Impact of dalbavancin as step-down or salvage therapy on duration of hospitalization among people who inject drugs

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Background

- Dalbavancin has a growing body of literature to support use for off-label indications (i.e. osteomyelitis, endocarditis) [1,2,3]
- A one-time 30-minute infusion of dalbavancin 1500 mg provides adequate drug concentrations to ensure 14 days of antimicrobial coverage and two dose course of 1500 mg (days 0, 8) provides adequate coverage for 56 days [1,3]
- PWID are often ineligible to receive OPAT resulting in prolonged hospitalizations leading to high rates of PDD and inadequate antimicrobial courses

Objectives

- Quantify potentially preventable inpatient days with step-down dalbavancin in PWID completing an IVA course
- Quantify potentially preventable readmissions due to infection progression with salvage dalbavancin in PWID following PDD

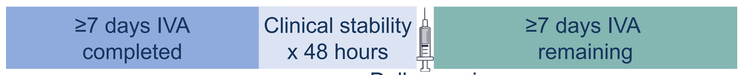
Methods

Study Design: Single center retrospective review
Study Period: November 1, 2019 – October 31, 2021
Population: inpatients administered ≥14 days of select antimicrobials (ampicillin, cefazolin, ceftaroline, ceftriaxone, daptomycin, nafcillin, vancomycin) were screened:

Inclusion Criteria	Exclusion Criteria

• History of IVDU prohibiting OPAT
• Gram-positive infection
• ≥7 days IVA completed & remaining
• Clinical stability for ≥48 hours:
  • Non-critical care unit
  • Afebrile
  • Leukocytosis resolved
  • Negative blood cultures
	• Dalbavancin ineligible:
	  • Vancomycin allergy
	  • Pregnancy
	  • VRE infections
	  • CNS infection
	• Requiring additional antibiotics for Gram-negative or anaerobic coverage

Figure 1: Time of Dalbavancin Eligibility



Included patients were separated into two cohorts

Step-down Cohort	Salvage Cohort
Completed entire IVA course inpatient	PDD prior to completing IVA course

Results

Figure 2: Study Inclusion

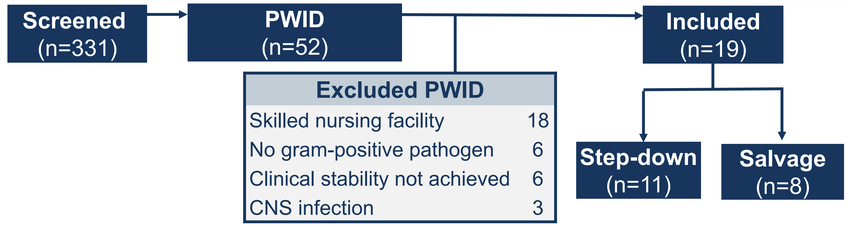


Table 1: Baseline Characteristics *

	Step-down (n=11)	Salvage (n=8)
Age (years), median (IQR)	38 (9)	33.5 (9)
Sex (% male)	9 (82)	8 (100)
Polysubstance Use	8 (73)	7 (88)
Experiencing Homelessness	4 (36)	8 (100)
ID Consult	10 (91)	8 (100)

Table 2: Infection Characteristics *

	Step-down (n=11)	Salvage (n=8)
Pathogens ⁂		
MRSA	7 (64)	4 (50)
MSSA	5 (46)	2 (25)
Streptococcus pyogenes	1 (9)	2 (25)
Streptococcus agalactiae	-	1 (13)
Positive Blood Cultures		
Positive Blood Cultures	11 (100)	7 (88)
Infectious Source		
Endovascular & Metastatic Foci	2 (19)	5 (63)
Complicated ABSSSI	3 (27)	-
Endocarditis	3 (27)	-
Bone and Joint Infections	1 (9)	2 (25)
Intramuscular Abscess	1 (9)	-
Epidural Abscess	1 (9)	1 (12)

Table 3: Antimicrobial Therapy

	Step-down (n=11)	Salvage (n=8)
Duration of Therapy		
Planned Duration IVA, median (IQR)	42 (14)	42 (0)
Average % IVA Prior to PDD	-	65.0%
Dalbavancin Eligibility		
Average % IVA Completed at Time of Dalbavancin Eligibility	45.8%	39.2%

* All figures are n (%) unless otherwise noted
⁂ Patients may have more than one gram-positive pathogen identified on cultures

Figure 3: Preventable Inpatient Days – Step-down Cohort (n=11)

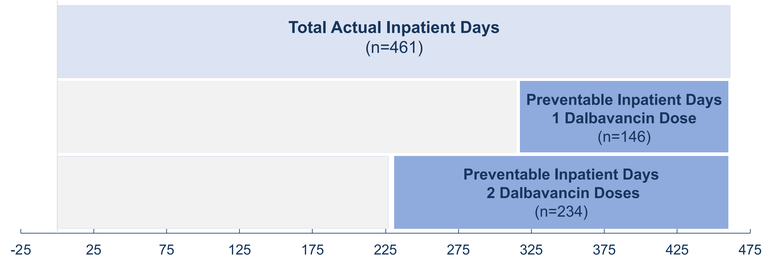
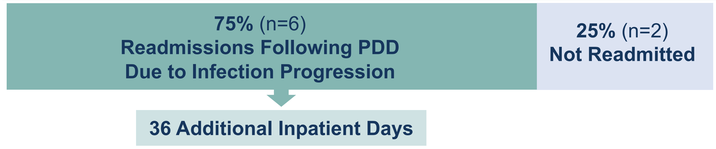


Figure 4: Preventable Readmissions – Salvage Cohort (n=8)



Results Summary

- Of the nineteen identified dalbavancin-eligible PWID, majority had infections due to *Staphylococcus aureus* (89%) with bacteremia (95%). Ten patients (53%) had confirmed or presumed endocarditis.
- In the step-down cohort, a one-time dose of dalbavancin prevented 146 inpatient days while 2 doses of dalbavancin prevented up to 234 inpatient days, or 20 (15) days (median, IQR) days per patient
- Of the 8 patients in the salvage cohort, 6 (75%) were readmitted within 30-days of PDD due to infection progression, and during the readmission 5 of the 6 had a repeat PDD

Conclusion

Inpatient use of dalbavancin may bridge treatment disparities in PWID by reducing unnecessary inpatient days for IVA administration and by preventing hospital readmissions attributable to inadequate antimicrobial courses.

References:
1. Dalvance. Package insert. Durata Therapeutics; 2014.
2. Gatti M, et al. *Drug Des Devel Therp.* 2021;15:3349-78.
3. Vazquez Deida AA, et al. *Open Forum Infect Dis.* 2020;7:ofaa293.

Disclosures: Authors of this poster have no conflicts of interest.

PWID: people who inject drugs
OPAT: outpatient parenteral antimicrobial therapy
PDD: patient-directed discharge
IVA: intravenous antibiotics
IVDU: intravenous drug use
VRE: vancomycin-resistant Enterococcus
CNS: central nervous system
ID: infectious diseases
MRSA: methicillin-resistant *Staphylococcus aureus*
MSSA: methicillin-susceptible *Staphylococcus aureus*
ABSSSI: acute bacterial skin and skin structure infection