

Alteplase (Cathflo®) Administration for Occluded Peritoneal Dialysis Catheter



1.0 Practice Standard

The Registered Nurse who is trained and has demonstrated competency in Peritoneal Dialysis procedures will use the outlined procedure to restore patency of the peritoneal dialysis catheter obstructed by fibrin or blood clots.

The administration of Alteplase into a PD catheter requires a physician order.

Notify the nephrologist if the catheter remains blocked after the procedure.

2.0 Definitions and Abbreviations

- Tissue plasminogen activator (t-PA/alteplase/Cathflo®) is used to restore patency to peritoneal dialysis catheters obstructed by fibrin.
- Obstructed catheter: Inability to either drain or infuse dialysis solution.
- Outflow failure – the drainage volume is substantially less than the inflow volume and there is no evidence of pericatheter leakage. Usually occurs soon after catheter placement. Often preceded by:
 - irregular drainage
 - increased fibrin in the dialysate
 - constipation.
- Inflow failure – solution will not flow from the dialysate bag into the peritoneal cavity.

Transfer set and catheter priming volumes

BAXTER TRANSFER SET	LUMEN VOLUME
6 inch (most common length used)	2.26 ml
4 inch	1.5 – 1.6 ml

FRESENIUS TRANSFER SET	LUMEN VOLUME
Stay safe catheter extension	3.0 ml

PD CATHETER BRAND	LENGTH	LUMEN VOLUME	TOTAL VOLUME INCLUDING BAXTER 6” TRANSFER SET: <i>GUIDE ONLY</i>
Tenckhoff straight	47 cm	2.6 ml*	5 ml
Tenckhoff straight	42 cm	2.3 ml*	4.5 ml
Quinton Swan neck	62.5 cm	3.4ml*	5.5 – 6 ml
Covidien twin cuff curled	62 cm	3.4 ml*	5.5 - 6 ml
Quinton curl	62 cm	3.4 ml*	5.5 - 6 ml

**To determine the PD catheter priming volume, multiply the length of catheter by a correction factor of .0548cc/cm. The result is the priming volume in cc.*

3.0 Criteria for Use

- Documented difficulty draining and or filling in the absence of kinks, tubing pressure, closed clamps, constipation
- Catheter has been flushed with dialysate, heparin, or normal saline with heparin with no resolution in the obstruction
- Abdominal X-ray has ruled out other causes of obstruction such as constipation, malposition of catheter or catheter kinks.

4.0 Potential Contraindications

- Bleeding
- Known allergy to TPA products
- Use cautiously in patients with: unexplained abdominal pain, active internal bleeding (e.g. intracranial bleeding), recent major surgery, recent trauma, severe uncontrolled hypertension, thrombocytopenia

5.0 Equipment

- 2 x 3cc syringes
- 10 cc luer-lock syringe
- 60 cc luer-lock syringe
- 1 inch – 18 gauge needle
- Alcohol swab
- Minicap
- Alteplase – 2 x 2 mg/2ml vials (4 mg total dose)
- Sterile Water
- Mask

6.0 Procedure and Rationale

PROCEDURE	RATIONALE
1. Assess if patient has a history of active bleeding	
2. Perform hand hygiene	
3. Reconstitute alteplase with sterile water 2.2 mls per vial or as per manufactures directions. Using separate 3 ml syringes, aseptically withdraw 2.2 ml of sterile water for injection and inject into each 2 mg vial of alteplase. Gently swirl the vial until contents are completely dissolved (should occur within 3 minutes). DO NOT SHAKE	Final concentration = 1mg/ml Alteplase cost = \$65/2 mg vial
4. Withdraw entire solution out of medication vial with a 10 cc syringe. Add sterile water to equal: <ul style="list-style-type: none"> • priming volume of type of peritoneal dialysis catheter • plus 2 mls for Baxter transfer set, 3 mls for Fresenius Stay Safe Catheter Extension. • See 2.0 for catheter size and priming volumes 	See table 2.0 Definitions and abbreviations for Priming volumes for transfer sets and catheters
5. Using aseptic technique, connect syringe with alteplase to the transfer set.	
6. Inject the combined volume of alteplase and sterile water into the transfer set and peritoneal catheter. Allow to dwell for 1-2 hours or as indicated on physicians order.	
7. After the specified time, attempt to drain using a Twin Bag. If unable to drain, use a 60 cc syringe and attempt to withdraw exact amount of Alteplase instilled.	Solution should flow out easily or be withdrawn easily. If the solution does not flow easily, using the 60cc syringe, gently aspirate using a push /pull technique.
8. If unable to aspirate alteplase or PD catheter remains obstructed, contact physician for further orders.	Another alteplase dose may be necessary to unblock catheter.
9. When drainage is adequate, do a full CAPD in and out flush.	A flush will remove any Alteplase residual in the catheter.
10. Fill patient with dialysis fluid that has Heparin added as per Peritoneal Dialysis orders.	Heparin Intraperitoneally will continue to act on the fibrin blockage and keep catheter patent.

Disclaimer: The procedure steps may not depict actual sequence of events. Patient/Client//PD program specifics must be considered when implementing protocols.

7.0 Documentation Considerations

Document on patient's chart:

- Drug dosage used
- Total volume of drug and sterile water instilled
- Outcome of alteplase administration.

8.0 Special Considerations: Interventional Guidelines

(do not replace individualized care and clinical expertise)

Systemic absorption of Alteplase across the peritoneal membrane is unknown therefore it should be completely removed after the dwell with subsequent irrigation of peritoneal cavity with dialysate.

9.0 References

Interior Health Authority: policies and procedures. Alteplase (Cathflo) Administration in Peritoneal Dialysis Catheter. August 2017.

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