

**PERITONEAL DIALYSIS (PD) – INTRAPERITONEAL ACTILYSE (ALTEPLASE)
ADMINISTRATION**

Cross References (including NSW Health/ SESLHD policy directives)	NSW Health PD2013_043 - Medication Handling in NSW Public Health Facilities NSW Health PD2007_036 - Infection Control Policy SGH-TSH CLIN027 - Aseptic Technique - Competency and Education Requirements Renal SGH WPI_063 Peritoneal Dialysis –Fluid Specimen Collection via CAPD Freeline Solo Exchange WPI - Peritoneal Dialysis – APD Set-up and Connection Procedure – HomeChoice Dialysis Machine SGH CLIN Peritoneal Dialysis (PD) – Peritonitis Management And Treatment Peritoneal dialysis (PD) Catheter: Management of Poor Flow/No Flow; SGH Renal Department Flowchart
1. What it is	A clinical business rule to ensure the administration of intraperitoneal Actilyse / Alteplase is performed according to best practice guidelines reducing the risk of infection and ensuring patient safety
2. Risk Rating	Medium
3. Employees it Applies to	Registered Nurses (RN) trained in peritoneal dialysis Medical Officers (MO) trained in peritoneal dialysis

4. Process

4.1 Recommended Intraperitoneal Dose and Usage

For recurrent gram positive peritonitis treatment, to be used in conjunction with the appropriate intraperitoneal antibiotics

- For the management of blocked or poor flow PD catheter
- Note: Monitor patient closely for bleed or bloody PD effluent as an adverse effect from the use of Actilyse (Alteplase)
- Intraperitoneal Actilyse (Alteplase) must be prescribed on a medication chart, it is not nurse initiated.
- Intraperitoneal Actilyse (Alteplase) dose:
 1. For recurrent peritonitis: Weekly treatment of 10 mg in 10 mL solution directly into the PD catheter, leave to dwell for 4 hours. Weekly treatment for up to 6 weeks with weekly culture of peritoneal effluent.
 2. For blocked or poor flow PD catheter: One-off treatment of 10 mg in 10 mL solution directly into the PD catheter, leave to dwell for 2-4 hours.

4.2 Devices

4.2.1 Equipment

- Trolley
- Alcohol swabs
- Blue clamp
- Dressing pack
- Sterile gloves

4.2.2 Key parts

- Actilyse (Alteplase) 10 mg vial
- Water for injection 10 mL vial (included in Actilyse (Alteplase) box)
- Drawing-up needle (18G)
- 21 G needle
- 10 mL syringe
- Minicap
- PD fluid

4.2.3 Key site

- Rubber bung on Actilyse (Alteplase) vial
- Rubber bung on Water for Injection vial
- Rubber bung on PD fluid
- Abdominal PD catheter

4.3 Procedure for Blocked or Poor flow PD catheter

1. Ensure the "5 Rights" of Principles for Safe Medication Administration is observed with second person check
2. Perform hand hygiene
3. Identify and gather equipment and key parts for procedure
4. Check expiry dates on Actilyse (Alteplase) and water vials
5. Clean trolley/work surface with detergent
6. Perform hand hygiene
7. Prepare general aseptic field equipment and key parts near the patient's bedside
8. Perform hand hygiene
9. Don gloves
10. Prepare Actilyse using aseptic technique ensuring all the key parts/sites are protected:
 - a. Alcohol swab the rubber bung on Actilyse (Alteplase) and water vials;
 - b. Attach drawing up needle to 10 mL syringe;
 - c. Push needle into the rubber bung on water for injection vial, aspirate all content into the 10 mL syringe;
 - d. Replace drawing-up needle with 21G needle;
 - e. Push needle into the rubber bung on Actilyse (Alteplase) vial, inject 5 mLs of water for injection, invert vial and shake until all powder dissolves then aspirate all content.

11. Perform hand hygiene
12. Don sterile gloves
13. Administer all Actilyse (Alteplase) solution directly into the PD catheter using sterile technique ensuring all the key parts/sites are protected:
 - a. Remove needle from syringe containing Actilyse (Alteplase) solution;
 - b. Remove minicap from PD catheter;
 - c. Attach Actilyse (Alteplase) syringe to PD catheter;
 - d. Inject all Actilyse (Alteplase) solution into the PD catheter;
 - e. Cover PD catheter with new minicap.
14. Discard syringe and needles appropriately
15. Clean trolley after use
16. Remove gloves and perform hand hygiene
17. Sign and co-sign the medication chart
18. Document the procedure on patient notes
19. Handover to the next shift
20. After dwelling Actilyse (Alteplase) for 2-4 hours, aspirate Actilyse (Alteplase) out of PD catheter using sterile technique ensuring all the key parts/sites are protected:
 - a. Prepare general aseptic field with dressing pack, 10 mL syringe and new minicap near the patient's bedside;
 - b. Perform hand hygiene ;
 - c. Don sterile gloves;
 - d. Remove minicap from PD catheter;
 - e. Attach syringe to PD catheter;
 - f. Aspirate Actilyse (Alteplase) solution out of PD catheter, checking for PDC patency
 - g. If PDC is patent, drain all effluent and resume PD as usual and as per CAPD exchange or APD Procedure, Renal Department Protocol

Or

If unable to aspirate all Actilyse (Alteplase) solution from PDC or if PDC remains blocked, leave Actilyse (Alteplase) in for another hour then attempt to aspirate again;

 - h. Cover PD catheter with new minicap.
21. Discard syringe and needles appropriately
22. Clean trolley after use
23. Remove gloves and perform hand hygiene
24. Document the procedure and aspirate outcome on patient notes
25. Handover to the next shift

4.4 Procedure for Recurrent Peritonitis treatment:

1. Warm the selected PD fluid on the warmer
 - a. Select appropriate PD fluid strength by conducting a fluid assessment on patient 30 minutes prior to PD procedure
 - b. Note: PD fluid takes 30 minutes to warm.
2. Ensure the “5 Rights” of Principles for Safe Medication Administration is observed with second person check
3. Perform hand hygiene
4. Identify and gather equipment and key parts for procedure
5. Check expiry dates on PD fluid, Actilyse (Alteplase) and water vials
6. Clean trolley/work surface with detergent
7. Perform hand hygiene
8. Prepare general aseptic field equipment and key parts near the patient’s bedside
9. Perform a CAPD exchange as per CAPD Freeline Solo Exchange Procedure; Renal Department Protocol
10. Perform hand hygiene
11. Don gloves
12. Prepare Actilyse (Alteplase) using aseptic technique ensuring all the key parts/sites are protected:
 - a. Alcohol swab the rubber bung on Actilyse (Alteplase) and water vials;
 - b. Attach drawing up needle to 10 mL syringe;
 - c. Push needle into the rubber bung on water for injection vial, aspirate all content into the 10 mL syringe;
 - d. Replace drawing-up needle with 21G needle;
 - e. Push needle into the rubber bung on Actilyse (Alteplase) vial, inject 5 mLs of water for injection, invert vial and shake until all powder dissolves then aspirate all content.
13. Perform hand hygiene
14. Don sterile gloves
15. Administer all Actilyse (Alteplase) solution directly into the PD catheter using sterile technique ensuring all the key parts/sites are protected:
 - a. Remove needle from syringe containing Actilyse (Alteplase) solution;
 - b. Remove minicap from PD catheter;
 - c. Attach Actilyse (Alteplase) syringe to PD catheter;
 - d. Inject all Actilyse (Alteplase) solution into PD catheter;
 - e. Cover PD catheter with new minicap.
16. Wear PPE
17. Discard bag and lines in the clinical waste bin, discard needles in sharps bin
18. Clean trolley after use
19. Remove gloves and PPE
20. Perform hand hygiene
21. Sign and co-sign the medication chart

22. Document the procedure on the PD chart and patient notes
23. Handover to the next shift
24. After dwelling Actilyse (Alteplase) for 4 hours, resume CAPD exchange as usual and as per CAPD Freeline Solo Exchange Procedure, Renal Department Protocol to drain out PD effluent to flush Actilyse (Alteplase) out of PD catheter.

