Guidelines on the Administration of Actilyse

Transplant, Urology & Nephrology Directorate

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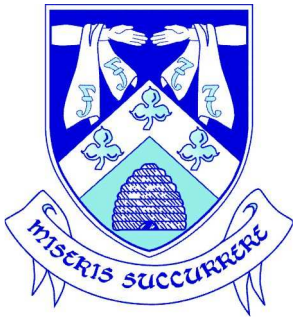

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SECTION 1

INTRODUCTION

This guideline on the management of occluded central venous access outlines how to determine if the central venous catheter is occluded, the procedure for administering actilyse, and lists the possible contra indications to the administration of actilyse.

1.1 Rationale: The aim of this guideline is to maximise the efficiency and safety in which actilyse is administered. Multidisciplinary care will be directed towards restoring the patency of the occluded central venous catheter.

1.2 Scope: This guideline applies to all staff working within the dialysis unit within Beaumont Hospital. It is intended as a guide towards best practice for all members of the multidisciplinary team involved in the care of the renal patient with a central venous catheter.

1.3 Principles: This guideline has been developed in the belief that the early detection and treatment of complications occurring during dialysis can lead to improved patient outcomes, by optimising patient well-being and ensuring that dialysis treatments are adequately and completely delivered.

SECTION 2

This guideline is in line with international best practice guidelines outlining recommendations for the treatment of occluded central venous access device.

SECTION 3

THE PROCEDURE:

Adequacy of haemodialysis is closely linked to vascular access performance. Central venous access device dysfunction (CVAD), with loss of patency because of thrombotic occlusion has been reported to be the most common complication in central lines (Moreau, Poole, Murdock, Gray &Semba, 2002). Occlusion of CVAD's can cause treatment delays, patient discomfort, infection and the need for catheter removal and replacement.

3.1 Signs of Catheter dysfunction

- Inability to aspirate heparin from both the lumens.
- Absence of blood flow from the catheter lumen.
- Blood flows generally <300ml/min.
- Low arterial pressure of <-250.
- Venous pressure >250 at blood flow less than 200 ml/min.
- Frequent pressure alarms- not responsive to patient repositioning or catheter flushing

3.2 Methods to restore patency

- Change the patient's position.
- Administer normal saline flush through the line.
- Assess hydration.
- Thrombolysis

Thrombolysis is the most rational and effective intervention for thrombotic occlusion of haemodialysis catheters (Dinwiddie 2004).

Actilyse Cathflo is intended for intra-catheter instillation into dysfunctional central venous access devices, including those used for haemodialysis.

3.3 Procedure for administration of Actilyse

- Actilyse Cathflo must be stored in a refrigerator (2 - 8°C). Actilyse Cathflo 2 mg contains no antibacterial preservatives and **should be reconstituted immediately before use.** The solution may be used within 8 hours if stored at 25°C and within 24 hours following reconstitution if stored at 2-8°C.
- Determine that the central venous catheter is occluded.
- Try different methods to restore patency.
- Screen the patients for possible contraindications to actilyse which include:
  - Patients with thrombocytopenia or other clotting disorders.
  - Patients with active internal bleeding.
  - Patients who have had surgery within 48 hours.
  - Known or suspected catheter infection.
  - Pregnant or breast feeding.

3.3.1 Actilyse as a bolus injection (Short Dwell method/pre-dialysis).

- Check the Actilyse prescription.
- Reconstitute the Actilyse Cathflo 2 mg injection vial with 2.2 ml sterile water for injection in the accompanying ampoule.
- Remove the Duralock from the lumens (if present).
- Flush arterial and venous lumens of the catheter with 10 mls of 0.9% normal saline.
- For catheters with a lumen volume greater that 2 ml, the reconstituted solution can be further diluted with sterile sodium chloride 0.9% solution for injection to the desired volume. I.e. for a catheter with internal volume of 2.5 ml the total dose of Actilyse would be 2.0 mg in a volume of 2.5 ml.
- Draw up volume of actilyse equivalent to the volume of the arterial and venous lumen of the catheter, adding an extra 0.1ml/0.2 ml as prescribed to ensure Actilyse reaches the tip of the catheter. Slowly and gently insert Actilyse, exerting gentle pressure on the syringe. **Allow to dwell for 60 minutes.**
- Record details in patient's notes and prescription chart. (Actilyse record must be used for each dose of Actilyse administered).
- Monitor patient for possible adverse reactions, including minor bruising and bleeding.
- **After 60 minutes of dwell time**, assess catheter function by withdrawing 5 ml of blood. If blood flow is restored, resume haemodialysis if appropriate or aseptically insert DuraLock. Lock and cap the catheter hub. Successful restoration of flow is determined by blood flow of at least 300ml/min and arterial pressure of >-200.
- **If unsuccessful, a second dose may be given**.
- **Following two consecutive unsuccessful attempts to restore blood flow rates by administering actilyse as a bolus injection & in consultation with the nephrologist, actilyse should be administered by infusion.**

If one or both lumens are still sticky or blocked after administering Alteplase twice on two separate occassions within a two week period, notify the physician for further orders.

