Intra-arterial thrombolysis

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Discovery has made every effort to ensure that we obtained the information in this brochure from a reputable source. We have adapted the content to reflect the South African market or healthcare environment.

You should not only depend on the information we have provided when you make any decisions about your treatment. The information is meant to act only as a guide to the treatment you are considering having. Please discuss any questions you may have about your treatment with your treating healthcare professional.
What is intra-arterial thrombolysis?
Intra-arterial thrombolysis involves injecting a special medicine directly into an artery to dissolve a blood clot (see figure 1). The procedure is performed by a radiologist (doctor who specialises in X-rays and scans). Most intra-arterial thrombolysis procedures are performed to unblock an artery in your leg but they can be used for blocked arteries anywhere in your body. Thrombolysis is effective if the blood clot is less than a few weeks old. Your doctor has recommended intra-arterial thrombolysis. However, it is your decision to go ahead with the procedure or not.

About this document
We understand this can be a stressful time as you deal with different emotions and sometimes have questions after seeing your surgeon. This document will give you a basic understanding about your operation. We tell you about the things you can do to help make the operation a success. It is also important to remember to tell your surgeon about any medicine you are on so he or she can manage this, if necessary. It will also tell you about what to expect after the operation – while in hospital and in the long term. Your surgeon remains the best person to speak to about any questions or concerns you may have about the operation.

What problems can a blocked artery cause?
Your tissues and organs rely on oxygen and nutrients that are carried in your blood. Your arteries carry the blood around your body. If an artery is blocked, your tissues and organs can be permanently damaged. This can lead to the tissues and organs dying, infection and gangrene.

What are the benefits of intra-arterial thrombolysis?
You should have improved flow of blood through your artery and relief from your symptoms, without having to have surgery.

Are there any alternatives to intra-arterial thrombolysis?
An angioplasty (widening an artery using a small inflatable balloon) can be performed but the results are not good if the blood clot is new. Sometimes a mechanical pump can be used to break up or suck out the blood clot but this is not suitable for all blockages.

Some people may be able to have surgery to bypass the blocked section of the artery. Surgery is effective but serious complications can happen. Your surgeon will discuss the options with you and will tell you why they have recommended intra-arterial thrombolysis as the best treatment for you. Sometimes one or more of these treatments may be used alongside intra-arterial thrombolysis.

Figure 1
a  The drug begins to dissolve the clot
b  Blood flows through the artery again

What will happen if I decide not to have intra-arterial thrombolysis?
Your doctor may not be able to treat your problem or improve your symptoms as well as you would like. An angioplasty or surgery may be options you can consider. Your doctor will discuss the options with you. Intra-arterial thrombolysis is usually recommended only if there is a serious risk of permanent damage caused by infection or gangrene if the flow of blood is not restored. Your doctor will be able to tell you how likely this is.
What does the procedure involve?

• Before the procedure
If you are female, the healthcare team may ask you to have a pregnancy test. They need to know if you are pregnant because X-rays are harmful to unborn babies. Sometimes the test does not show an early-stage pregnancy so let the healthcare team know if you could be pregnant. If you take blood-thinning medicine, let the radiologist know. If you have diabetes and take medicine containing metformin, let the healthcare team know as soon as possible. You may need to stop taking it on the day of the procedure and for the next two days. You may need to have a blood test after the procedure before continuing with your medicine.

You will be admitted to hospital. The healthcare team will carry out a number of checks to make sure you have the procedure you came in for and on the correct side. You can help by confirming to the radiologist and the healthcare team your name and the procedure you are having. The healthcare team will ask you to sign the consent form once you have read this document and they have answered your questions.

Do not eat in the four hours before the procedure. If you have diabetes, you will need special advice depending on the treatment you receive for your diabetes.

You may drink water before the procedure. Because the catheter (tube which is used to inject the medicine) is inserted in your femoral artery near your groin, you may be asked to shave this area at home.

• In the X-ray room
Intra-arterial thrombolysis usually takes one to two hours but it can take up to 24 hours or longer. The time depends on how large the blood clot is and how quickly it dissolves.

The radiologist will ask you to lie on your back. If appropriate, they may offer you a sedative or painkiller which they can give you through a small needle in your arm or the back of your hand. The healthcare team may place a catheter (tube) in your bladder to help you to pass urine. They may give you fluid through a drip (small tube) in a vein in your arm.

The healthcare team will monitor your oxygen levels and heart rate using a finger or toe clip. If you need oxygen, they will give it to you through a mask or small tube in your nostrils. They will also monitor your blood pressure using a device that is strapped to your arm.

The radiologist will keep everything as clean as possible and will wear a theatre gown and operating gloves. They will use antiseptic to clean the area where the needle will be inserted and most of your body will be covered with a sterile sheet.

The radiologist will insert the catheter in your femoral artery using a needle and guidewire (thin flexible wire). They will inject local anaesthetic into the area over the artery. This stings for a moment but will make the area numb, allowing the radiologist to insert the needle into your femoral artery with much less discomfort for you. When the radiologist is satisfied that the needle is in the right position, they will replace it with a catheter. They will move the end of the catheter close to the blood clot.

