Vancomycin Dosing for Pediatrics

University Health System

Necessary patient information for dosing

Body weight

- Use ACTUAL body weight

CrCl (ml/min/1.73m2)= [length (cm) x k] / SCr

- k = 0.45 for infants 1 to 52 weeks old
- k = 0.55 for children 1 to 13 years old
- k = 0.55 for adolescent **females** 13-16 years old
- k = 0.7 for adolescent **males** 13-16 years old

General rules

- Vancomycin should initially be dosed Q6 hours in children >30 days old with normal renal function
- Doses infused over 1-2 hours, depending on tolerability
- Peak serum concentrations are no longer recommended
- Trough serum concentration monitoring
    - Should be checked at least once weekly for pediatric patients
    - 30 minutes prior to 4th dose
        - Goal trough 10-20 mcg/mL
    - Troughs only collected for neonates requiring vancomycin treatment for >48 hours
- Rapid clearance seen in patients with cystic fibrosis, children between 1-12 years of age, and burn patients
- Nephrotoxicity secondary to vancomycin is uncommon in pediatrics; more frequent monitoring may be warranted in critically ill children on multiple concomitant nephrotoxins

General dosing recommendations

Neonatal dosing (infants <30 days old)

- Meningitis 15 mg/kg/**dose**
- Others 10 mg/kg/**dose**

CGA* (weeks)	Postnatal age (days)	Interval (hours)
≤29	0-14	18
	>14	12
30-36	0-14	12
	>14	8
37-44	0-7	12
	>7	8
≥45	ALL	6

*Corrected gestational age

Infants >30 days and all other pediatric patients

- Mild/moderate infections (skin soft tissue infections, prophylactic dosing)
    - 45 mg/kg/day
    - Divided Q6-8 hours
    - Prophylactic dose= 10-15 mg/kg x 1
- Serious infections
    - 15-20 mg/kg/dose
    - Q6 hour dosing
    - Max starting dose= 1 gram every 6 hours
- Adjust interval to every 8 or 12 hours for impaired renal function (CrCl <50 mL/min)

    - If renal function is unknown but presumed to be impaired, give one-time dose of 15 mg/kg and check random level 8 hours post dose
- Vancomycin continuous infusions
    - Not routinely utilized in pediatric patients
    - May be utilized for infants/children with rapid renal elimination unable to achieve troughs >10 mcg/mL on q 6 hour dosing
    - Default concentration= 5 mg/mL (1000 mg/200mL normal saline)
    - Default dose= 60 mg/kg/day given continuously over 24 hours

References

1. Pediatric & Neonatal Lexi-Drugs Online™ , Hudson, Ohio: Lexi-Comp, Inc.; June 2, 2014.
2. Rybak MJ et al. Vancomycin therapeutic guidelines: A summary of consensus recommendations from the Infection Disease Society of America, the American Society of Health-System Pharmacists, and the Society of Infectious Disease Pharmacists. Clin Infect Dis 2009; 49(3): 325-7.