

## **Information on Percutaneous Venous Catheterization**

### **Introduction**

Patients who need to undergo urgent or temporary hemodialysis without an arterio-venous (A-V) fistula will need a surgery for the creation of a 'temporary vascular access', which is usually made by percutaneous venous catheterization.

A percutaneous venous catheter is for temporary use only and it is commonly inserted into one of the following blood vessels:

1. Internal jugular vein
2. Femoral vein
3. Subclavian vein

### **The Procedure**

A local anaesthetic is administered to the skin and an incision made for the insertion of a double-lumen catheter to the selected vein via a guide wire. The physician will then fix the position of the catheter with sutures to complete the surgery. The whole procedure lasts for about 15-30 minutes and the patient remains conscious throughout. For safety's sake, patient should lie down as told, maintain the posture and avoid making casual body movements.

For catheterization to the subclavian vein or internal jugular vein, the patient will be examined by x-ray after surgery to ascertain proper location of the catheter before hemodialysis can be performed.

### **Risk and Complication**

This is a minor operation, but the following complications may occur:

<u>Possible Complications</u>	<u>Occurrence rate</u>
1. Bleeding at exit site	1-1.5%
2. Subcutaneous hematoma	0.6%
3. Arterial puncture	1-11%
4. Catheter malposition	0.8%
5. Dislodged catheter	2.5-5%
6. Catheter blockage	8-15%
7. Infection at exit site	2.8%
8. Catheter-related bloodstream infection	0.5-1.4%
9. Venous thrombosis	0.5-1.4%
10. Air embolism	0.2%
11. Pulmonary embolism	0.3%
12. Pneumothorax	0.25% (for internal jugular vein or subclavian vein catheterization only)

13. Hemothorax	0.5% (for internal jugular vein or subclavian vein catheterization only)
14. Cardiac arrest	< 1%
15. Anomalous arteriovenous fistula	rare but possible
16. Nerve injury	rare but possible
17. Central venous stenosis	3 – 50% (common with subclavian vein catheterization)

### Before the Procedure

Patient has to sign a Consent Form after the physician has explained the reasons, procedures and possible complications of the surgery to him/her.

### After the Procedure

1. The wound is dressed with sterile gauze. The patient has to keep the wound clean and dry.
2. Keep good personal hygiene.
3. Bathing or showering of the catheter and the exit site is generally contra-indicated for the high risk of introducing infection to the catheter exit site and catheter dislodgement. Careful sponging is recommended, but need to avoid dragging on or damaging the catheter, introducing infection to the catheter exit site, catheter dislodgement, damaging the catheter connections and loosening the catheter clamps.
4. Do not wear tight clothes or button-up shirts to avoid dragging on or damaging the catheter
5. Avoid vigorous physical exercises that may pull or drag on the catheter
6. Do not apply any sharp objects, e.g. brooch or safety pin, near the catheter or onto the clothing over the catheter to avoid accidental catheter damage.

### Follow Up

The patient should inform the renal ward staff immediately or seek emergency treatment from a nearby hospital in case of the following:

1. Bleeding
2. Breathing distress
3. Fever
4. Swelling of the arm
5. Redness, swelling, pain, a feeling of excess warmth and discharge at the exit site
6. Loosened sutures
7. Dislodged catheter

Should there be complications, removal of the percutaneous venous catheter may be necessary. Re-operation is needed before hemodialysis can be performed.

### Remarks

This is general information only and the list of complications is not exhaustive. Other unforeseen complications may occasionally occur. In special patient groups, the actual risk may be different. For further information please contact your doctor or the respective renal centre.