When the catheter is in place, the radiologist will inject the medicine into the artery to begin dissolving the blood clot. They may start the injection using a powerful pump. This helps the medicine to work faster. The medicine is then injected more slowly using a small pump. You will usually go to the intensive care unit or high care unit during this part of the procedure so the healthcare team can monitor you more closely. It does not mean that anything is wrong.

You will be taken back regularly to the X-ray room where the radiologist will inject a dye into the catheter so they can take X-rays to check how well the clot is dissolving. The radiologist will also use the catheter to give you medicine that will thin your blood during the procedure. It is common for the artery to be narrow where the blood clot was. You may need an angioplasty to stretch the artery. This involves inflating a small balloon inside the artery to stretch it. An angioplasty will reduce the risk of your artery becoming blocked again. If you need an angioplasty, the radiologist will discuss the procedure with you.
When the procedure is complete, the radiologist will remove the catheter from your groin. The radiologist or a nurse will press firmly on the area where the catheter was inserted for 10 minutes or more to help the hole in the artery to heal. The radiologist may close the hole with a stitch or plug.

**What complications can happen?**

The healthcare team will try to make the procedure as safe as possible but complications can happen. Some of these can be serious and can even cause death. The possible complications of intra-arterial thrombolysis and treatment with blood-thinning medicine are listed below. Any numbers which relate to risk are from studies of people who have had this procedure. Your doctor may be able to tell you what the risk of a complication for you is.

- **Pain.** Inserting the catheter is usually painless. If your symptoms get worse during the procedure, they will usually stop once the procedure is complete. The radiologist can give you painkillers if you get uncomfortable.
- **Bleeding.** The medicine used for intra-arterial thrombolysis is powerful and may cause bleeding by dissolving blood clots in other areas of your body. It is common to be bruised in your groin where the catheter was inserted. If the bleeding is heavy, you may need a blood transfusion or further surgery (risk: less than 1 in 10). If you bleed in your brain, you may have a stroke (loss of brain function resulting from an interruption of the blood supply to your brain) (risk: less than 1 in 40).
- **Failure.** The procedure works well if the blood clot is less than a few weeks old. Sometimes the blood clot does not dissolve enough. You may still need an angioplasty or surgery to improve your blood flow.
- **Damage to the artery,** which causes the blockage to get worse. The catheter can sometimes damage the artery, making the blood clot even larger. You will need further treatment or surgery to improve your blood flow.
- **Blocking of smaller arteries.** Sometimes the blood clot breaks up into smaller clots which block smaller arteries, usually in the lower leg (risk: less than 1 in 40). This is usually treated by carrying on with intra-arterial thrombolysis but you may need surgery.
- **Kidney damage,** as your kidneys need to filter the colourless dye from your bloodstream (risk of serious damage: less than 1 in 100, risk of needing dialysis: less than 1 in 500). The risk is higher if you already have problems with your kidneys or have diabetes.
- **Loss of a limb,** if the procedure is unsuccessful or complications happen.
- **Radiation exposure** (the extra risk of developing cancer over a lifetime). This risk is small. The risk increases the younger you are. The radiologist will keep the number of X-rays as low as possible.
- **Allergic reaction to the equipment, materials, medicine or dye.** This usually causes a skin rash which settles with time. Sometimes the reaction can be serious (risk: less than 1 in 2500) or even life-threatening (risk: 1 in 25 000). The healthcare team is trained to detect and treat any reactions that might happen. Let the radiologist know if you have any allergies or if you have reacted to any medicine or tests in the past.
- **Allergic reaction to the thrombolysis medicine.** The healthcare team will monitor you closely and if you show signs of reacting to the medicine, the procedure will be stopped. You should discuss these possible complications with your doctor if there is anything you do not understand.

**How soon will I recover?**

After the procedure you will be transferred to the recovery area and then to the ward. Rest for at least 12 hours. Most people will need to take blood-thinning medicine to help prevent the blood clot from coming back. You will need to stay in hospital until your doctor is sure it is working. You should be able to go home the next day. However, your doctor may recommend that you stay a little longer.

**Lifestyle changes**

If you smoke, stop smoking now to reduce the risk of your arteries narrowing even more. Stopping smoking will improve your long-term health. Try to maintain a healthy weight. You have a higher risk of developing complications if you are overweight. Regular exercise should improve your long-term health. Before you start exercising, ask the healthcare team or your GP for advice.
Summary
Intra-arterial thrombolysis uses a powerful medicine to dissolve a blood clot. It is usually an effective way to unblock an artery, avoiding the need for surgery. However, complications can happen. You need to know about them to help you to make an informed decision about the procedure. Knowing about them will also help to detect and treat any problems early.

Keep this information leaflet. Use it to help you if you need to talk to the healthcare team.

Acknowledgements
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You can access references online at www.aboutmyhealth.org. Use reference R04.