Vancomycin Longitudinal Learning Assessment

2019 ASHP Midyear Clinical Meeting Session 207-L01

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1. **Who should get loading doses?**
   A: Patients with serious infections (i.e., bloodstream infections, infective endocarditis, meningitis, pneumonia, and consider patients in the ICU and obesity [including pediatrics who are obese])

2. **What is the AUC/MIC for organisms other than *S. aureus*?**
   A: We do not have confirmatory data on the AUC/MIC targets for organisms other than *S. aureus*.

3. **When should vancomycin levels be drawn?**
   A: It would be preferable to draw vancomycin serum concentrations within the 1st 24-48 h, particularly for all patients at high risk of nephrotoxicity (e.g., critically-ill patients receiving concurrent nephrotoxins), patients with unstable (i.e., deteriorating or significantly improving) renal function, and those receiving prolonged courses of therapy (more than three to five days).

4. **How often should vancomycin levels be drawn?**
   A: Once weekly would seem reasonable; less if the patient is responding and there is no change in renal function.

5. **Should you decrease the dose if the MIC is 0.5 mg/L instead of 1 mg/L?**
   A: No, the dose should not be altered. There is at least 1 dilution error within the testing procedures for vancomycin MIC determination. We do not recommend altering the dose if the MIC is less than 1 mg/L.

6. **What are exposure targets for pediatric versus neonates?**
   A: For pediatrics and neonates, the recommended exposure target is 400 mg*hr/L (but potentially up to 600 mg*hr/L) assuming an MIC of ≤ 1 mg/L based on adult data. The dosing regimen to achieve this exposure target will depend on age and renal function.

7. **Are there outcomes studies in children to validate exposure targets?**
   A: Prospective studies on the outcomes of MRSA infection to validate exposure targets do NOT exist in newborns, infants and children. There have several retrospective outcomes studies published in children. However, the exposure target for pediatrics was based on adult data because of the absence of prospective, comparative outcomes data regarding unique AUC/MIC exposures necessary for clinical and microbiologic success.

8. **What is allometric scaling in obese children?**
   A: Allometric scaling of body weight has improved the estimation of pharmacokinetic parameters, especially clearance, in children. Allometric scaling has been evaluated in obese adults and children.

9. **What are the recommendations regarding continuous infusion vancomycin?**
   A: Continuous infusion for vancomycin can be used. The AUC/MIC targets would be the same.

10. **What weight should we use when calculating loading dose and maintenance doses in obese patients?**
    A: Actual body weight capping (maximum) at 3000mg for the loading dose and at 4500 mg per day for the maintenance dose, depending on renal function.

11. **How many levels do you need with Bayesian AUC estimation methods?**
    A: The preferable number of concentrations are two (2 timed post-infusion samples separated by a minimal of 6-8 h), however, it is possible to use one level close to trough concentration with adequate accuracy using Bayesian estimations.

12. **What are the PK/PD targets for enterococcal infections?**

    A: We do not have confirmation on the AUC/MIC targets enterococcal infections.