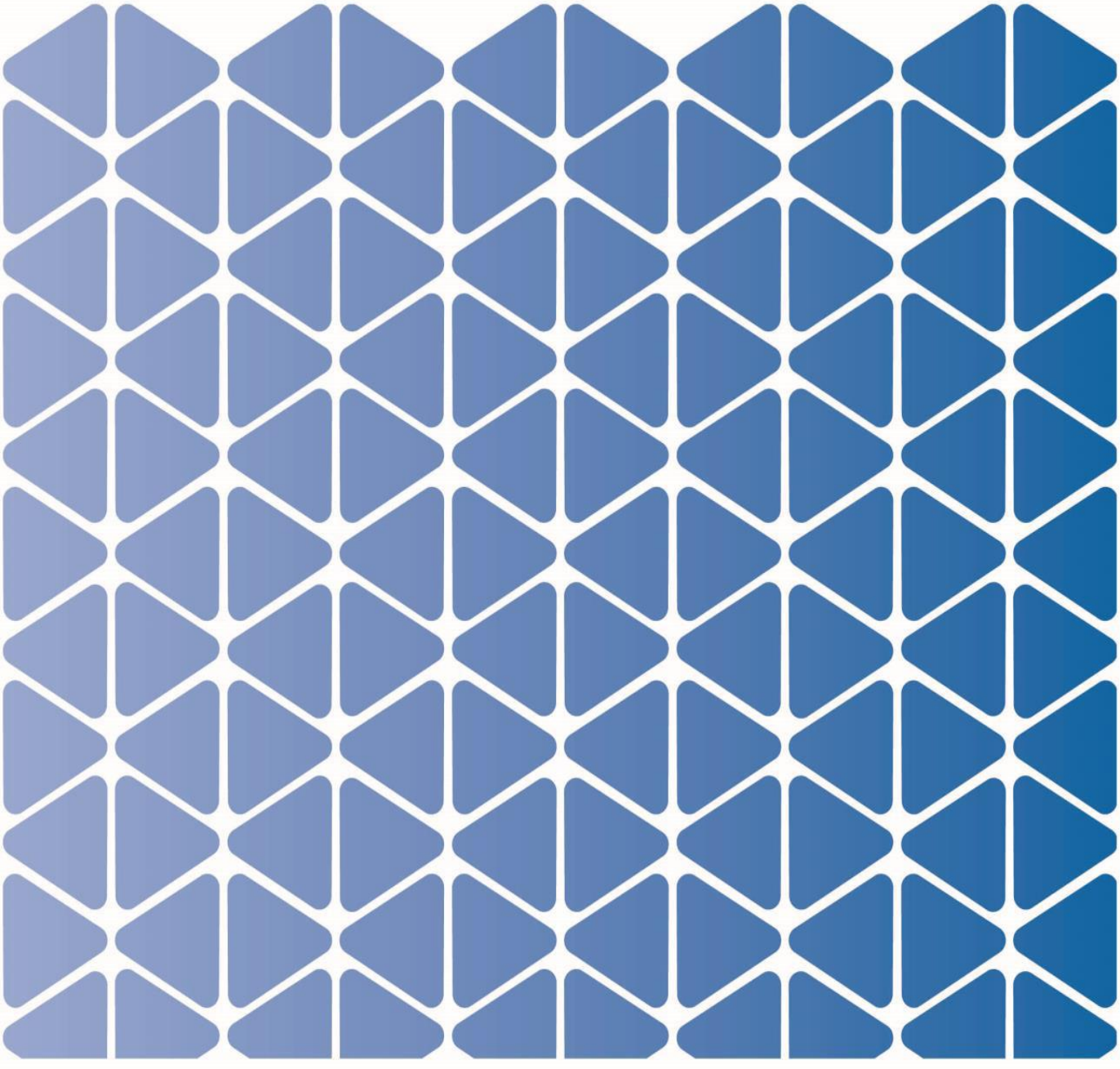
NHS
Worcestershire Acute Hospitals NHS Trust

PATIENT INFORMATION

ANGIOPLASTY AND STENTING



Angioplasty and Stenting
About this Procedure

What is an angioplasty?

Angioplasty is a minimally invasive procedure used to treat an artery which has become blocked or narrowed.

The procedure is performed in hospital by an Interventional Radiologist (a doctor specially trained in minimally invasive procedures performed with the help of x-rays and other imaging technologies). The procedure is performed under sterile conditions. The skin will be cleaned and you will be covered with sterile drapes. Local anaesthetic is used to numb the skin and then a small needle is put into an artery in the groin (usually). This needle is then exchanged for a small tube (sheath) which sits inside the artery and allows wires and tubes to be passed into the artery. The radiologist injects x-ray dye into the small tube and uses x-rays to identify the area where the artery is narrow or blocked. The radiologist then passes a thin wire through the narrow or blocked section of artery. Another small tube with a deflated balloon on the end is passed over the wire. When the balloon is in the right place, it is inflated. The balloon is then deflated and removed from the artery. More dye is injected to see if the narrowing or blockage has been successfully treated or if the balloon needs to be re-inflated. The radiologist uses x-rays to see where the wires and tubes are throughout the procedure. Sometimes angioplasty is not successful and a wire mesh stent needs to be placed in the artery (see stent information).

At the end of the procedure the small tube is removed from the groin and a doctor or nurse will need to press on the artery in the groin for around 10-15 minutes. This is to reduce the risk of bleeding and bruising. Sometimes a small device (vascular closure device) is used to help stop the bleeding more quickly.

The procedure uses a type of x-ray called fluoroscopic imaging to view images in real time. An x-ray dye, called contrast, is also used. The contrast dye shows up on the images and allows the radiologist to clearly see the blood vessels. The radiologist will then review and report on the images

Intended Benefits of the Procedure

What are the benefits – why should I have an angioplasty?

Angioplasty is performed to relieve or improve the symptoms caused by a narrow/ blocked vessel.

Most of the blocked/ narrowed vessels we treat are in the arteries supplying the legs. As a result, the blood flow to the legs is reduced. This can cause pain in the legs, particularly when walking. In a more severe form there may be foot and leg pain at rest, and sometimes ulceration or even gangrene.

Serious or Frequent Risks

The risks of angioplasty are very low. However, every procedure has complications. For angioplasty these include:

- Bruising at the site where the artery is punctured.
- Bleeding at the puncture site can occur which may cause a clot to form around the artery (haematoma). If this is very large, a small operation may be needed to place a stitch to stop further bleeding.
- Although very rare, it is possible for the artery to become completely blocked. In extreme circumstances this could lead to complete loss of blood supply to the limb.
- Some patients have an allergic reaction to the x-ray dye. This can result in a rash or breathing difficulties. This is usually minor but some people need to take medication to help reaction settle.
- When the balloon is inflated it is possible for the artery to rupture. This is very rare and can sometimes be repaired in the x-ray department with a stent. If this is not possible, an urgent operation may be required to repair the artery.
- When wires and tubes are being passed through the blockage it is possible for small fragments of the material causing the blockage to be dislodged. If this happens they may pass further down the leg and cause another blockage (distal embolisation). In this circumstance a further operation may be required to remove these fragments. Most times these can be removed without the need for surgery. However, there is risk of amputation.
- There is also rare possibility of death due to the procedure.
- There is chance where the treated artery can block again and would warrant re intervention.

Angioplasty involves exposure to x-rays. X-rays consist of a type of radiation known as ionising radiation. The doses that are used in medical x-rays are very low and the associated risks are minimal. The radiologist is responsible for making sure that your dose is kept as low as possible and that the benefits of having the x-ray outweigh any risk.

The contrast dye that is used contains iodine which some people are allergic to. If you have had an allergic reaction to x-ray contrast in the past or if you have a known allergy to iodine, you must contact the x-ray department before your appointment date. The

contrast dye may also cause problems with your kidneys especially if your kidney function is poor to start with. You may be given an intravenous drip before and/or after the procedure to help prevent this.

ARTERIAL STENTING

What is a stent?

Stents are small, strong expandable tubes made of metal mesh which when placed in the blood vessel support its walls from the inside.

