

Antibiotic Lock Therapy for the Treatment of IV Catheter Related Infections

Introduction

Dwell times should follow the IDSA recommendations outlined in the guidelines for management of catheter-related infections: dwell times for antibiotic lock solutions should generally not exceed 48 hours before reinstallation of lock solution; preferably, reinstallation should take place every 24 hours for ambulatory patients with femoral catheters. However, for patients who are undergoing hemodialysis, the lock solution can be renewed after every dialysis session.

Pharmacy Procedure

1. Vancomycin 2 mg/mL + Heparin 100 Units/mL
 - a. Reconstitute 500mg vial of vancomycin injection with 5ml NS (conc=100mg/ml).
 - b. Withdraw 0.2mL of vancomycin solution (20 mg) and inject into a 10 mL heparin 100 U/mL flush vial. If the solution becomes visually incompatible →discard.
 - c. Label expiration = 72 hours from time of preparation under refrigeration
2. Ampicillin 10 mg/mL + Heparin 100 Units/mL
 - a. Reconstitute 500mg vial ampicillin injection with 10mL of NS (conc= 50mg/mL).
 - b. W/D 6mL ampicillin solution (300 mg) and inject into empty 30mL sterile vial.
 - c. Add 3mL of 1000 unit/mL heparin (3000 units) to sterile vial.
 - d. Add 21mL of normal saline to sterile vial (final ampicillin concentration 10 mg/mL, heparin concentration 100 units/mL).
 - e. Label expiration 24 hours from time of preparation at room temperature
3. Gentamicin 2 mg/mL
 - a. Use gentamicin 40mg/mL vial.
 - b. Withdraw 1.5mL (60 mg) from vial and inject into empty 30mL sterile vial.
 - c. GENTAMICIN IS INCOMPATIBLE WITH HEPARIN. DO NOT USE HEPARIN.
 - d. Add 28.5mL of NS to sterile vial. (final gentamicin concentration 2 mg/mL).
 - e. Label expiration 72 hours from time of preparation under refrigeration.
4. Cefazolin 10 mg/mL + heparin 10 Units/mL
 - a. Reconstitute a 1 gram vial of cefazolin with 10 mL NS (conc= 100 mg/mL).
 - b. Withdraw 1 mL of cefazolin solution (100mg) and inject into empty 30mL sterile vial.
 - c. W/D 0.1 mL of 1000 Units/mL heparin concentration (100 units) and add to vial.
 - d. QS with 8.9mL normal saline to a final volume of 10mL.
 - e. Label expiration 24 hours from time of preparation at room temperature.
5. Ceftazidime 0.5 mg/mL + heparin 100 Units/mL
 - a. Reconstitute a 1 gram vial of ceftazidime with 10 mL normal saline (conc=of 100 mg/mL).
 - b. Withdraw 0.5 mL normal saline from a 10mL vial and discard. Then withdraw 0.5mL of ceftazidime solution (50mg) and add to 9.5mL saline left in vial to make 5mg/mL ceftazidime stock solution (total volume 10mL).
 - c. W/D 1mL of ceftazidime stock solution (5mg) and inject into empty 30mL sterile vial.
 - d. Withdraw 1mL of 1000 Units/mL heparin concentration (1000 units). Add to vial.
 - e. QS with 8.0mL normal saline to a final volume of 10mL.
 - f. Label expiration 24 hours from time of preparation at room temperature.
6. Ethanol 70%
 - a. W/D 7mL dehydrated alcohol (≥ 98%) and inject into empty 30mL sterile vial.
 - b. QS with 3mL sterile water for injection to a final concentration of 70% ethanol.
 - c. Label expiration 24 hours from time of preparation at room temperature.

Nursing Procedure

MD generates an order for corresponding antibiotic lock therapy in a patient w/catheter-related infection. ABx lock solution should be used in place of usual heparin-lock solution for routine catheter care when catheter is not in use. ABx lock solution should be withdrawn from the lumen and discarded prior to use of the catheter lumen.

References:

Mermel RA, Farr BM, Sherertz RJ, et al. Guidelines for the management of intravascular catheter related infections. *Clinical Infectious Diseases* 2001; 32:1249–72
[Robinson JL](#), [Tawfik G](#), [Saxinger L](#), [Stang L](#), [Etches W](#), [Lee B](#). Stability of heparin and physical compatibility of heparin/antibiotic solutions in concentrations appropriate for antibiotic lock therapy. *J Antimicrob Chemother*. 2005 Nov;56(5):951-3. Epub 2005 Sep 9.