Ver. 9/30/2021

Vancomycin Dosing and Therapeutic Monitoring

Spectrum

- Gram-positive activity only
- First line agent for methicillin-resistant *Staphylococcus aureus* (MRSA)
- Not exclusively used for MRSA e.g.,
    - Vancomycin + CTX in community-acquired meningitis → dual *S. pneumoniae* coverage
    - Vancomycin + aztreonam + metro in intraabdominal infection → Strep coverage

Dosing

- 15 – 20 mG/kG **Actual Body Weight (ABW) → 250 mg increment (e.g., 1000mg, 1250mg, 1500mg, etc)**
- Needs renal adjustment (interval)
    - Q8-12H (CrCl >40-50 mL/min)
    - Q24H (CrCl <40-50 mL/min)
    - Dose by "levels" if CrCl <20 or rapidly worsening (usually check level Q24H and redose at <20)
- Indication dose selection in SCM
    - 10 mG/kG dose, 15 mG/kG dose, 20 mG/kG dose → **use ONLY for initial dosing**
    - Dose adjustment by trough → **use in dose adjustment (remember to change "once" to desired frequency and duration unless dosing by "levels")**

Initial Dosing Considerations

- Consider **dosing higher** (i.e., closer to 20 mG/kG) or **more frequently** (i.e., Q8H renal fxn permitting)
    - Septic shock
    - Meningitis
    - Age <50 (specifically increased frequency)
- Consider **dosing lower** (i.e., closer to 15 mg/kg) or **less frequently** (i.e., Q24H or by level)
    - CrCl <40 mL/min
    - Age >80

Target levels

- Obtain trough within 1 hour before **4th dose (steady state in normal renal function)**
- Goal
    - **15 to 20 mcg/mL**: most indications
    - **10 to 15 mcg/mL**: uncomplicated cellulitis (no concurrent bacteremia/systemic sxs)
- Consider level **before 3rd dose if:**
    - After dose adjustment for **inappropriate level in previous steady state concentration**
    - **High risk of supratherapeutic level** e.g., in age >80 or CrCl <30/rapidly worsening

Dose Adjustments Based on Levels

- Consider small dose increases in elderly patients; level b/t 10 – 15 targeting 15 – 20 mcg/mL
    - Ex. 85 y.o. CrCl 40 mL/min on 1250 mg Q24H treated for MRSA BSI with trough 12 mcg/mL → **consider increase to 1500 mg Q24H**
- Consider frequency increase in younger patients w/ good renal fxn; level <10 mcg/mL
    - Ex. 40 y.o. CrCl 90 mL/min, 90 kg, on 1500 mg Q12H empiric treatment for meningitis with trough 8 mcg/mL → **consider increasing to Q8H**
- Consider holding the dose when trough >22 mcg/mL; rapid increase in SCr (get new trough)
    - Ex. 67 y.o. CrCl 60 mL/min, on 1250 mg Q12H treated for PNA with trough 25 mcg/mL → **Consider holding dose and restarting at Q24H when trough <20 mcg/mL**

Intermittent Dialysis Dosing

- Give a 1st time **load of 15 – 25 mg/kg ABW (try not to go above 2000 mg)**
- Obtain level right **before next HD session**
- Redosing based on pre-HD concentrations:
    - **<10 mg/L**: Administer 1,000 mg after HD
    - **10 to 25 mg/L**: Administer 500 to 750 mg after HD
    - **>25 mg/L**: Hold vancomycin

Call/Text ID pharmacist (Ilya Krichavets 347-714-2910) for vancomycin dosing assistance or other ABX-related questions