5. Keywords	Peritoneal Dialysis, Actilyse (Alteplase), PD catheter, Blocked PD catheter, Peritonitis
6. Functional Group	Renal, Peritoneal Dialysis
7. External References	<p>Anderson, D. M., Pesaturo, K. A., Casavant, J., & Ramsey, E. Z. (2013). Alteplase for the Treatment of Catheter Occlusion in Pediatric Patients. <i>Annals of Pharmacotherapy</i>, 47(3), 405-410. doi: 10.1345/aph.1Q483</p> <p>Campbell, D. J., Johnson, D. W., Mudge, D. W., Gallagher, M. P., & Craig, J. C. (2014). Prevention of peritoneal dialysis-related infections. <i>Nephrology Dialysis Transplantation</i>. doi: 10.1093/ndt/gfu313</p> <p>Li, P. K., Szeto, C.-C., Piraino, B., de Arteaga, J., Fan, S., Figueiredo, A. E., . . . Johnson, D. W. (2016). ISPD Peritonitis Recommendations: 2016 Update On Prevention And Treatment. <i>Peritoneal Dialysis International</i>. doi: 10.3747/pdi.2016.00078</p> <p>McGuire, A. L., Bennett, S. C., Lansley, S. M., Popowicz, N. D., Varano della Vergiliana, J. F., Wong, D., Lee, Y., and Chakera, A. (2015). Preclinical Assessment of Adjunctive tPA and DNase for Peritoneal Dialysis Associated Peritonitis. <i>PLoS ONE</i>, 10(3), e0119238. doi: 10.1371/journal.pone.0119238</p> <p>Shea, M., Hmiel, S. P., & Beck, A. M. (2001). Use of tissue plasminogen activator for thrombolysis in occluded peritoneal dialysis catheters in children. <i>Adv Perit Dial</i>, 17, 249-252.</p> <p>Svoboda, P., Barton, R. P., Barbarash, O. L., Butylin, A. A., Jacobs, B. R., Lata, J., Haire, W., Jaff, M., Firszt, C., Mougins, T., Schuerr, D., Schulz, G., Schwartz, L., and El-Shahawy, M. (2004). Recombinant urokinase is safe and effective in restoring patency to occluded central venous access devices: a multiple-center, international trial. <i>Crit Care Med</i>, 32(10), 1990-1996.</p> <p>Zorzanello, M. M., Fleming, W. J., & Prowant, B. E. (2004). Use of tissue plasminogen activator in peritoneal dialysis catheters: a literature review and one center's experience. <i>Nephrology nursing journal : journal of the American Nephrology Nurses' Association</i>, 31(5), 534-537.</p>
8. Consumer Advisory Group (CAG) approval of patient information brochure (or related material)	Not applicable
9. Implementation and Evaluation Plan Including education, training, clinical notes audit, knowledge evaluation audit etc	<p>Inservices</p> <p>Publication on SGSHHS CIBR intranet page</p>

10. Knowledge Evaluation	<p>Q1: When is intraperitoneal Actilyse (Alteplase) required? A: For the management and treatment of recurrent gram positive peritonitis and blocked or poor flow PD catheter.</p> <p>Q2: What is the adverse effect of Actilyse (Alteplase)? A: Peritoneal bleed</p> <p>Q3: What is the difference in IP Actilyse (Alteplase) treatment between recurrent peritonitis and blocked or poor flowing PD catheter? A: Recurrent peritonitis requires weekly IP Actilyse (Alteplase) treatment for 6 weeks. Blocked or poor-flow PD catheter requires a one-off IP Actilyse (Alteplase) treatment only.</p>
11. Who is Responsible	<p>Director of St George and Sutherland Renal Service. Nursing Unit Manager, Dialysis Unit</p>
Approval for Peritoneal Dialysis (PD) – Intraperitoneal Actilyse (Alteplase) Administration	
*Specialty/Department Committee	<p>Committee title Peritoneal Dialysis Committee Chairperson name/position Franziska Pettit, Staff Specialist Date: 24.01.17</p>
*Nurse Manager	<p>Name/position Christine Day, Nurse Manager Medicine Date: 13.02.17</p>
*Medical Head of Department	<p>Name /position Mark Brown, Department Head Renal Services Date: 24.01.17</p>
*Drug and Therapeutics Committee (SGH)	<p>Chairperson's Name: A/Prof Winston Liauw Date: 08.05.17</p>
Contributors to CIBR development e.g. CNC, Medical Officers (names and position title/specialty)	<p>Franziska Pettit, Staff Specialist Johneen Tierney, Director of Pharmacy</p>

Revision and Approval History

Date	Revision number	Author (Position)	Revision due
February 2017	0	Anna Claire Cuesta (PD CNC)	February 2020

General Manager's Ratification	
Name Leisa Rathborne	Date:12.05.17