

Comparison of Sequential Dalbavancin With Standard-of-Care Treatment for *Staphylococcus aureus* Bloodstream Infections

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Background. Dalbavancin (DAL) is a long-acting lipoglycopeptide with activity against *Staphylococcus aureus*, including methicillin-resistant *S. aureus* (MRSA). This study investigates DAL as sequential therapy in *S. aureus* bloodstream infections (BSIs).

Methods. We conducted a retrospective cohort study from 2014 to 2021 comparing sequential DAL with standard-of-care therapy (SoC) for *S. aureus* BSI. The primary outcome was 90-day clinical failure (90-day all-cause mortality or 90-day recurrence). Secondary outcomes were incidence of acute kidney injury, creatinine phosphokinase elevations, catheter-related thrombosis, and hospital-acquired infections. Analyses were adjusted using inverse probability of treatment weighting (IPTW).

Results. Overall, 225 patients (45 DAL, 180 SoC) were included. DAL patients had a higher incidence of community-acquired infection and persons who use drugs; SoC patients had more comorbidities and a longer duration of bacteremia. MRSA incidence was similar between the DAL and SoC groups. The median length of stay was 16 days among DAL recipients compared with 24 days among SoC recipients. Central catheter placement was 17.8% compared with 57.2% in the SoC group. Ninety-day clinical failure occurred in 13.3% and 18.3% of participants in the DAL and SoC groups, respectively. In IPTW-adjusted analysis, sequential DAL was not associated with 90-day clinical failure (adjusted odds ratio, 0.94; 95% CI, 0.333–2.32).

Conclusions. This study provides preliminary evidence that select patients with *S. aureus* BSI treated with sequential DAL have similar clinical failure rates, with significant reductions in catheter placement and hospital length of stay compared with SoC. Further prospective evaluation is needed.

Keywords. long-acting lipoglycopeptides; MRSA; SAB; BSI.

Staphylococcus aureus bloodstream infections (BSIs) are associated with significant mortality, morbidity, and health care utilization [1, 2]. Infection with *S. aureus* is characterized by metastatic spread, leading to high recurrence rates due to sub-optimal source control and antimicrobial therapy. As such, current guidelines for the management of *S. aureus* BSI (SAB) recommend treatment durations between 2 and 6 weeks, depending on the source and complicating infection factors. Current SAB standard-of-care (SoC) antimicrobial therapies

are intravenous (IV) vancomycin, daptomycin, antistaphylococcal penicillin, or cefazolin [3–5].

Given the prolonged treatment duration required for SAB, SoC therapy typically entails extended hospitalization and discharge with a central venous catheter (CVC) for continued parenteral treatment (ie, outpatient parenteral antimicrobial therapy [OPAT]). More recently, evidence has emerged for the use of oral antibiotics in uncomplicated infections [6–8]. After discharge, OPAT may require frequent parenteral drug administration, monitoring, and continuous dosage adjustments, which are potential sources for medication errors, line contamination, and other CVC complications [9]. In addition, there are special populations for whom OPAT or oral antibiotics are not feasible owing to cognitive impairment, the potential for catheter misuse, or lack of medication adherence [10, 11]. Consequently, some patients remain hospitalized for the entirety of the antibiotic treatment duration. Thus, the current treatment paradigm for SAB is often burdensome for patients, health care providers, institutions.

Dalbavancin (DAL) is a lipoglycopeptide antimicrobial with potent activity against *S. aureus*, including isolates that are methicillin-resistant *S. aureus* (MRSA) [12]. The unique

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pharmacokinetic profile of DAL is characterized by a prolonged terminal half-life, which allows for infrequent dosing compared with SoC antimicrobials [13]. Recent pharmacokinetic studies have demonstrated that a 2-dose series (1500 mg on day 1, followed by 1500 mg on day 8) is sufficient to maintain drug concentrations above *S. aureus* minimum inhibitory concentrations in plasma and select tissues for up to 8 weeks [14]. Mounting clinical evidence has suggested high rates of treatment success using DAL in serious gram-positive infections, including infective endocarditis, osteomyelitis, and prosthetic joint infections [15–18]. However, previous studies are limited by few patients with SAB, which is often considered more complicated with a higher risk of recurrent infection than other gram-positive pathogens (eg, *Streptococcus*). As there are outstanding concerns regarding the utility of DAL in this population, we sought to compare the effectiveness and safety of DAL as sequential therapy for SAB with standard of care.

