Appendix 1

Dosing of antimicrobial agents for surgical prophylaxis

With the release of the updated Clinical Practice Guidelines for Antimicrobial Prophylaxis\(^1\) in Surgery (February 2013), jointly published by the American Society of Health-System Pharmacist, Infectious Disease Society of America, and Society of Healthcare Epidemiology of America, the current dosing recommendations for antimicrobial surgical prophylaxis at MMC have been modified to closely mirror these recommendations.

These changes include:

1. **Cefazolin** 2 grams iv push for all adults; patients greater than or equal to 120 kg will receive 3 grams IVPB which should be infused over 30 minutes.

2. **Gentamicin** dosing:
   a. The current recommendation for gentamicin is 5mg/kg once pre-operatively only—NO DOSES ARE REQUIRED POSTOPERATIVELY for prophylaxis.
   b. The dose is based on the actual body weight (ABW) unless the patient is greater than 30% above ideal body weight (IBW) then a dosing weight (DW) is utilized. The following equations can be used to determine the correct dose:
      i. IBW = [(Height in cm – 152) x 0.9] + 50 kg (males) or 45.5 kg (females)
      ii. DW = [(ABW – IBW) x 0.4] + IBW
   c. The dose of gentamicin is rounded to the nearest 20 mg
   d. Gentamicin can be infused safely over 30-60 minutes

3. **Vancomycin** dosing:
   a. The current recommendation for vancomycin is 15 mg/kg
      i. The same Dosing Weight parameters and formula are used as with Gentamicin.
   b. The dose of vancomycin is rounded to the nearest 250 mg. The maximum vancomycin dose is 2.5 gm.
   c. Post-operatively if the patient’s calculated creatinine clearance is greater than 40 mL/min a dosing frequency of every 12 hours is appropriate to be used. If the patient has a calculated creatinine clearance of less than or equal to 40 mL/min then a dosing frequency of 24 hours should be used. If the patient is currently receiving hemodialysis one dose pre-operatively is sufficient.
   Creatinine clearance \((Cl_{cr})\)
   \[
   = [(140\text{-age}) \times \text{IBW} \times (0.85 \text{ for females only})]/(72 \times \text{serum creatinine})
   \]
   d. The recommended infusion rate for vancomycin is 1 gram infused over 60 minutes. In obese and morbidly obese patients the dose of vancomycin may exceed 2 grams which requires an infusion time of over 2 hours and
exceeds the recommended time pre-operatively of 2 hours by CMS. Many hospitals throughout the country are recommending to begin infusion of vancomycin 30-60 minutes preoperatively and then to continue the infusion during the surgical procedure.\(^2\) We now recommend this procedure for starting and infusing vancomycin pre-operatively at MMC, with a minimum goal of 1 gram infused prior to tourniquet placement in orthopedic cases, or incision. PLEASE note there is no evidence that the entire dose has to be infused prior to incision or prior to tourniquet placement\(^3,d\).

4. All other drugs are dosed as indicated on the protocol regardless of weight. Pharmacy will auto substitute to the correct dose if necessary.

5. **Nafcillin:** Although Nafcillin is not included in the protocol, IF it is prescribed by a provider, all doses will be automatically substituted to 2 grams, and the re-dosing interval is 2 hours.

References: