



## **Arteriovenous Fistula**

# **Procedure Information Sheet**

#### Introduction

Creation of Arteriovenous (AV) Fistula is necessary for patients on long-term hemodialysis treatment. It usually takes 4-6 weeks for the fistula to 'mature'. On maturity, the vein becomes stronger and can better withstand repeated needle punctures. Success of the surgery is therefore very important to the patient who can contribute to the success of the procedure in many ways. A good fistula is crucial to the success and safety of hemodialysis. The patient should therefore always take good care of the fistula.

### The Operation / Procedure

- 1. A.V fistula creation is a minor surgery. To create a fistula, the surgeon will surgically create a connection between an artery and a vein on a patient's forearm under local anaesthetic.
- 2. The patient will remain conscious throughout the surgery. Under certain circumstances (e.g. the patient is a child), the surgery will be done under Monitored Anaesthetic Care (MAC) or general anaesthesia.

### **Before the Operation / Procedure**

The surgeon will evaluate the distribution of blood vessels in the patient's hand and determine which arm is more suitable for the operation. Do not draw blood, take blood pressure, or administer intravenous injection and infusion on the arm chosen for the operation.

### After the Operation / Procedure

- 1. If the operation is successful, blood from the artery will flow to the vein and thrills can be felt over the AV fistula.
- 2. The AV fistula and the thrills will be monitored and checked by a renal nurse, who will change the dressing when necessary.
- The patient's arm may become mildly swollen after the operation. Elevating the arm on a pillow helps to relieve the swelling. Be careful not to allow the pillow compressing on the AV fistula which may after the blood flow
- 4. If patient feels pain at the site of operation, he/she can ask the health care professionals for painkillers. If the postoperative course is smooth, the patient can be discharged on the same day.
- 5. The patient should take good care of the AV fistula, which should be considered to be very important. Check the blood flow at three times per day (morning, afternoon and night) by palpating for the thrills. If the thrills have weakened or stopped, inform the health care professionals immediately.
- 6. Don't do anything that may affect blood flow:
  - 6.1 Do not wear clothes with tight sleeves
  - 6.2 Do not draw blood, take blood pressure, or administer intravenous injection or infusion on the arm with the AV fistula
  - 6.3 Do not wear jewelry, watches or bracelets on the fistula arm
  - 6.4 Do not sleep with the pillow compressing on the fistula arm
  - 6.5 Do not carry anything heavy using the fistula arm or do any vigorous physical exercises
- 7. Check for inflammation at the AV fistula site, such as redness, a feeling of excess warmth or pain.
- 8. In case of dehydration, hemoconcentration may lead to thrombosis of the AV fistula. If suffering from diarrhea, vomiting or profuse sweating, the patient has to drink more water and inform the renal nurse immediately.
- 9. Check the blood pressure regularly. When the blood pressure is low, lie down and inform the renal nurse immediately.
- 10. The patient should take good care of the fistula to prevent bleeding. Prepare sterile gauze at home. If there is injury to the fistula with bleeding, use sterile gauze to press on it to stop bleeding. Raise your arm and inform the health care professionals.
- 11.If everything is smooth after 10 days of the operation, the patient may exercise the arm 4-5 times every day to increase blood flow in the fistula. Do the exercise by clenching the fist (with or without a ball). Hold for 10 seconds and relax. Repeat the procedure for 10-15 minutes.
- 12.If the wound of AV fistula heals, usually after 14 days, sutures will be removed and the patient can wash hands as usual.

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Patient's Label	
Patient Name:	
Hospital No:	
Episode No:	





## **Arteriovenous Fistula**

#### 13. Care after 4-6 Weeks:

- 13.1 Fistula is ready for use. To prevent infection, always wash both hands up to the elbow with warm water and soap before hemodialysis.
- 13.2 On completion of hemodialysis, apply pressure to the needle site with a sterile gauze pad until bleeding stops. If it starts to bleed again after returning home, calmly apply pressure to the puncture site with a gauze pad until bleeding stops. The pad can be removed the next day (do not apply non-allergic tapes tightly to the needle site).
- 13.3 Inform health care professionals prior to surgical surgeries (such as tooth extraction) so antibiotics can be given to prevent infection of AV fistula.
- 13.4 If there is symptoms on the fistula arm, such as redness, a feeling of excess warmth, swelling or numbness, inform the renal staff immediately for early treatment.
- 13.5 Check the fistula at different times of day (morning, afternoon and night). If thrills have weakened, inform the renal staff immediately. If blood flow is too low, the fistula will not be used for hemodialysis. Instead, a temporary venous dialysis catheter will be inserted in the internal jugular vein or femoral vein for hemodialysis until blood flow of the fistula becomes normal or a new fistula has been created and matured.
- 13.6 Maintain good personal hygiene. Use warm water to clean your body and the access arm. If the fistula arm becomes dirty, clean it with non-corrosive soap immediately.

### **Risk and Complication**

- 1. Stenosis of fistula, leading to decreased blood flow or thrombosis
- 2. Thrombosis of the fistula
- 3. Ischemia of the hand
- 4. Swelling of the hand
- 5. Aneurysm and pseudo-aneurysm formation
- 6. Infection of the fistula
- 7. Heart failure

#### **Disclaimer**

This leaflet only provides general information pertaining to this operation / procedure. While common risks and complications are described, the list is not exhaustive, and the degree of risk could also vary between patients. Please contact your doctor for detailed information and specific enquiry.

#### Reference

- 1. Smart patient website by Hospital Authority: Arteriovenous, AV Fistula (2017)
- 2. Smart patient website by Hospital Authority: End Stage Renal Failure Palliative Treatment (2017)
- 3. Hull J E, Jennings W C, Cooper R I, Waheed U, Schaefer M E, Narayan R, (2018). The Pivotal Multicenter Trial of Ultrasound-Guided Percutaneous Arteriovenous Fistula Creation for Hemodialysis Access. Journal of Vascular and Interventional Radiology, 29(2), 149-158

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