METHODS

We conducted a retrospective cohort study of patients treated with DAL or SoC antimicrobials for SAB identified at the UC Health System from January 2014 to December 2021. Eligible subjects were identified by screening a list of blood cultures with *S. aureus* during the study period. Adult patients were included if they had at least 1 positive blood culture for *S. aureus* and received IV antistaphylococcal antimicrobials within 48 hours of index culture that were continued for at least 7 days [19]. Patients were excluded if they were over 89 years of age, the index culture was polymicrobial, or the patient lacked documented blood culture clearance before discharge. Patients with multiple organisms in blood culture due to suspected contamination with common skin organisms (eg, *S. epidermidis*, *Corynebacterium* spp., *Bacillus* spp., *Cutibacterium* spp.) were included. Additional exclusion criteria were central nervous system infection, retained hardware, select vulnerable populations (pregnant, incarcerated individuals), and those who left against medical advice.

Subjects were stratified into 2 groups based on receipt of DAL or SoC antimicrobials. SoC antibiotics included vancomycin, daptomycin, antistaphylococcal penicillins, and cefazolin. After identifying the DAL cohort, an SoC group was determined using a random number generator to select patients from a list of those with SAB not receiving DAL. Patients who met exclusion criteria in the SoC cohort were replaced until a 4:1 SoC-to-DAL ratio was reached. Approval was obtained from the Colorado Multiple Institutional Review Board with a waiver of informed consent before study initiation.

Data Collection and Study Definitions

Patient demographic, clinical, and treatment details were extracted from the electronic medical record into Research

Electronic Data Capture (REDCap; Vanderbilt University), a structured data collection tool [20]. SAB was categorized as complicated or uncomplicated according to the current guidelines [3]. Charlson comorbidity index (CCI) scores were determined from comorbidities, and APACHE II scores were calculated using the most abnormal values within 24 hours of index culture [21, 22]. Hospital-acquired SAB was defined as positive index blood culture collected after 48 hours of hospital admission. Persistent BSI was defined as positive blood cultures obtained ≥ 5 days after index culture.

Outcomes and Statistics

The primary outcome was composite 90-day clinical failure measured from index culture, comprised of all-cause mortality and infection recurrence. Recurrence was defined as repeat infection with SAB. Secondary outcomes were incidence of acute kidney injury (AKI), creatinine phosphokinase (CPK) elevations, catheter-related thrombosis, and hospital-acquired infections. AKI was defined using the serum creatinine component of the 2012 Kidney Disease: Improving Global Outcomes Clinical Practice Guideline [23]. Creatinine phosphokinase elevations, assessed among daptomycin recipients, was defined as an increase to >600 IU/L if baseline CPK was <200 IU/L, or >1000 IU/L if the baseline was >200 IU/L [24]. Using National Healthcare Safety Network/Centers for Disease Control and Prevention definitions, the occurrence of hospital-acquired infections collected included *Clostridioides difficile* infection, catheter-related infection, catheter-associated urinary tract infection, surgical site infections, pneumonia, and ventilator-associated events. Patients were considered lost to follow-up if they did not have a health system encounter at the health system within 90 days of index culture.

Between-group comparisons were performed using the Pearson chi-square test, Fisher exact test, Student *t* test, or Mann-Whitney *U* test, depending on the data type and distribution. An inverse probability of treatment weighting (IPTW) analysis was performed to address confounding by indication and facilitate unbiased comparison between groups. A nonparsimonious multivariable logistic regression model was constructed using covariates chosen a priori to estimate each patient's probability of receiving DAL. Stabilized weights using the inverse of the propensity score were applied. Standardized mean differences of the covariates used to generate the propensity score were compared before and after weight application to assess balance. After applying the weights, logistic regression was performed with the primary outcome as the dependent variable. Covariates with a standardized mean difference $>10\%$ after weighting were included in the multivariable model.

