

Checklist for Vancomycin Pharmacokinetic Dosing and Monitoring¹

Pre-Dosing Background Information Gathering (from chart +/- in discussion with preceptor)

- ✓ Confirm indication (i.e. catheter-associated bacteremia, endocarditis, osteomyelitis, etc.) and projected intended duration
 - Review microbiology, relevant vitals, imaging/diagnostics and laboratory parameters that pertain to indication
- ✓ Review for potential drug interactions with current prescription (Rx) meds, non-Rx meds, natural health products (NHPs) and alternative medicines
- ✓ Confirm allergies status
- ✓ Confirm if patient has had vancomycin in the past, and if so, confirm dosing previously used
- ✓ Find and review the local vancomycin empiric dosing guideline. *
- ✓ Review the pharmacokinetics of vancomycin (Rybak M, et al. Therapeutic monitoring of vancomycin in adult patients. AJHP. 2009; 66(1): 82-98.)

Initial Vancomycin Dosing

- ✓ Establish patient age, weight and serum creatinine
- ✓ Identify target pre-vancomycin level based on clinical indication
- ✓ Calculate and/or identify the initial loading dose and maintenance dose per interval according to patient weight and target pre-vancomycin level (as per empiric dosing guideline *)
- ✓ Identify initial dosing interval according to target pre-vancomycin level, age and serum creatinine (as per empiric dosing guideline)

Therapeutic Drug Monitoring

- ✓ Identify if a vancomycin serum level should be ordered. Here are examples of when levels should be ordered:
 - Serum creatinine is above normal OR renal function is changing or uncertain
 - Patient is receiving other nephrotoxic agents (e.g. AMG, NSAIDs, ACEI, ARBs, etc.)
 - Patient is at risk for accumulation (e.g. elderly OR q6-8h interval)
 - Anticipated duration of therapy greater than 7 days
 - Patient is obese (>125% IBW), pregnant, pediatric, hypermetabolic (e.g. burn patient, cystic fibrosis) or on dialysis
 - Poor or no response to therapy
 - Addition of an interacting medication
 - Presence of dose related side effects
- ✓ If a level is necessary, consider **when** the next level should be ordered. Consider the following:
 - Is the drug at steady state? (e.g. level pre 3rd or 4th dose, excluding the loading dose)
 - Were there any missed doses?
 - Were the previous doses given at the appropriate time?
 - Should a pre-level be drawn? Should a post level be drawn?
 - When should the pre-level be timed for?
 - When should the post level be timed for?
- ✓ Identify duration, if known [discuss with preceptor if unclear]

Drug Levels Interpretation

Interpretation and documentation of drug level should encompass the following:

- ID
 - Indication and intended duration
 - Vancomycin dosing and frequency
 - Date of when vancomycin was first started
 - Date of last dose change (if applicable)
- Subjective
 - Symptoms of the infectious disease perceived by the patient
- Objective
 - Microbiology and other diagnostics for resulted and pending results (if available)
 - Relevant vitals and laboratory parameters (i.e. temperature, renal function)
 - Vancomycin level (include time/date for when the level was drawn and whether it was pre 3rd/4th dose or a post level, etc.)
 - Intended target pre-vancomycin level based on clinical indication
- Assessment
 - Review the following when interpreting your level and describe how these can affect your interpretation:
 - Missed doses?
 - Previous doses given at the appropriate time?
 - Level taken at the appropriate time?
 - Anything affecting clearance (e.g. renal function, drug interactions, etc.)
 - Is the level subtherapeutic, therapeutic and supratherapeutic?
 - Is the level representative of steady state? And how would this affect your interpretation of the drug level?
- Plan
 - Suggestion for subsequent vancomycin dose, frequency and duration or discontinuation
 - Suggestion for subsequent monitoring (i.e. repeat drug level, cultures or other lab work if necessary)

Subsequent Laboratory Monitoring

- ✓ Repeat level with dosage changes
- ✓ Once target trough is reached, repeat level at least weekly to ensure pre-vancomycin level is within desired therapeutic range
- ✓ Repeat serum creatinine and BUN at least weekly

* If not available at their site, here is a link to a sample vancomycin empiric dosing guideline:

<http://www.vhpharmsci.com/Resources/Pocket/Vancomycin%20Dosing%20Card%20VCH-PHC%20October%202022,%202018.pdf>