

VANCOMYCIN AUC/MIC THERAPEUTIC DRUG MONITORING

DEFINITIONS:

- AUC₂₄: 24-hour area under the plasma drug concentration versus time curve
- MIC: Minimum inhibitory concentration
- AUC/MIC: Ratio of AUC₂₄ to MIC
- PCA: Postconceptional age (gestational age + postnatal age)
- PNA: Postnatal age
- Steady state: Dynamic equilibrium in which drug levels are constant
 - Steady state is usually reached after the 3rd or 4th dose

EXCLUSION CRITERIA:

- Consult clinical pharmacist if:
 - MRSA vancomycin MIC > 1 mg/L
 - Blood levels are not drawn at steady state
 - Unstable or changing renal function
- Levels are not required if:
 - Vancomycin is being used as empiric treatment or for surgical prophylaxis and expected duration of treatment is < 48-72 hours

RECOMMENDED INITIAL DOSING:

1) Neonates:

Age	mg/kg/dose IV	Interval
PCA < 27 weeks	15	Q24H
PCA 27-30 weeks	15	Q18H
PCA 31-36 weeks	15	Q12H
PCA ≥ 37 weeks PNA 0-7 days	15	Q12H
PNA 8-28 days	15	Q8H

2) Children: 15 mg/kg/dose IV Q6H

- Can consider 20 mg/kg/dose IV Q6H if seriously ill and normal renal function

3) Adults: 15-20 mg/kg/dose IV Q8-12H

- Can consider a loading dose of 25-30 mg/kg/dose IV if seriously ill

TIMING OF BLOOD SAMPLES

- Two blood samples at steady state are required to calculate AUC and they can be taken in one of two ways:

Pre- and Post-dose Levels – 3rd or 4th dose

- Pre-level: Within 30 minutes before the dose is given
- Post-level: 1-2 hours after the end of the infusion

Two Post-dose Levels – 3rd or 4th dose

- Post-level (C1): 1-2 hours after the end of the infusion
- Pre-level (C2): Within 30 minutes before the next dose is given

TARGET AUC/MIC:

- Target a calculated AUC/MIC of 400-600
 - Assume MIC is 1 mg/L
 - Consult pharmacist for calculation of AUC/MIC and dose recommendations

MONITORING

- After dose adjustment: Repeat pre- and post-levels once new steady state is reached
- Once AUC/MIC is within target range:
 - Repeat levels once weekly in stable patients
 - Repeat levels more frequently for patients who are unstable (eg. changing renal function, infection not improving)
- Serum creatinine and urea once weekly, or more frequently if renal function is changing
- Urine output daily

Last update: March 2021