As a sensitivity analysis, univariate analysis was used to compare a subgroup of patients who were discharged on antibiotics, a cohort that may more accurately reflect those likely to be considered for DAL. In addition, to account for loss to follow-up,

we performed univariate best- and worst-case analyses. In the best-case analysis, those lost to follow-up in the DAL cohort were coded as successes for the primary outcome, whereas those in the SoC cohort were coded as failures. Conversely, in the worst-case analysis, those lost to follow-up in the DAL cohort were considered failures, while those in the SoC cohort were deemed successful [25]. Statistical analyses were performed using R, version 4.0.2 (R Core Team).

RESULTS

A total of 262 patients admitted between 2014 and 2021 with a blood culture positive for *S. aureus* were screened for inclusion. Of these, 45 met inclusion into the DAL cohort, and 180 subjects were included in the SoC cohort (Figure 1). In general, patients who received DAL were more likely to be uninsured (17.8% vs 3.9%), to use IV drugs (24.4% vs 8.9%), and to have fewer comorbidities (median [IQR] CCI, 2 [3] vs 4 [3]) than subjects in the SoC cohort (Table 1). The predominant sources of *S. aureus* BSI among both cohorts were skin and soft tissue infection (35.6%), musculoskeletal (24.4%), and pulmonary (19.6%). Musculoskeletal infections included osteomyelitis (16.4%), septic arthritis (7.6%), prosthetic joint infection (1.3%), and vertebral osteomyelitis (2.2%). Other and unknown sources of BSI were more common in the DAL than the SoC cohort (20% vs 7.2%). The proportion of MRSA was similar between groups. The DAL cohort had lower acuity of illness, evidenced by a lower proportion of patients in the ICU at the time of index culture and lower APACHE II scores. The median (IQR) duration of SAB was numerically longer in the SoC

cohort than the DAL cohort (3 [3] vs 2 [3], respectively). The incidence of complicated BSI was numerically higher in the SoC cohort (57.2% vs 44.4%). The discharge disposition of patients differed markedly between groups; patients in the DAL group were more likely to be discharged home having completed therapy, whereas the SoC group was more often discharged to a skilled nursing facility, long-term acute care, or another hospital. In-hospital death was more likely in the SoC cohort.

Infection management is displayed in Table 2. Most patients (96.4%) in this study received infectious diseases consultation. The majority of patients received vancomycin, while more than half received cefazolin (after methicillin-susceptible *S. aureus* was identified). The pursuit of source control was not different between groups. The median (IQR) duration of SoC antibiotics was 15 (13) and 32 (25) in the DAL and SoC groups, respectively ($P < .001$). Regarding DAL utilization, most patients received 1 dose (82.2%), typically while hospitalized (62.3%). Patients in the SoC cohort were more likely to have a central line placed than the DAL group (57.2% vs 17.8%). The median (IQR) hospital length of stay was 24 (15) days in the SoC group compared with 16 (11) days in the DAL cohort ($P < .001$). Among those in the SoC group, 52% ($n = 93/180$) continued antibiotics after discharge. After discharge alive, 11.5% ($n = 18/157$) in the SoC group and 13.6% ($n = 6/44$) in the DAL group did not have follow-up at 90 days.

Overall, 17.3% ($n = 39/225$) of patients experienced composite clinical failure at 90 days. Similar failure rates were observed in the SoC and DAL groups, respectively (18.3% vs 13.3%). There were no differences between cohorts in death or

