**Vancomycin Serum Concentration Monitoring at SBUH is stratified by duration of therapy and indication.**

**No monitoring needed:**

* **Skin and Soft Tissue Infections -** No need for serum trough concentration monitoring for non-obese patients with normal renal function who are receiving vancomycin 1 g q12h or 15 mg per kg q12h.
* **For anticipated duration of therapy less than 3 to 5 days -** No need for monitoring if patients have stable normal renal function and are being dosed with vancomycin at 15 - 20 mg per kg q12h or dosed by SBUH dosing guides.

**Monitoring recommended:**

* **Severe Infections (i.e. pneumonia, bacteremia/endovascular infection, meningitis, osteomyelitis)**
* **Anticipated treatment duration greater than 3 days**

**Therapeutic target:** Vancomycin 24-hour AUC (area under the serum concentration-time curve over 24 hours) 400 to 600 mg\*h/L for serious MRSA infections(assuming a vancomycin MIC of 1 mg/L)

Vancomycin serum trough concentration is used to estimate 24-h AUC. Avoid obtaining blood specimen during patient’s sleeping hours, 22:00 to 06:00:

* Dosing interval **q6h** – monitor vancomycin trough concentration prior to the 5th dose or 6th dose
* Dosing interval **q8h and q12h** – monitor vancomycin trough concentration prior to the 4th dose or 5th dose
* Dosing interval **q24h** - monitor vancomycin trough concentration prior to the 3rd dose.
* When the same vancomycin dose achieves the target of 24-h AUC 400 – 600 mg\*h/L on 2 consecutive monitoring, vancomycin serum concentration monitoring can be extended to once a week

**General association between serum trough concentration and the target of 24-h AUC 400 – 600 mg\*h/L**

* For patients with Cr CL greater than 80 mL/min, a serum trough concentration of 10 -15 mcg/mL is likely to be associated with 24-h AUC 400 -600 mg\*h/L.
* For patients with Cr CL 30 - 80 mL/min, a serum trough concentration of 10 -20 mcg/mL is likely to be associated with 24-h AUC 400 -600 mg\*h/L.
* For patients with Cr CL less than 30 mL/min, a serum trough concentration of 15 -20 mcg/mL is likely to be associated with 24-h AUC 400 -600 mg\*h/L.

**Special Situations**

Consultation with the Antimicrobial Stewardship Team or Infectious Diseases Consult service for dosing adjustment is recommended in the following situations:

* Patients with changing or unstable renal function
* Patients receiving high daily doses (>4 grams per day). Additional vancomycin serum levels such as peak levels may be needed to better define the pharmacokinetic parameters of the antibiotic.
* Patients with trough level greater than 20 mcg/mL
* Patients on hemodialysis or CVVHD/F
* Critically ill patients
* Patients with morbid obesity

References

1. Therapeutic monitoring of vancomycin for serious methicillin-resistant Staphylococcus aureus infections: A revised consensus guideline and review by the American Society of Health-System Pharmacists, The Infectious Diseases Society of America, the Pediatric Infectious Diseases Society, and the Society of Infectious Diseases Pharmacists. AJHP 2020; 11:835-864