**Safety of Vancomycin Dosing and AUC-Guided Dose Adjustments in Pediatric Patients**

**At the completion of this activity, pharmacists will be able to:**

1. Describe appropriate vancomycin usage in pediatric patients
2. Discuss the 2020 guideline for vancomycin treatment of methicillin resistant *Staphylococcus aureus*(MRSA) infections for pediatric patients
3. Describe vancomycin-induced acute kidney injury and how it affects vancomycin dosing and monitoring recommendations for pediatric patients

Pharmacist Questions

1. **What is an important difference between the 2009 and the 2020 guideline for vancomycin monitoring dose adjustments?** 
   1. Hepatic dysfunction adjustments
   2. Addition of pediatric recommendations to the guideline
   3. The removal of AUC-guided adjustments in the 2020 guidelines
2. **What is the AUC goal for pediatric patients for the treatment of MRSA infections in pediatric patients?**
   1. 50 mg·h/L
   2. 400 mg·h/L
   3. 900 mg·h/L
3. **What is the most likely mechanism of nephrotoxicity from vancomycin administration?**
   1. Direct renal tubular damage through oxidative stress
   2. Direct hepatic damage through CYP450 enzymes
   3. Indirect renal tubular damage through elevated transaminase levels
4. **Patients should only receive vancomycin treatment for less than \_\_\_\_\_ days if clinicians want to prevent nephrotoxicity.**
   1. 60 days
   2. 5 days
   3. 30 days
5. **In the updated guideline, what is the absolute maximum recommended total daily dose of vancomycin for pediatric patients?**
   1. 23 mg/day
   2. 3600 mg/day
   3. 8000 mg/day
6. **In which population in pediatrics should prescribers consider a loading dose?**
   1. Hepatic dysfunction
   2. Obese patients
   3. Adolescent patients
7. **What serum trough level is appropriate for pediatric patients with renal dysfunction?**
   1. 2mg/L
   2. 100 mg/L
   3. 12 mg/L
8. **Concomitant administration of the following medications may contribute to increased incidence of nephrotoxicity when combined with vancomycin:**
   1. Contrast dye, amphotericin B, vasopressors, and furosemide
   2. Furosemide, acetaminophen, melatonin, and ascorbic acid
   3. Amphotericin B, loratadine, acetaminophen, and epinephrine
9. **Which of the following patients need closer monitoring for serum trough levels to maintain therapeutic concentrations of vancomycin in pediatric patients?**
   1. Hypertensive
   2. Obese
   3. Adolescent
10. **Development of AKI is positively correlated to \_\_\_\_\_\_\_\_\_ of vancomycin**.
    1. Intravenous administration
    2. > 1 g every 12 h administration
    3. Higher cumulative dose