INSERTION AND REMOVAL OF CENTRAL VENOUS CATHETERS FOR HAEMODIALYSIS

SUMMARY:

- Insertion of a tunneled or non-tunneled vascath for the purpose of haemodialysis treatment may be the only option for the patient with acute or acute on chronic renal failure.
- It is imperative that this procedure takes place with a minimum of risk and complication to the patient.
- Unless deemed to be absolutely necessary by the medical officer in charge, a tunneled or non-tunneled central vein catheter inserted for the purpose of haemodialysis should only be used for haemodialysis and should only be accessed by accredited dialysis nursing staff.

WHAT DO OTHER GUIDELINES SAY?

CARI guidelines (2006):

- Tunneled vascaths are inserted under ultrasound and/or fluoroscopic guidance which has led to improved rates of successful placement, a shorter procedural time, a reduction in haematoma formation and accidental puncture of underlying vasculature
- The adherence to strict aseptic technique during insertion is essential in order to reduce the incidence of catheter related bacteraemia and all units should audit this practice
- Preference is for tunneled cuffed haemodialysis catheters as they are associated with lower rates of catheter related bacteraemia and catheter dysfunction compared to temporary catheters
- The right internal jugular vein is the preferred insertion site due to ease of access and lower rates of both short and long term complications
- Internal jugular vein catheters are preferred over femoral catheters due to a lower incidence of catheter related bacteraemia

KDOQI guidelines (2000):

- Tunneled cuffed catheters are the preferred choice for haemodialysis access of longer than 3 weeks, with some patients using this access if they have no other access options available or their AV fistula is not ready
- Preferred insertion site is the right or left internal jugular vein
- Tunneled cuffed catheters should not be placed on the same side as a maturing AV access
- Fluoroscopy is mandatory for insertion of all cuffed dialysis catheters to reduce insertion related complications, with the catheter tip placed at the level of the cavo-atrial junction to ensure optimal blood flow
- Non cuffed femoral catheters should not be left in place longer than five days
- Non functioning tunneled or non-tunneled catheters can be exchanged over a guide wire if necessary or treated with an intraluminal urokinase
Any exit site, tunnel tract or systemic infection should lead to prompt removal of tunneled or non-tunneled catheters

1. INSERTION AND REMOVAL OF A TUNNELED CENTRAL VENOUS CATHETER:

Procedure:
- A tunneled central venous catheter for haemodialysis is inserted and removed by an Interventional Radiologist in the Radiology Department.

Pre insertion:
- Patient must fast for 6 hours prior to insertion or removal.
- Sedation is normally required hence the patient must not drive post procedure.
- The patient should wash with triclosan antimicrobial wash prior to the procedure.
- The patient may receive prophylactic intravenous antibiotics in the Radiology Department in order to reduce the risk of infection.
- Radiology staff will insert a prophylactic combination antibiotic/heparin lock.
- Coagulation studies may be required and any anticoagulation medication need to be withheld prior to the procedure at the Medical Officer’s discretion.
- Nursing staff should educate and explain the procedure to the patient with the assistance of the brochure “All you wanted to know about your Vascath”.
- Consent will be obtained by the Radiologist prior to the procedure.

Post insertion:
- The patient may need dialysis immediately post procedure, in which case haemodialysis staff will escort the patient from Radiology to the Haemodialysis unit, otherwise ward staff will need to escort the patient from Radiology back to the ward.
- On arrival to the ward or haemodialysis unit, nursing staff are to ensure the vascath dressing is intact, both lumens are locked and capped, as per the St George Renal Department internal protocol.
- Ensure vascath lumens are locked and capped as per the St George Renal Department internal protocol.
- Perform routine post procedure observations (see Clinical Business Rule: CHN CLIN 058) - monitoring vital signs and observing for any signs of respiratory distress, haematoma or infection.
- Please notify the Vascular Access Nurse on page 310 of the above details.
- The vascath exit site and neck suture area must be monitored for any signs of bleeding and the dressing changed if necessary.
- Haemodialysis nursing staff are to commence a vascath dressing chart including date of insertion and recommended dates for suture and wing removal as well as include details of insertion on the patient’s haemodialysis ‘Care Plan’ and “Vascular Access History” form.
- **If there are signs of excessive bleeding:**
St George Hospital Renal Department – Internal Policy

- Locate the exact site of bleeding by removing the dressing and using sterile gloves and gauze apply digital pressure to the exact site – this may require up to an hour of digital pressure
- Obtain a hemostat dressing from 4S to assist with
- Page the Vascular Access Nurse on p. 310 and/or the Renal Registrar to assess the situation
- Once the bleeding has subsided, the dressing should be replaced, with surgical kaltostat applied to the source of bleeding, as per the St George Hospital Renal Department policy for vascath exit site care
- If the situation does not improve with the above treatment, the Renal Registrar or Surgical Registrar may need to be called to place an additional suture/s at the site
- The patient may require an infusion of DDAVP at the Renal Registrar’s discretion – See Department of Renal Medicine Manual, Section 1
- Apply a pressure bandage to site.

Removal of tunneled central venous catheter:
- Must be removed in Radiology with the patient advised to fast for 6 hours prior to removal
- Monitor vital signs and observe for any signs of bleeding, respiratory distress, haematoma or infection post removal
- The ‘old’ insertion site should be monitored for at least 1 week to ensure closure with any suture removed after this time
- Dressing to the ‘old’ exit site should continue until the insertion site has closed

2. INSERTION AND REMOVAL OF A NON-TUNNELED CENTRAL VENOUS CATHETER:

Procedure:
- A temporary central venous catheter for haemodialysis purposes can be inserted by the ICU or Renal Registrar either in ICU or a ward treatment room
- Ward nursing staff will need to assist with the insertion either in
- Such non-tunneled catheters are usually inserted after hours and/or on the weekend
- Such catheters can be obtained from ICU – the catheter should be checked for the correct type and size to avoid wastage
- For further information refer to:
- Clinical Business Rule: CHN CLIN058: Guidelines for the Management of Peripherally Inserted Central Catheters (PICCs) and Centrally Inserted Central Venous Access Devices (CICVADs) or
- PD2011_060: Central Venous Access Device Insertion and Post Insertion Care
- All such catheters used for haemodialysis are prophylactically locked with a combination antibiotic/heparin lock as per the St George Hospital Renal Department internal protocol
- Please see this protocol for information on how to instill the lock and the quantities needed according to the length of the lumens
• All patients who have had either a jugular or subclavian catheter inserted will require a chest x-ray prior to confirm correct placement prior to its use
• Please notify the Vascular Access Nurse on page 310 of the above details
• Haemodialysis nursing staff will commence a vascath dressing chart and include insertion details on the patient’s haemodialysis ‘Care Plan’

Removal of a Non-Tunneled Central Venous Catheter:
• Refer to: Clinical Business Rule: CHN CLIN058: Guidelines for the Management of Peripherally Inserted Central Catheters (PICCs) and Centrally Inserted Central Venous Access Devices (CICVADs)
• This can be performed by a Registered Nurse following the guidelines given in the above document

REFERENCES:
