



The Devil is in the Details: Antibiotic Lock Therapy

Catheter-related bloodstream infections (CRBSI) are generally managed with systemic antibiotic therapy and catheter removal. However, in select cases, salvage therapy where the catheter is retained and combination therapy with systemic antibiotics and [antibiotic lock therapy](#) (ALT) may be trialed. What are key practical considerations in antibiotic lock therapy?

Which antibiotic lock therapy should be selected?

Multiple antibiotics with different concentrations with and without heparin or trisodium citrate have reported to be used as ALT. In addition to antimicrobial spectrum, other points that should be considered include concentration, stability, diluent selection, and dwell time. Antibiotic lock recipes are not one-size-fits-all. For example, Lactated Ringer's must always be used when compounding daptomycin locks because it contains the necessary calcium for daptomycin to have activity. See this helpful [review](#) summarizing different lock therapies that have been reported.²

How much lock volume is needed?

The catheter lumen should be filled but not overfilled to the point where lock therapy enters systemic circulation, which can result in adverse event (e.g. bleeding from anticoagulant). Identifying the catheter lumen size can be challenging. Manufacturer lumen volumes are available, but in some instances, lines are cut for proper positioning during placement thereby decreasing the lumen volume. One strategy involves flushing the line with normal saline, attaching an empty syringe, and aspirating the normal saline to the point where blood just enters the tip of the syringe. The volume of normal saline aspirated represents the lumen volume.

How should ALT be managed?

Catheter salvage requires close monitoring and coordination. If the affected line needs to be used for medical reasons or to refresh the ALT, the lock contents should be withdrawn instead of flushed. Pharmacists, nurses, and providers must work together closely to minimize ALT interruptions to improve the chances of catheter salvage success.

What is the optimal dwell time?

ALT are suggested to dwell for 24 – 48 hours or up to each hemodialysis session (e.g. 72 hours in some cases). ALT interruptions can be common due to vascular access needs. No optimal dwell time has been identified. Some data suggest a minimum dwell time of 8 – 12 hours.^{1,2} In one small study, a dwell time of 2 hours appeared to be effective.¹ Dwell times exceeding the stability time of ALT preparations may result in reduced efficacy.

Key Takeaway: Stable combinations of antibiotic lock therapy should be selected for ALT. Several practical points need to be considered for successful antibiotic lock therapy administration.

References:

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