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 PD2017_013 *Infection Prevention and Control Policy* NSW Health PD2017_026 *Clinical and Related Waste Management for Health Services* Australian Commission on Safety and Quality in Health Care *National Standard for User Applied labelling of Injectable Medicines, Fluids and Lines* NHMRC *Australian Guidelines for the prevention and control of Infection in Healthcare* SGH-TSH CLIN027 *Aseptic Technique - Competency and Education Requirements* SGH CLIN442 *Peritoneal Dialysis - Peritonitis Management and Treatment* SGH CLIN538 Peritoneal dialysis Catheter (PDC): Poor Flow/No Flow Management SGH CLIN443 Peritoneal Dialysis (PD) – Intraperitoneal Additives and Antibiotics SGH Renal WPI 063 *Peritoneal Dialysis –Fluid Specimen Collection via CAPD Freeline Solo Exchange* SGH Renal WPI 217 *Continuous Ambulatory Peritoneal Dialysis (CAPD) Freeline Solo Exchange Procedure* SGH Renal WPI 216 *Automated Peritoneal Dialysis (APD) Connection And Disconnection Procedure – Claria Dialysis Machine*
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

Refer to SGH CLIN443 Peritoneal Dialysis (PD) – Intraperitoneal Additives and Antibiotics

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/eMEDS, 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 (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 vial, inject 5 mL of water, 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 eMeds/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. Wear PPE and don sterile gloves as per NSW Health PD2017_013 Infection Prevention and Control Policy;
    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 Renal SGH WPI 217 Continuous Ambulatory Peritoneal Dialysis (CAPD) Freeline Solo Exchange Procedure or Renal SGH WPI 216 Automated Peritoneal Dialysis (APD) Connection And Disconnection Procedure – Claria Dialysis Machine

       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 PPE
24. Perform hand hygiene
25. Document the procedure and aspirate outcome on patient notes
26. 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 Renal SGH WPI 217 CAPD Freeline Solo Exchange Procedure
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 mL of water, invert vial and shake until all powder dissolves then aspirate all content.
13. Perform hand hygiene
27. Don sterile gloves and wear PPE as per NSW Health PD2017_013 Infection Prevention and Control Policy
14. 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.
15. Discard bag and lines in the clinical waste bin, discard needles in sharps bin
16. Clean trolley after use

17. Remove gloves and PPE
18. Perform hand hygiene
19. Sign and co-sign eMeds/medication chart
20. Document the procedure on the PD chart and patient notes
21. Handover to the next shift
22. After dwelling Actilyse (Alteplase) for 4 hours, resume CAPD exchange as usual and as per Renal SGH WPI 217 CAPD Freeline Solo Exchange Procedure 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	Anderson, D. M., Pesaturo, K. A., Casavant, J., & Ramsey, E. Z. (2013). Alteplase for the Treatment of Catheter Occlusion in Pediatric Patients. *Annals of Pharmacotherapy, 47*(3), 405-410. doi: 10.1345/aph.1Q483 Campbell, D. J., Johnson, D. W., Mudge, D. W., Gallagher, M. P., & Craig, J. C. (2014). Prevention of peritoneal dialysis-related infections. *Nephrology Dialysis Transplantation*. doi: 10.1093/ndt/gfu313 Cho, Y., Boudville, N., Palmer, S. C., Chow, J. S. F., Hawley, C. M., Jose, M. D., . . . Johnson, D. W. (2018). Practice of Peritoneal Dialysis Catheter Flushing in Australia and New Zealand: Multi-Center Cross-Sectional Survey. *38*(2), 98-103. doi:10.3747/pdi.2017.00108 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. *Peritoneal Dialysis International*. doi: 10.3747/pdi.2016.00078 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. *PLoS ONE, 10*(3), e0119238. doi: 10.1371/journal.pone.0119238 Shea, M., Hmiel, S. P., & Beck, A. M. (2001). Use of tissue plasminogen activator for thrombolysis in occluded peritoneal dialysis catheters in children. *Adv Perit Dial, 17*, 249-252. Svoboda, P., Barton, R. P., Barbarash, O. L., Butylin, A. A., Jacobs, B. R., Lata, J., Haire, W., Jaff, M., Firszt, C., Mouginis, 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. *Crit Care Med, 32*(10), 1990-1996. 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. *Nephrology nursing journal : journal of the American Nephrology Nurses' Association, 31*(5), 534-537.
8. Consumer Advisory Group (CAG) approval of patient information brochure (or related material)	Not applicable
9. Implementation and Evaluation Plan	Inservices Publication on SGSHHS CIBR intranet page

Including education, training, clinical notes audit, knowledge evaluation audit etc	
10. Knowledge Evaluation	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. Q2: What is the adverse effect of Actilyse (Alteplase)? A: Peritoneal bleed 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 treatment for 6 weeks. Blocked or poor-flow PD catheter requires a one-off IP Actilyse (Alteplase) treatment only.
11. Who is Responsible	Director of St George and Sutherland Renal Service. Nursing Unit Manager, Dialysis Unit

Approval for Peritoneal Dialysis (PD) – Intraperitoneal Actilyse Administration	
Specialty/Department Committee	Committee title: Peritoneal Dialysis Committee Chairperson name/position Franziska Pettit, Staff Specialist Date: 15.05.20
Nurse Manager	Name/position: Christine Day, Nurse Manager Medicine Date: 21.05.20
Medical Head of Department	Name /position: George Mangos, Department Head Renal Services Date: 20.05.20
Safe Use of Medicines Committee (SGH)	Chairperson's Name: A/Prof Winston Liauw Date: 03.08.20
Contributors to CIBR development e.g. CNC, Medical Officers (names and position title/specialty)	Franziska Pettit, Staff Specialist

Revision and Approval History

Date	Revision number	Author (Position)	Revision due
Feb 2017	0	Anna Claire Cuesta (PD CNC)	Feb 2020
May 2020	1	Anna Claire Cuesta (PD CNC)	May 2023

General Manager's Ratification	
Name: Paul Darcy (SGH)	Date: 29.07.20