

### Why is the operation necessary?

To have regular haemodialysis treatment, dialysis staff need to connect you to the dialysis machine. This is known as vascular access and will require a surgical procedure. The three most common types of vascular access:

1. arteriovenous fistula (AVF) – usually referred to as your fistula
2. arteriovenous graft (AVG) – usually referred to as your graft
3. central venous catheter (CVC) - usually referred to as your line

### What is the procedure?

An arteriovenous fistula is formed by joining a high-pressure artery to a low-pressure vein in your arm. This allows the vein to become bigger and stronger and have the increased blood flow and pressure that is needed for haemodialysis. A fistula can be in the wrist, forearm, or upper arm.

Once the fistula is formed it usually takes 6-8 weeks for it to enlarge sufficiently to be used for haemodialysis.

### Are there any alternative treatments available?

1. AV Graft: an AV graft is a plastic tube that connects an artery to a vein. This is used in patients who do not have suitable vein or if the veins fail to mature.
2. Central Venous Catheter: A venous catheter is a tube inserted into a vein in the neck, chest, or leg near

the groin, usually only for short-term haemodialysis. The tube splits in two after the tube exits the body. The two tubes have caps designed to connect to the line that carries blood to the dialyzer and the line that carries blood from the dialyzer back to the body.

### Is the operation safe?

Before you agree to the procedure, you should consider the risks that may be involved. Your procedure will be performed by a team of highly qualified and skilled professionals who will take all steps necessary to ensure a safe procedure and a successful result. However, there are risks involved with all procedures, even if these risks may be small

### What are the General Risks related to this procedure?

The risk of complications such as chest problems (pneumonia, partial collapse of the lung), heart problems (heart attacks), stroke etc are related to underlying medical problems you may have and are often unpredictable.

### What are the specific risks related to this procedure?

- infection – accounts for 20% of all AV fistula procedure complications. Most infections present as swelling, redness of skin and inflammation at the vascular access site and are treated with antibiotics. Some infections need surgical intervention and drainage.
- Thrombosis due to blood clots – The AV fistula can block due

the formation of clot within the vein

- Stenosis – This may cause difficulties in cannulation, painful oedema (swelling), prolonged bleeding after cannulation or after removal of dialysis needles. Stenosis may obstruct outflow from the veins.
- Congestive heart failure – Causing shortness of breath and edema, increased intensity of the pumping may weaken the heart muscle and cause heart failure.
- Ischemic neuropathy – Severe pain, sensory loss, weakness of hand and fingers (or leg, depending on location of AV fistula), paraesthesia (sensation of tingling, tickling, pricking, or burning and paralysis of muscles).
- Aneurysm – Enlargement of the blood vessel wall, resulting from repetitive puncture due to the AV fistula procedure. If there is a risk of perforation or ulceration, surgical intervention is recommended.
- Bleeding
- Steal syndrome: When there is a high blood flow from an artery directly to the vein, there

might be chances that the blood supply to the hand and fingers may reduce. This results in the fingers becoming cold and numb causing pain in the fingers. It can also lead to a reduction in the blood supply to the nerves to the hand, which makes the hand weak.

### What are the Anaesthetic risks involved?

The anaesthetist will ask about chest and heart troubles, dental treatment, and any previous anaesthetics before examining you. The anaesthetic procedure and the risks associated with anaesthesia will be explained.

### The types of anaesthetic are:

- Local anaesthetic: This is a medication given by injection at the site where the surgeon will perform the procedure. This medication numbs the area. It is sometimes given alongside a sedation medication through an IV in your other arm.
- Regional block: This type numbs the nerves in your entire arm.
- General anaesthetic: This is typically a sedation

## Before you agree to the procedure make sure you know:

- The name of the procedure
- The reason you are having the procedure
- What results to expect and what they mean
- The risks and benefits of the procedure
- What the possible side effects or complications are
- When and where you are to have the procedure
- Who will do procedure and what that person's qualifications are
- What would happen if you did not have the procedure
- Any alternative procedures to think about
- Who to call after the procedure if you have questions or problems
- How much will you have to pay for the procedure

medication given through an IV. Sometimes it is a gas that is inhaled through a mask. This type of anaesthetic puts you to sleep completely. Usually, your surgical team places a tube down your throat to help with breathing during surgery.

#### Pre-Admission and Registration

Before the day of your admission, you should register your details with the hospital's Pre-admission Clinic. This allows the hospital to register all your personal and medical aid details, which greatly reduces the time and paperwork it takes to admit you on the day of your operation. If you are not a member of a medical aid you will be required to pay a deposit for the hospital costs on admission.

#### What do I need to do before the operation?

If you are on a medical aid you will need to get pre-authorization for the procedure. Our staff will be able to assist you with the necessary details.

Please ask your surgeon if you need to stop certain medication such as Xarelto, warfarin, clopidogrel or other medicines before the operation. This may need to be done up to a week before the operation.