Actilyse infusion should take place in the renal day ward or nephrology wards.
Patients can be booked into the renal day care ward on ext. 3144.

3.3.2 Procedure for infusion of actilyse:

- Check the actilyse prescription.
- Check the actilyse preparation with a second nurse or doctor.
- Under aseptic conditions, Reconstitute 3 vials of Actilyse Cathflo 2 mg injection with 2.2 ml sterile water for injection in the accompanying ampoules.
- Remove the DuraLock from the lumens (If present).
- Flush arterial and venous lumens of the catheter with 10mls of 0.9% normal saline.
- Draw up 2.5ml (2.5mg) of actilyse and infuse into a 50ml bag of normal saline. (*Label for arterial port)*. Draw up 2.5ml (2.5mg) of actilyse and infuse into a 50ml bag of normal saline. *(Label for venous port)*
- Attach infusions to both arterial and venous ports under aseptic conditions and infuse at 17ml per hour for three hours via an infusomat. (Total dose of 5mg as per Study done in 2001) (J Vasc Interv Radiol 2001; 12:711-715).
- Record details in patient's notes and prescription chart. (Actilyse record chart must be used for each dose of Actilyse Administered.)
- Record baseline observations, observations at 15mins, then hourly as patients condition determines.
- Monitor patient for possible adverse reactions, including minor bruising and bleeding.
    - Hypersensitivity to the active substance or to any of the recipients.
- Actilyse is contraindicated in cases where there is a high risk of haemorrhage such as:
    - Significant bleeding disorder at present or within the past 6 months
    - known haemorrhagic diathesis
    - Patients receiving oral anticoagulants, e.g. warfarin sodium
    - Manifest or recent severe or dangerous bleeding
    - Known history of or suspected intracranial haemorrhage
    - Suspected subarachnoid haemorrhage or condition after subarachnoid haemorrhage from aneurysm
    - Any history of central nervous system damage (i.e. neoplasm, aneurysm, intracranial or spinal surgery)
    - Recent (less than 10 days) traumatic external heart massage, obstetrical delivery, recent puncture of a non-compressible blood-vessel (e.g. subclavian or jugular vein puncture)
    - Severe uncontrolled arterial hypertension
    - Bacterial endocarditis, pericarditis
    - Acute pancreatitis
    - Documented ulcerative gastrointestinal disease during the last 3 months, oesophageal varices, arterial-aneurysm, arterial/venous malformations
    - Neoplasm with increased bleeding risk

- Severe liver disease, including hepatic failure, cirrhosis, portal hypertension (oesophageal varices) and active hepatitis
- Major surgery or significant trauma in past 3 months.
- Additional contraindications in acute myocardial infarction: any known history of haemorrhagic stroke or stroke of unknown origin, known history of ischaemic stroke or transient ischaemic attack (TIA) in the preceding 6 months, except current acute ischaemic stroke within 3 hours. (www.medicines.ie)

- After three hours, flush catheter ports gently with 10 ml normal saline.
  Aseptically insert Duralock drawing up the volume equivalent to the volume of the arterial and venous lumen of the catheter.

- Lock and cap the catheter hub.

- Successful restoration of flow is determined by blood flow of at least 300ml/min and arterial pressure of >-200

- Inform the dialysis unit when completed

- Notify Nephrologist if attempts to restore patency are unsuccessful.

- The additional administration of actilyse by infusion will be as prescribed by the renal nephrologist according to the patient's current access.

3.3.3 Procedure for administration of Actilyse for long (Overnight) dwells if blood flows >250ml/min and <300ml/min:

- After instillation of the required amount of Alteplase into the catheter lumens, remove the syringes and cap off securely as per the protocol.
- When patient returns for the next HD, withdraw the Alteplase from both lumens and discard. Attempt to flush CVC with 0.9% sodium chloride.
- If one or both lumens are still blocked, Administration can be repeated. If no improvement after two instillations within a two week period, notify the physician for further orders.

SECTION 4

DEVELOPMENT AND CONSULTATION PROCESS

CONSULTANT SUMMARY	
Authors	Gopika Sekhar, CNM1 & Donia George CPSN, haemodialysis
Date PPPG issued for consultation	September 2012
Number of versions produced for consultation	3 drafts
Committees/meetings where PPPG was formally discussed	Dates: September 2012, November 2012, March 2013

Where Received	Summary of Feedback	Actions/Response

SECTION 5

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APPENDIX 1

Guideline on Administration of Actilyse