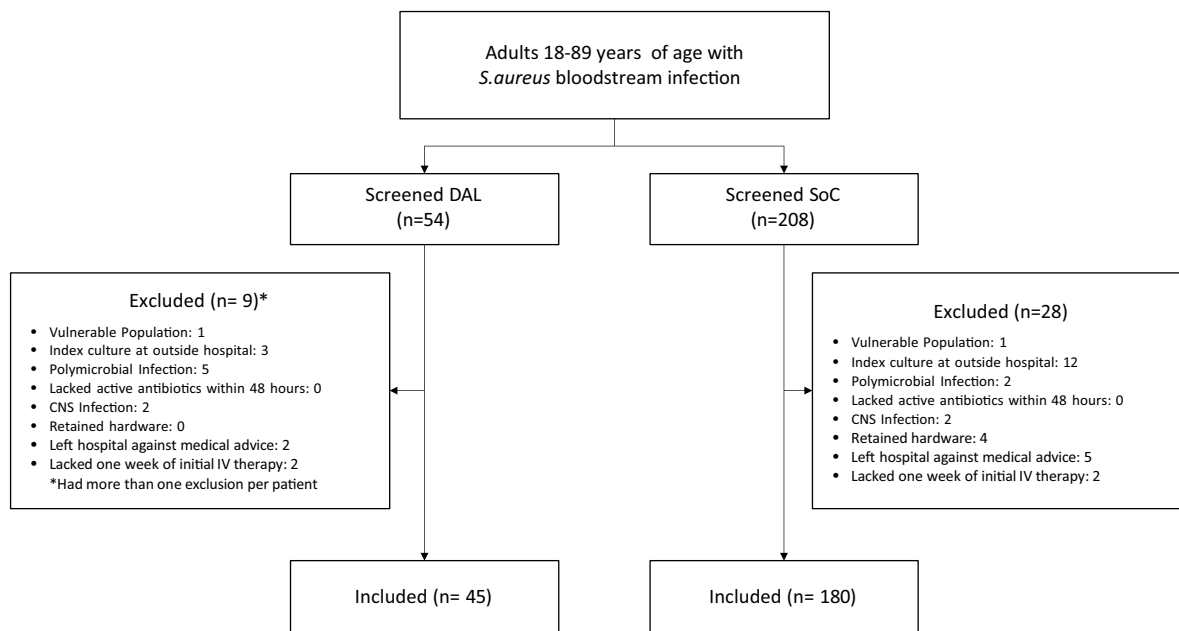


Figure 1. Patient selection diagram. Abbreviations: CNS, central nervous system; DAL, dalbavancin; IV, intravenous; SoC, standard of care.

