Subject: Thrombolysis guidelines for blocked tunnelled haemodialysis catheters (version 2)

Objective: To restore blood flow in a poorly functioning tunnelled haemodialysis catheter. Guidelines for use within the Renal Unit only. To be followed by trained dialysis nurses and nephrology medical staff

Prepared by: Dr Abraham Abraham, Consultant Nephrologist
Contact details: Ext. 8796 (Office hours)
Sojan Thomas, Nephrology Specialist nurse (Vascular access & Anaemia)
Dr Prasad Rajendran, Registrar Nephrology,
Anne Waddington, Pharmacist

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Evidence Base: Rank: A, B, C or D

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Indication for using the guideline
To restore blood flow in a poorly functioning tunnelled haemodialysis Catheters

Contra-indications to using the guideline
1. Evidence of acute GI bleeding or any other active bleeding,
2. History of haemorrhagic CVA
3. If the patient is on Warfarin therapy (regardless of INR)
4. Pregnancy
5. If the patient has had recent surgery, trauma or embolic stroke in the past 3 months
6. Known aortic aneurysm
7. If BP > 185/110,

Patients with any of the above contraindications must be discussed with the Consultant Nephrologist before using the guideline.

References
Locks for thrombosed catheters unpublished information from Syner-Med (Pharmaceutical Products) Ltd
4. SPC for Syner-kinase
http://www.medicines.org.uk/EMC/medicine/19031/SPC/Syner-KINASE+10%2c000+IU%2c2c+25%2c000+IU%2c2c+100%2c000+IU%2c2c+250%2c000+IU%2c2c+500%2c000+IU%2c2c+1%2c000%2c000+IU/
5. SPC for Actilyse Cathflo
http://www.medicines.org.uk/EMC/medicine/24604/SPC/Actilyse+Cathflo+2+mg/
Thrombolysis Guidelines for Blocked Tunnelled Haemodialysis (HD) Catheters

**Poor flow < 200 ml/min, Able to commence dialysis with low pump speed**

- No signs of volume overload
  - Good flow
    - Continue Dialysis
    - Reset dry weight
  - Poor flow
    - Re-check volume status
- Signs of volume overload present
  - 0.9% Saline 500 mL Stat
  - 0.9% Saline 500 mL over 1 hr.

**Signs of volume overload present**

- Re-check volume status
- Signs of volume overload present
  - “Push-Lock” protocol with Urokinase
    1. Check the volume of the lumen (this is usually marked on the line itself).
    2. Calculate the priming volume of each lumen plus 3mLs.
    3. Use this volume of Sodium Chloride 0.9% to reconstitute 1 vial of Urokinase [Synerkinase] 25000 units.
    4. Draw the reconstituted Urokinase solution into two 5mL syringes.
    5. Calculate the priming volume of the lumen + 0.5 mLs. Inject this volume of Urokinase into each lumen. This will be the 1st lock. In order to positive pressure lock the lumen, clamp the line whilst injecting the solution.
    6. Wait 10 minutes
    7. Inject 0.5mLs of solution and positive pressure lock each lumen (2nd lock)
    8. Wait 10 minutes.
    9. Inject 0.5 mLs of solution and positive pressure lock each lumen (3rd lock)
    10. Wait 10 minutes.
    11. Aspirate each lumen and flush with normal saline.

**NOTES:**
- Do not use Urokinase infusion & Alteplase infusion on the same day
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**INTRA-dialysis infusion protocol for Urokinase**

1. Reconstitute 2 x 100,000 IU vials of Urokinase [Synerkinase] with 0.9% normal saline (2 ml per vial).
2. Add the 200,000 IU Urokinase to 100ml 0.9% normal saline
3. Infuse over 3 hours (34 ml / hr)
4. Infuse via pump into dialysis circuit venous bubble trap
5. Gradually increase dialysis blood pump speed
6. If no improvement in flow, then reverse the lines after 1 hr.
7. Use Urokinase (25,000 IU) to lock both lumens post dialysis if agreed by consultant nephrologist.

**Alteplase infusion**

1. Reconstitute 4x 2mg vial of Alteplase [Actilyse Cathflo] with 0.9% normal saline (2 ml per vial).
2. Draw up 4mL of the Actilyse Cathflo solution into two 10mL syringes.
3. Use two syringe drivers to infuse the Actilyse Cathflo solution at 2 mg/hr (2mL/hr) for 2 hours.

**Placement of new dialysis catheter and removal of non functioning line**

**Complete Blockage (unable to aspirate or infuse)**

- No signs of volume overload
- 0.9% Saline 500 mL Stat
- 0.9% Saline 500 mL over 1 hr.
- Poor flow
  - Placement of new dialysis catheter and removal of non functioning line
  - Restart Dialysis
  - Good flow
  - Poor flow < 200ml/min