Look for Factors Affecting Dosing During Continuous Renal Replacement Therapy

You'll be asked to help dose antibiotics for patients getting continuous renal replacement therapy (CRRT).

Think of CRRT as nonstop dialysis for balanced filtration.

It's often used in hemodynamically unstable patients...since intermittent hemodialysis can cause hypotension.

Don't rely on calculating a creatinine clearance (CrCl) to dose antibiotics during CRRT. Serum creatinine doesn't accurately predict medication clearance in this case...and can lead to false estimates when using equations.

Expect your hospital to develop standardized CRRT antibiotic dosing.

But when you don't have CRRT dosing guidance, consider using a CrCl of about 30 to 50 mL/min as a good starting point.

Be aware that dosing may vary based on CRRT modality...continuous venovenous hemoFILTRATION (CVVH), continuous venovenous hemoDIALYSIS (CVVHD), or continuous venovenous hemoDIAFILTRATION (CVVHDF).

Don't be surprised if a specialist increases the dose in some cases. For example, as the total CRRT "effluent rate" increases, more med is removed. And patients with residual renal function or a resistant infection may also need a higher antibiotic dose.

Continue to give loading doses...since many critically ill patients have an increased volume of distribution.

Check levels when able, especially due to risk of UNDERdosing in CRRT. For example, initially dose based on random levels...or start with an established dose from your protocol, such as vancomycin 15 mg/kg Q24 hours for CVVHD, checking a trough in 2 to 3 days to assess clearance.

Follow patients closely for potential antibiotic dose adjustments. You may need to hold or delay a dose...or check a random level...if CRRT is stopped for a procedure or the filter clots off.

Also be ready to adjust doses if CRRT is switched to hemodialysis as the patient stabilizes...or CRRT is stopped due to improving renal function.

See our chart, Intravenous Antibiotic Dosing in Renal Impairment in Adults, for dosing suggestions during hemodialysis or CRRT.

Key References:
- Pharmacotherapy 2009;29(5):562-77
- Scand J Infect Dis 2013;45(12):891-9

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