

Access site–related infections in patients receiving dialysis

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1 Infection is the leading cause of hospital admission and second most common cause of death in patients receiving dialysis

Hemodialysis and peritoneal dialysis (PD) access sites are portals of entry for bacteremia and peritonitis, respectively. Incidence rates of hemodialysis-associated bacteremia and PD peritonitis are 0.42 episodes and 0.3 episodes per patient-year, respectively.^{1,2} Dialysis confers a 100- to 300-fold higher mortality from sepsis than in the general population.³

2 Access site–related infections can be localized, systemic, or both

Redness, tenderness, or discharge around access sites suggests infection. However, even if the access site appears normal, patients with sepsis or fever should be investigated, then initiated on antimicrobials.

3 *Staphylococcus* species, constituents of skin flora, are the most common bacteria implicated in infections

Empiric methicillin-resistant *Staphylococcus aureus* (MRSA) coverage is warranted for access site–related infections, as dialysis confers a 100-fold higher risk of developing MRSA infections than in the general population.¹

4 Treatment of hemodialysis access site infections includes antimicrobial therapy and possible line removal or antibiotic lock therapy

Line removal is suggested in persistent (≥ 3 d) bacteremia or when blood cultures are positive for *S. aureus*, *Pseudomonas aeruginosa*, or *Candida*. Systemic antibiotics with adjunctive antibiotic lock therapy (instilling a concentrated solution of antibiotic and anticoagulant to dwell within the catheter lumen when not in use) have a 50% success rate in catheter salvage and may be appropriate even if the access site is the known source of bacteremia.⁴ Consultation with infectious disease specialists can aid with treatment duration and decisions about line removal and reinsertion as well as surgical arteriovenous graft excision.

5 Treatment of PD-catheter infections includes antimicrobial therapy and possible catheter removal

Catheter removal is reserved for recurrent or refractory peritonitis, all cases of fungal peritonitis, and localized infections that progress to peritonitis or fail to respond to antibiotics. In PD-catheter peritonitis, intra-peritoneal antibiotics with antifungal prophylaxis are preferred over systemic antibiotics unless features of sepsis are present (Appendix 1, available at www.cmaj.ca/lookup/doi/10.1503/cmaj.231300/tab-related-content). Switching to hemodialysis is unnecessary unless the PD catheter is removed.⁵

References

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