When is stenting used/ Why use stent in addition to angioplasty?

Stents are frequently used in conjunction with balloon angioplasty. The angioplasty part of the procedure opens the artery, however if the narrowing cannot be extended sufficiently by means of a balloon dilatation, a stent can be placed into the vessel, to hold the artery open. Sometimes stents are used without prior angioplasty (this is usually because we have found that a stent will be needed in either the short or longer term). Over time, the artery wall heals around the stent. Another possible benefit of using a stent in addition to angioplasty is that it may decrease the number of procedural complications associated with just angioplasty alone. Sometimes drugs can be attached to stents (Drug Eluting stents) to try to reduce the longer term risk of the artery narrowing where the stent has been placed. Drug eluting stents are frequently used in the heart (coronary stents), but are relatively infrequently used in the remainder of the body. This is because they have not been shown to be beneficial, are expensive and have a higher risk of some complications (such as sudden stent clotting, blockage and in exceptional cases death).

How is stenting done / Is it a bigger procedure?

The stenting procedure is almost identical to the angioplasty procedure (mentioned above) with a short additional step of deploying the stent in the blood vessel. Initially the stent is delivered on a small diameter delivery system to allow its access into the blood vessel. Once in position within the artery it is expanded to fit the size, shape and bend of the artery. The stent remains in the artery after the procedure to help keep the artery open. Within several weeks the artery wall grows into the stent which usually gets incorporated into the artery wall. In many cases a balloon is still the first treatment step to stretch the artery open, however in some cases implanting a stent is performed without initial balloon dilatation first.

Following completion of the procedure patients must then lie flat for a period of time. This can vary from hospital to hospital although is usually in the order of 4 hours. There will be some bruising around the catheter puncture site and it may feel a little sore as the anaesthetic wears off. Do ask the nurse for some pain killing tablets for this if it

occurs. The doctor will discuss the results of the treatment with you before you go home. A letter will be sent to the General Practitioner (GP) who referred you explaining the details of the treatment.

Infection Risk
Despite the fact that all procedures are carried out using sterile equipment and aseptic procedure, there is a small risk of infection, following the examination.

Pregnant patients
X-rays can be harmful for an unborn baby and should be avoided by patients who are or may be pregnant. If you think you may be pregnant, please contact the x-ray department.

Are there any alternatives to having an angioplasty?
Conservative management – i.e. exercise clinic and medical control.
Open bypass surgery

Alternative imaging may be available, but your doctor feels that this is the most appropriate test for you. Please speak to your referring doctor or to the radiologist on the day of your examination for more information.

How can I prepare for an angioplasty?

Lying Flat
Because the procedures are performed with you lying flat and can take up to several hours you will need to be able lie flat in bed for up to a total of 6 hours. If you are not able to lie flat for a significant amount of time for reasons such as pain in your legs or because of back problems, then it is important that we know this before the day of the procedure. We may have to plan for other ways to do the procedure or even cancel it altogether.

Giving my consent (permission)
It is important that you understand the benefits, risks and alternatives. If there is anything you don't understand please discuss this with the radiologist on the day or contact the x-ray department before your appointment date.

Remember, it is your decision. You can change your mind at any time. Let staff know immediately if you change your mind.

On the Day of the Procedure
You will be admitted to a ward as this is an overnight stay procedure. You will be asked to change into a hospital gown. You may be asked to remove jewellery, dentures, glasses and any metal objects or clothing that might interfere with the x-ray images.

Will I feel any pain?
The procedure is generally not painful but some may patients find the initial local anaesthetic injection and balloon inflation uncomfortable.

What happens after the procedure?
The patient usually goes back to the ward for recovery and usually home the following morning.
A report will be sent to the doctor who requested your procedure.

When will I get the results?
The images taken during the examination will be studied by the radiologist who will then produce a detailed report which will then be available to the doctor who referred you for the test. Your referring doctor will then discuss the results with you and any treatment you may need.
You should already have a follow up appointment with the team who referred you. If not, please contact them to arrange one so that you can discuss the results of this test.

Your normal medication
We will usually ask you to continue with your normal medication (except as instructed below) during your stay in hospital, so please bring it with you.

