Nebraska Medicine
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Nephrology preferred dosing strategy:
Adult hemodialysis patients receiving vancomycin

The following preferred dosing strategy should be used in place of Bayesian software for adult patients with chronic kidney disease on stable hemodialysis started on vancomycin for confirmed or suspected infection.

Excluded patients include those receiving continuous or prolonged intermittent renal replacement therapy (CRRT or PIRRT) or peritoneal dialysis, patients not on scheduled/regular hemodialysis, patients receiving vancomycin antibiotic lock therapy, and pediatric patients.

General dosing strategy:
Load (20 mg/kg) → HD plus 750 mg → AM level prior to next dialysis → HD plus dose based on level

Check level prior to 2nd hemodialysis following load.
Check level prior to the next dialysis sessions following any dosage change.
If no dose changes, monitor weekly levels.

Loading Dose: vancomycin 20 mg/kg IV once (Minimum: 1000mg and Maximum: 2000mg)

Maintenance Dosing: vancomycin 750 mg IV with each dialysis until dosage changed or discontinued (administered after dialysis). For most patients, this dose is roughly 7-10 mg/kg.

Therapeutic Drug Monitoring: pre-dialysis levels should be drawn at the following times, with a therapeutic goal of 15-20 mcg/mL.

1) Prior to the 2nd post-load dialysis session
2) Prior to the next dialysis session after a dosage change
3) Weekly after a therapeutic level is reached

Once maintenance dosing begins, dialysis dose should be adjusted based upon pre-dialysis levels:

Pre-dialysis serum concentration	Vancomycin dose adjustment	Next pre-dialysis level
> 20 mcg/mL	Reduce dose by 250 mg	Prior to next dialysis session
15 – 20 mcg/mL	Continue current dosing	Weekly
< 15 mcg/mL	Increase dose by 250 mg	Prior to next dialysis session

Examples:

1) If patient with a dialysis schedule of Monday, Wednesday, Friday (MWF) is loaded with vancomycin (20mg/kg) on Sunday, the patient would receive 750 mg of vancomycin with dialysis on Monday. A vancomycin serum concentration should be drawn with morning labs pre-dialysis on Wednesday. If the level is 15-20 mcg/mL, then the patient should receive 750 mg of vancomycin after that dialysis, and with each subsequent dialysis session. The vancomycin levels would be drawn weekly.

2) If patient on dialysis MWF loaded with vancomycin (20mg/kg) on Sunday, then the patient would receive 750 mg of vancomycin after dialysis on Monday. Patient would return for dialysis on Wednesday, at which time a pre-dialysis vancomycin level would be drawn. If the level was <15 mcg/mL then the patient would receive 1000 mg of vancomycin after dialysis. Patient would have a level checked on Friday prior to dialysis. If therapeutic (between 15-20 mcg/mL), continue with 1000 mg per treatment and check level weekly.

**If the level on Friday is still less than 15 mcg/mL then the post-dialysis dose should be increased to vancomycin 1250 mg. With any dose adjustment, check level with next dialysis session until dose and level are stable, then decrease frequency of vancomycin level to weekly.

3) Patient on hemodialysis MWF loaded with vancomycin (20mg/kg) on Sunday, so the patient would receive 750 mg of vancomycin with dialysis on Monday. Patient would return for dialysis on Wednesday, at which time a pre-dialysis vancomycin level would be drawn. If the level was >20 mcg/mL, then the patient would receive 500mg of vancomycin. Patient would have a level checked on Friday prior to dialysis. If therapeutic, continue vancomycin 500 mg after dialysis and check level weekly. At this point, if vancomycin level is not therapeutic, contact ID pharmacist. Approximately 40% of serum vancomycin is removed by modern high-flux hemodialysis. It may be necessary to skip a dose and then resume 500mg after each dialysis when level is >30 mcg/mL.

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