Table 1. Baseline Demographics and Clinical Characteristics

	Overall (n = 225)	SoC (n = 180)	DAL (n = 45)	P
Age, median (IQR), y	55.8 (28.6)	57.3 (24.7)	50.8 (29.7)	.038
Female sex, No. (%)	138 (61.3)	111 (61.7)	27 (60.0)	.837
Body mass index, median (IQR), kg/m ²	26.6 (9.8)	27 (10)	25 (7.1)	.208
Race/ethnicity, No. (%)				
White	138 (61.3)	111 (61.7)	27 (60.0)	.837
Latin/Hispanic	46 (20.4)	34 (18.9)	12 (26.7)	.247
Black	33 (14.7)	28 (15.6)	5 (11.1)	.451
Asian	4 (1.8)	4 (2.2)	0 (0)	.586
Unknown	4 (1.8)	3 (1.7)	1 (2.2)	.999
Insurance, No. (%)				
Medicare	77 (34.2)	68 (37.8)	9 (20.0)	.025
Medicaid	97 (43.1)	75 (41.7)	22 (48.9)	.385
Private insurance	54 (24.0)	46 (25.6)	8 (17.8)	.275
Uninsured	15 (6.7)	7 (3.9)	8 (17.8)	<.001
Comorbidities, No. (%)				
Substance use	45 (20.0)	29 (16.1)	16 (35.6)	.004
IV drug use	27 (12.0)	16 (8.9)	11 (24.4)	.004
Diabetes	88 (39.1)	68 (37.8)	20 (44.4)	.412
Moderate–severe renal disease	31 (13.8)	28 (15.6)	3 (6.7)	.150
Moderate–severe liver disease	11 (4.9)	9 (5.0)	2 (4.4)	.999
Immunocompromise	31 (13.8)	28 (15.6)	3 (6.7)	.122
Location of BSI acquisition, No. (%)				
Community-acquired	159 (70.7)	121 (67.2)	38 (84.4)	.023
Hospital-acquired	66 (29.3)	59 (32.8)	7 (15.6)	
Charlson comorbidity index, median (IQR)	3 (3)	4 (3)	2 (3)	.018
Pitt bacteremia score, median (IQR)	1 (3)	1 (3)	1 (2)	.434
APACHE II score, median (IQR)	18 (12)	15 (7)	12 (8)	.013
ICU at index culture, No. (%)	52 (23.1)	51 (28.3)	1 (2.2)	<.001
Sites of infection, No. (%) ^a				
Skin/soft tissue	80 (35.6)	63 (35.0)	17 (37.8)	.728
Musculoskeletal	55 (24.4)	48 (26.7)	7 (15.6)	.121
Pulmonary	44 (19.6)	35 (19.4)	9 (20.0)	.933
Endocarditis	30 (13.3)	26 (14.4)	4 (8.9)	.463
Abdominal	9 (4.0)	7 (3.9)	2 (4.4)	.999
Catheter-related	28 (12.4)	24 (13.3)	4 (8.9)	.614
Urinary	10 (4.4)	6 (3.3)	4 (8.9)	.116
Other/unknown	22 (9.8)	13 (7.2)	9 (20.0)	.010
Complicated bloodstream infection, No. (%)	123 (54.7)	103 (57.2)	20 (44.4)	.124
MRSA infection, No. (%)	84 (37.3)	65 (36.1)	19 (42.4)	.448
Duration of bacteremia, median (IQR), d	3 (3)	3 (3)	2 (3)	.087
Persistent bacteremia, No. (%)	58 (25.8)	50 (27.8)	8 (17.8)	.170
Hospital length of stay, median (IQR), d	23 (15)	24 (15)	16 (11)	<.001
Discharge disposition, No. (%)				
Home with home health	25 (11.1)	22 (12.2)	3 (6.7)	.427
Home with outpatient infusions	54 (24.0)	41 (22.8)	13 (28.9)	.391
Home after completion of therapy	51 (22.7)	25 (13.9)	26 (57.8)	<.001
Home with comfort measures	5 (5.2)	5 (2.8)	0 (0)	.586
Skilled nursing facility	29 (12.9)	29 (16.1)	0 (0)	.002
Rehabilitation facility	14 (6.2)	13 (7.2)	1 (2.2)	.312
Long-term acute care	13 (5.8)	13 (7.2)	0 (0)	.076
Transfer to other hospital	12 (5.3)	11 (6.1)	1 (2.2)	.468
In-hospital death	22 (9.8)	21 (11.7)	1 (2.2)	.087

Abbreviations: BSI, bloodstream infection; DAL, dalbavancin; ICU, intensive care unit; IQR, interquartile range; IV, intravenous; MRSA, methicillin-resistant *Staphylococcus aureus*; SoC, standard of care.

^aMay have had >1 site of infection.

infection recurrence at 90 days (Table 3). AKI was numerically higher in the SoC group (23.3% vs 15.6%). All events in the DAL group occurred while patients were on SoC therapy, and none were detected after DAL administration. Further, there were no hospital-acquired infections in the DAL cohort, but 7.2% of patients in the SoC cohort developed an infection. Finally, 8.3% in the SoC cohort developed catheter-related thrombosis, while 5.6% in the DAL cohort developed thrombosis.

The application of IPTW balanced the majority of key prognostic factors, with the exception of APACHE II score, duration of bacteremia, and complicated BSI, which were included in the multivariable model (Supplementary Figure 1). In IPTW-adjusted multivariable analysis, sequential therapy with DAL (adjusted odds ratio [aOR], 0.94; 95% CI, 0.333–2.32), duration of bacteremia (aOR, 1.07; 95% CI, 0.86–1.15), and complicated BSI (aOR, 1.19; 95% CI, 0.512–2.77) were not associated with 90-day clinical failure, while APACHE II score was (aOR, 1.05; 95% CI, 1.01–1.1). Among patients discharged on antibiotics (SoC $n=93$, DAL $n=44$), rates of 90-day clinical failure were 5.4% vs 11.4% ($P=.208$), respectively. In univariate best-case analysis, 90-day clinical failure occurred in 13.3% of the DAL cohort and 26.1% of the SoC cohort, whereas in worst-case analysis it occurred in 26.7% of the DAL group compared with 16.1% of the SoC group.