#### What Happens When I Get To The Hospital?

Please report to the hospital reception on time for your admission. Bring along all the documents that may be required such as your medical aid card, ID, and contact details.

When you arrive in the ward, you will be welcomed by the nurses or the receptionist and will have your details checked. Some basic tests will be done such as pulse, temperature, blood pressure and urine examination. You will be asked to hand in any medicines or drugs you may be taking, so that your drug treatment in hospital will be correct. Please tell the nurses of any allergies to drugs or dressings. The surgeon will have explained the operation and you will be asked to sign your consent for the operation.

If you are not clear about any part of the operation, ask for more details from the surgeon or from the nurses.

The operation area may need to be shaved to remove excess hair. You may be issued with compression stockings that will help prevent blood clots in your legs. If you are having a general anaesthetic, the anaesthetist who will be giving your anaesthetic will interview and examine you and he may put up a drip or prescribe some medication to help you relax.

You will be taken on your bed to the operating suite by the staff. You will be wearing a cotton gown, wedding rings will be fastened with tape and removable dentures will be left on the ward. There will be several checks on your details on the way to the operating theatre where your anaesthetic will begin.

#### When Should I Stop Eating?

You can have your usual diet (solids) up until 6 hours before the operation. From then till 3 hours before the operation you are allowed to drink clear fluids like water and apple juice, after which you will be asked to take nothing by mouth. This will allow your stomach to empty to prevent vomiting during the operation.

#### What Time will My Operation Be?

The timing of your operation is pre-arranged so that the nurses will tell you when to expect to go to the operating theatre. Changes to the exact timing are common however, as emergency procedures must be accommodated, and the time taken for the operations can be unpredictable.

#### How Long Does the Operation Take?

Approximately 60-90 minutes.

#### What Happens When I Wake Up?

Although you will be conscious a minute or two after the operation ends, you are unlikely to remember anything until you are

back in your bed on the ward. Some patients feel a bit sick for up to 24 hours after operation, but this passes off. You will be given some treatment for sickness if necessary. You may have a plastic drain in your leg to suck up any blood that may ooze after the operation, but this will usually be removed after 24 hours.

You will be transferred back to the ward, or sometimes to High-Care, especially if there has been any problem during the surgery, or if specific problems were found before the operation.

#### Will I Have Pain?

Some pain will be present, but this should be controlled to a level of mild discomfort with the painkillers that are prescribed. Ask the nursing staff for painkillers if you have pain.

#### How Soon After the Operation Can I Eat?

You can eat and drink as soon as you get back to the ward.

#### How Long Will I Stay in The Hospital?

Usually, you will feel fit enough to leave hospital after 1 day. You will be given an appointment for a check-up 1 to 2 weeks after discharge.

#### What Happens When I Am Discharged from The Ward?

Your surgeon will determine when you are ready to go home. You will be given some medication for pain. You will also get an appointment for your follow-up in the surgeon's rooms. You should ask for a sick certificate if you need this for your employer.

#### How Do I Manage the Wound?

The wound has a dressing, which may show some staining with old blood in the first 24 hours. The dressing will be changed for a clean one. It should stay in place for around 10 days. You can shower or bath with the dressing on. If the dressing comes off, just wash with soap and water, dry and replace. The skin is closed using staples or stitches. There

may be some purple bruising around the wound which spreads downwards by gravity and fades over a few days. The cosmetic appearance of the wound gradually improves for one to two months after the operation.

#### What Should I Be Aware of When I Get Home?

There are a few problems after this type of surgery that may only become apparent after you go home. Wound pain or redness, or any significant bleeding or drainage of excessive clear fluid from the wound should be reported. If you are unsure, then phone the doctor's rooms for advice.

#### How Soon Can I Start Exercise?

Exercising the hand (eg with a stress ball) improves flow and helps to mature the fistula. This can be started immediately.


#### How Soon Can I Drive a Car?

You can drive as soon as you can make an emergency stop without discomfort in the wound, i.e., usually after about 1 week.

#### How Long Will I Be Off Work?

One week.

#### Simple AV Fistula Care

- Keep your hands and the fistula area clean and hygienic.
- Avoid wearing jewellery and watch on the arm where the fistula is created
- Avoid wearing tight clothing which may block the blood flow.
- Avoid sleeping on your side and keep your arm free from pressure.
- Check the pulse and vibration of the fistula regularly, if you feel any change in that, immediately reach out to your nephrologist.
- DO not take blood tests or check blood pressure in the arm where the fistula is created as it may lead to the AV fistula damage or clot.
- Avoid putting pressure on the arm, never lift heavy objects which may put heavy pressure on the fistula. 

#### What About Payment?

The procedure and its associated costs will have been discussed with you, and a quote provided. Where procedures need to be unexpectedly altered during the procedure, the fee may change. Similarly, emergency procedures may incur an additional cost. Surgeons are highly trained, highly skilled professionals and throughout your care a member of the practice is available to attend to you 24 hours a day. In return we expect prompt payment of your account. Although accounts may be submitted to the medical aid, the patient is responsible for payment.