Aspirin
You can continue taking aspirin.

Clopidogrel, Prasugrel, Persantin, Clexane, Dipyrimadole
If you are taking any of these regularly, please ring the x-ray department on the numbers provided below.
We will need to know why you are taking this medication and discuss this with you. You may need to stop taking these prior to your procedure, but this should only be done after discussion with the referring doctor.

Warfarin, Dabigatran, Rivaroxaban, Edoxaban, Apixaban
If you are taking any of the above, it will need to be stopped 2-5 days prior to the procedure and alternative medication should be arranged with your referring doctor. Please ring the vascular unit on the number below. We will need to know why you are taking this and what your target INR is.

If you don’t feel well and have a cough, a cold or any other illness when you are due to come into hospital for your investigation, we will need to know. Depending on your illness and how urgent your investigation is, your procedure may need to be delayed.

After your Angioplasty:

Angioplasty or stenting will improve the blood flow in your artery but it will not cure the underlying cause of the blockage - arteries may become narrow again (called restenosis), which is why it is important to follow the advice below.

Any patient with arterial disease, no matter which arteries are affected, stands to benefit from smoking cessation, eating a low fat diet, getting regular exercise, and controlling blood cholesterol.

Angioplasty improves artery blood flow for most people. But, results will depend on where your blockage was and how much blockage you may have in your other arteries.

If you are a smoker, it is very important that you stop smoking. Smoking causes the arteries to become narrowed and can also cause the blood to clot more rapidly.

The risk of progression or recurrence of disease of the arteries and its complications can be reduced after angioplasty and/or stent insertion by simple lifestyle modifications including:

1. Weight reduction and exercise
2. Eating a healthy diet, that is low in saturated fats
3. Elimination of smoking
4. Controlling high blood pressure, Diabetes mellitus and high cholesterol. Medications to reduce blood cholesterol (“statins”) are usually recommended and started by either the GP or the hospital doctors

Contact details

If you have any specific concerns that you feel have not been answered and need explaining, please contact the following.

- The Vascular unit 01905 733073

Other information

The following internet websites contain information that you may find useful.

- www.worcsacute.nhs.uk
  Worcestershire Acute Hospitals NHS Trust
- www.patient.info
  Information fact sheets on health and disease
- www.rcoa.ac.uk
  Information leaflets by the Royal College of Anaesthetists about 'Having an anaesthetic'
- www.nhs.uk
  On-line health encyclopaedia

If your symptoms or condition worsens, or if you are concerned about anything, please call your GP, 111, or 999.

Patient Experience

We know that being admitted to hospital can be a difficult and unsettling time for you and your loved ones. If you have any questions or concerns, please do speak with a member of staff on the ward or in the relevant department who will do their best to answer your questions and reassure you.

Feedback

Feedback is really important and useful to us – it can tell us where we are working well and where improvements can be made. There are lots of ways you can share your experience with us including completing our Friends and Family Test – cards are available and can be posted on all wards, departments and clinics at our hospitals. We value your comments and feedback and thank you for taking the time to share this with us.

Patient Advice and Liaison Service (PALS)

If you have any concerns or questions about your care, we advise you to talk with the nurse in charge or the department manager in the first instance as they are best placed to answer any questions or resolve concerns quickly. If the relevant member of staff is unable to help resolve your concern, you can contact the PALS Team. We offer informal help, advice or support about any aspect of hospital services & experiences.

Our PALS team will liaise with the various departments in our hospitals on your behalf, if you feel unable to do so, to resolve your problems and where appropriate refer to outside help.

If you are still unhappy you can contact the Complaints Department, who can investigate your concerns. You can make a complaint orally, electronically or in writing and we can advise and guide you through the complaints procedure.

How to contact PALS:

Telephone Patient Services: 0300 123 1732 or via email at: wah-tr.PALS@nhs.net

Opening times:

The PALS telephone lines are open Monday to Friday from 8.30am to 4.00pm. Please be aware that you may need to leave a voicemail message, but we aim to return your call within one working day.

If you are unable to understand this leaflet, please communicate with a member of staff.