



Pick Your Poison: Linezolid or Vancomycin for MRSA Pneumonia

While many antimicrobials have activity against MRSA, the 2016 Infectious Diseases Society of America Hospital-acquired pneumonia/Ventilator-associated pneumonia guidelines recommend only linezolid or vancomycin for the treatment of MRSA pneumonia.¹ Both agents have similar clinical outcomes, therefore picking one over the other should take into considerations individual host factors and antibiotic characteristics. When treating MRSA pneumonia, how do you pick your poison?

Antibiotic Considerations

Selection is based on adverse events, drug interactions, ease of administration, and risk for the emergence of antimicrobial resistant pathogens.

	Linezolid	Vancomycin
Adverse effects ²⁻⁷	<p>After 2 weeks of therapy: Myelosuppression – reversible upon discontinuation</p> <p>After 4-6 weeks of therapy: Peripheral neuropathy – can be permanent Optic neuropathy Lactic acidosis</p>	<p>Immediate onset: Infusion reactions - can be mitigated by prolonging infusion</p> <p>Reported onset varies between 4 – 17 days: Nephrotoxicity</p> <p>After 1-2 weeks: Neutropenia/thrombocytopenia/pancytopenia</p>
Drug Interactions	Low risk for serotonin syndrome with other serotonergic agents	Other nephrotoxicity agents (e.g. aminoglycosides, possibly piperacillin-tazobactam)
Administration	IV and Oral with 100% bioavailability	IV only, therapeutic drug monitoring required for dose optimization
Antimicrobial Resistance ⁸⁻⁹	Linezolid resistant enterococcus happens frequently. Linezolid-resistant VRE incidence rose ~400% in a 6 year period where linezolid use increased by ~350%	Vancomycin-resistant <i>S. aureus</i> (VRSA) is not a concern. VRSA removed as threat in latest CDC Antibiotic Resistance Threat Report due to limited occurrences

Key Takeaway:

Most severe adverse events do not typically occur within standard durations of therapy for pneumonia (i.e. 7 days). Linezolid resistance appears more likely to develop than vancomycin resistance. Switching from empiric vancomycin to definitive oral linezolid after MRSA pneumonia has been confirmed may be a reasonable strategy to preserve VRE activity and improve ease of administration.

References:

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