DISCUSSION

Dalbavancin has been increasingly utilized for sequential therapy after initial parenteral therapy to treat serious gram-positive infections. In our study of patients with SAB BSI, DAL had a similar incidence of clinical failure at 90 days compared with SoC antibiotics after adjustment for confounders. In addition, patients in the DAL group had a significantly lower association with central line placement and a shorter hospital length of stay. Collectively, these data suggest that sequential DAL therapy after initial infection management may be an effective and convenient means of facilitating early discharge for patients with SAB.

In previous reports, DAL has been evaluated as sequential therapy for gram-positive infections originating from various sites. Tobudic et al. reported clinical success of >90% in 27 patients with endocarditis administered DAL after blood culture clearance. Common organisms were *Streptococcus* spp. ($n=7$), *S. aureus* ($n=8$), coagulase-negative staphylococci ($n=5$), and *Enterococcus* spp. ($n=4$); however, no cases of treatment of MRSA were reported [26]. Another multicenter study of 83 patients with BSI due to various gram-positive organisms reported 100% clinical cure rates [16]. Approximately 50% of patients in that study had infective endocarditis and received DAL shortly after blood culture clearance. In another study that included an SoC comparator, Veve et al. found no differences in 90-day all-cause mortality among DAL and SoC recipients

primarily treated for osteoarticular infections. Interestingly, however, this study reported decreased 90-day infection-related readmissions among DAL-treated patients [27]. Our study specifically evaluated sequential DAL treatment in a larger number of patients with SAB than previously reported and found similarly low clinical failure rates among treated patients.

The current approach to *S. aureus* requires differentiation of complication from uncomplicated disease. Among patients with complicated SAB, prolonged parenteral antibiotic courses are routinely employed. However, differentiation of complicated from uncomplicated infection is often challenging, owing to silent metastatic foci that go unrecognized on clinical exam. In the instance that uncomplicated disease can be accurately identified, evidence suggests that oral antibiotic therapy, primarily with linezolid, is associated with similar outcomes as parenteral therapy [6, 28]. However, definitive differentiation of complicated from uncomplicated disease is often not possible with standard diagnostic modalities. Alternative imaging modalities that could aid in discernment (ie, positron emission tomography) are not routinely available in most US hospitals. Clinicians are left to differentiate disease without specific diagnostics in patients with unknown origination sources and undetermined durations of bacteremia before hospitalization. Sequential DAL represents a strategy to provide continued parenteral therapy in the setting of unknown patient adherence and unknown origin, particularly when the absence of complicated disease cannot be ruled out. As a large proportion of subjects in this study had unknown sources of infection, it is possible that some subjects may have been treated as having complicated infections when shorter duration of therapies may have sufficed.

This study should be interpreted with consideration of several important limitations. First, as a single-health system observational study without random treatment assignment, this study is subject to confounding by indication. While IPTW methods reduce bias, it is possible that unmeasured confounding remains. Second, overall loss to follow-up in our study was 11.9%, and therefore the 90-day outcomes of proportion of patients in this study were unknown. Worst-case/best-case analysis, employed to demonstrate the range of potential outcomes, suggested that the primary analysis was sensitive to loss to follow-up, although the results did not statistically differ, possibly owing to lack of power. Third, this study was likely underpowered to detect small differences in outcomes owing to the overall low event rate of the primary outcome. Fourth, we did not test in vitro DAL susceptibility and instead used vancomycin as a surrogate. As such, we were unable to detect potential emergence of resistance in the 1 patient with infection relapse—a phenomenon that has been described in a few cases potentially attributed to the prolonged tail of DAL concentrations [29]. Finally, our follow-up duration was 90 days, which could be too short to detect differences in failure rates for some musculoskeletal infections.

