



Safety and Outcomes of Prolonged Linezolid Use for Chronic Suppressive Therapy in Orthopedic Infections: A Single-Center Case Series

Kemar Barrett, M.B.B.S.¹, Gina Suh, MD¹, Madiha Fida, M.B.B.S.¹

¹Division of Public Health, Infectious Diseases and Occupational Medicine, Mayo Clinic – Rochester, MN, USA

BACKGROUND

- Orthopedic infections often require prolonged antimicrobial therapy when definitive surgical management is not feasible.
- Linezolid is an attractive oral option because of gram-positive activity and excellent bioavailability, but extended use is limited by toxicity.
- We aimed to describe the clinical characteristics, safety, and outcomes of patients receiving chronic linezolid suppressive therapy for orthopedic infections.

METHODS

- Retrospective case series of adult patients with orthopedic infections receiving linezolid for chronic suppressive therapy at a single center from October 2022 through February 2026.
- Collected data included demographics, infection characteristics, microbiology, surgical management, adverse events, and clinical outcomes.
- Descriptive statistics were used.

RESULTS

- Fifteen patients met inclusion criteria. Selected cohort characteristics are shown in **Table 1**.
- Mean duration of intravenous antibiotics prior to suppression was 53.5 days.
- Mean duration of linezolid therapy was 263.9 days (range 21–989).
- Adverse events occurred in 10/15 patients (67%) with a mean time to event of 53.3 days. Seven patients required hospitalization for suspected toxicity.
- Most common toxicities:
 - Thrombocytopenia: n=7; mean platelet decline from baseline 34%, time to nadir 60.0 days
 - Lactic acidosis: n=4; 3 re-challenged at reduced dose or frequency; 1 permanently discontinued
 - Worsening peripheral neuropathy: n=2
 - Severe gastrointestinal intolerance: n=1
- At data freeze, 10/15 patients had discontinued linezolid, 4 remained on therapy, and 1 died while receiving therapy.
- Planned completion and adverse events were the most common reasons for discontinuation (n=4 each).
- One patient experienced relapse 113 days after discontinuation.

TABLE 1. Clinical, Microbiologic, Surgical, and TDM Characteristics of the Study Cohort

Infection Type	Number of Patients (n)
PJI	9
Fracture-related Infection	3
Other	2
Other spinal hardware infection	1
Anatomic Site	
Knee	5
Hip	3
Shoulder	2
Long bone	2
Elbow	1
Other (ribs)	1
Spine	1
Culture Positivity	
Monomicrobial	8
Polymicrobial	7
Organism covered by Linezolid	
<i>Corynebacterium striatum</i>	8
Methicillin-resistant CoNS	5
MRSA	3
Other (VRE, <i>E. faecium</i>)	2
MSSA	1
Surgery Type	
DAIR	8
One-stage Exchange	1
Other (irrigation & debridement etc.)	6
TDM	
Yes	6
TDM-informed action	5
No	5

Abbreviations: CoNS - coagulase-negative staphylococci; PJI – prosthetic joint infection; TDM – therapeutic drug monitoring; VRE, vancomycin-resistant enterococci.

CONCLUSIONS

- Prolonged linezolid suppressive therapy was feasible in selected patients with orthopedic infections although adverse events were common and frequently required treatment modification.
- TDM-guided dose adjustment was frequently utilized and may represent a strategy to mitigate toxicity during extended therapy.
- These findings support careful monitoring during long-term linezolid and highlight the need for larger studies to better define safety and use for suppressive therapy.