Table 2. Infection Management Characteristics

	Overall (n = 225)	SoC (n = 180)	DAL (n = 45)	P
Specialty consultation, No. (%)				
Infectious diseases	217 (96.4)	172 (95.6)	45 (100)	.150
Addiction medicine	24 (10.7)	14 (7.8)	10 (22.2)	.005
Cardiothoracic surgery	26 (11.6)	23 (12.8)	3 (6.7)	.308
Source control pursued, No. (%)				
Antistaphylococcal therapy, ^a No. (%)				
Vancomycin	218 (96.9)	174 (36.7)	44 (97.8)	.701
Cefazolin	131 (58.2)	105 (58.3)	26 (57.8)	.946
Nafcillin	19 (8.4)	16 (8.9)	3 (6.7)	.772
Daptomycin	54 (24.0)	42 (23.3)	12 (26.7)	.640
Ceftaroline	21 (9.3)	18 (10.0)	3 (6.7)	.774
Linezolid	25 (11.1)	20 (11.1)	5 (11.1)	.999
Adjunctive therapies, No. (%)				
Rifampin	15 (6.7)	14 (7.8)	1 (2.2)	.181
Gentamicin	3 (1.3)	3 (1.7)	0 (0.0)	.999
Duration of IV antibiotics, median (IQR), d				
Time from index culture to DAL, median (IQR), d	...	...	15 (12)	-
No. of DAL doses, No. (%)				
1	...	...	37 (82.2)	-
2	...	...	8 (17.8)	-
Location of DAL administration,^b No. (%)				
Inpatient	...	...	33 (62.3)	-
Outpatient	...	...	20 (37.7)	-
Central line placement, No. (%)	111 (49.3)	103 (57.2)	8 (17.8)	<.001

Abbreviations: DAL, dalbavancin; IQR, interquartile range; IV, intravenous; SoC, standard of care.

^aPatients may have received >1 antistaphylococcal antibiotic during the course of therapy.

^bPercentage of total 53 doses administered.

CONCLUSIONS

The findings of this study add to mounting evidence that sequential DAL may be associated with similar clinical outcomes as SoC therapies in a selected group of patients with initial IV therapy. Additional prospective clinical trials are needed to establish the role of DAL in serious gram-positive infections, including *S. aureus* BSI.

Supplementary Data

Supplementary materials are available at *Open Forum Infectious Diseases* online. Consisting of data provided by the authors to benefit the reader, the posted materials are not copyedited and are the sole responsibility of the authors, so questions or comments should be addressed to the corresponding author.

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Potential conflicts of interest. M.A.M. has been on the speakers' bureau for AbbVie. M.K. has received dalbavancin from AbbVie for an unfunded investigator-initiated clinical trial. All other authors report no potential conflicts. All authors have submitted the ICMJE Form for Disclosure of

Table 3. Unadjusted Effectiveness and Safety Outcomes

	Overall (n = 225)	SoC (n = 180)	DAL (n = 45)	P
Clinical failure within 90 d	39 (17.3)	33 (18.3)	6 (13.3)	.428
All-cause mortality	36 (16.0)	31 (17.2)	5 (11.1)	.317
Infection recurrence	3 (1.3)	2 (1.1)	1 (2.2)	.490
Hospital readmission within 90 d	59 (26.2)	48 (26.7)	11 (24.4)	.762
Acute kidney injury, No. (%)				
KDIGO stage 1	22 (44.9)	18 (42.9)	22 (44.9)	
KDIGO stage 2	16 (32.7)	14 (33.3)	16 (32.7)	
KDIGO stage 3	11 (22.4)	10 (23.8)	11 (22.4)	
Catheter-related thrombosis,^a No. (%)				
Hospital-acquired infections, ^b No. (%)	13 (5.8)	13 (7.2)	0 (0.0)	.063
<i>Clostridioides difficile</i> infection	3 (1.3)	3 (1.7)	0 (0.0)	
Catheter-related infection	1 (0.4)	1 (0.6)	0 (0.0)	
Catheter-associated UTI	1 (0.4)	1 (0.6)	0 (0.0)	
Hospital-acquired pneumonia	6 (2.7)	6 (3.3)	0 (0.0)	
Ventilator-associated event	3 (1.3)	3 (1.7)	0 (0.0)	

Abbreviations: DAL, dalbavancin; KDIGO, Kidney Disease: Improving Global Outcomes; SoC, standard of care; UTI, urinary tract infection.

^aAmong patients with a new central catheter placed for continued antibiotics.

^bNo surgical site infections were present in either cohort.

Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

Patient consent. The design of this work has been approved by the Colorado Multiple Institutional Review Board with a waiver of informed consent.

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