MSHP Abstract

Poster Type: Original Research

Title: Assessment of Potential Cost Avoidance with Dalbavancin in Emergency Department Use

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Purpose: Dalbavancin is a lipoglycopeptide antibiotic indicated for acute bacterial skin and skin-structure infections (ABSSSI). It is a 1500 mg one-time, 30-minute infusion with a long duration of action of about 8 days. The most common causes of ABSSSI are gram positive bacteria streptococcus and staphylococcus including methicillin-resistant *Staphylococcus aureus* (MRSA). Current standard of care for less severe ABSSSI include oral outpatient antibiotics and for more severe infections, patients require hospital admission for anti-MRSA antibiotics like vancomycin or daptomycin. Dalbavancin offers a potential alternative to current inpatient standard of care while avoiding admission. Several studies in the inpatient setting have indicated cost savings and similar efficacy with dalbavancin administration at discharge compared to standard care, showing the impact on length of stay to be on average a 4-day reduction. Admission avoidance of dalbavancin emergency department (ED) administration has not previously been well documented. The purpose of this study is to determine the number of admitted patients with ABSSSI seen in the ED who met criteria for dalbavancin use.

Methods: In this descriptive, single center, retrospective chart review, adults (≥18 years) with ABSSSI (determined by diagnosis-related group 602 and 603) who were admitted through the ED between March 1, 2019 and March 1, 2020 would have potentially met criteria to receive dalbavancin, preventing admission. Eligibility criteria for use included patients who were 18 years of age or older being treated for ABSSSI empirically for gram-positive bacteria presumed susceptible to dalbavancin. Exclusion criteria included pregnancy, hypersensitivity to glycopeptide antibiotics, hemodialysis, hepatic insufficiency (Child-Pugh score B/C), oral outpatient antibiotic candidates, and patients who met all eligibility criteria to receive dalbavancin but would still have required admission for another indication. The primary outcome of the study was to determine how many patients would have met criteria to be treated with dalbavancin in the ED. Secondary outcomes include a comparison of patient arrival time in the ED to pharmacist availability as well as cost avoidance measures (length of stay, hospital cost, and adverse drug events) for patients who met dalbavancin treatment criteria. No true cost comparator group exists for this study. Therefore, a power calculation was not performed, however a one-year time frame and a patient population of at least 200 was chosen based on previous studies from hospitals of similar size and ER volume. A daily admission cost of $1600 was chosen based on previous study data from hospitals of similar size and ER volume as well as data from the Kaiser State Health Facts report. A comparison of baseline characteristics between eligible and ineligible patients was analyzed using a paired student t-test.

Results: A total of 357 patients were evaluated for dalbavancin eligibility, 272 (76%) were excluded due to admission for another indication. Of those, 103 (38%) had a concurrent illness, 92 (34%) had signs of a systemic infection, and 73 (27%) needed gram negative coverage. Other exclusions included: hemodialysis (3%), and hypersensitivity to glycopeptide (1%). For the primary outcome only 85 (24%) of patients were eligible to receive dalbavancin. A potential total of 318 admission days could have been

avoided, had eligible patients received dalbavancin, leading to a gross estimated cost avoidance of $508,800. Of the eligible patients only 47 (55%) arrived while an ED pharmacist was present. No statistically significant baseline characteristics or adverse events were found when comparing the eligible and ineligible patient groups.

Conclusion: The potential use of dalbavancin in the emergency department is both an efficacious and cost-effective way to treat ABSSSI. Study weaknesses include the lack of a true comparator group as well as the limitations of physician charting, including incomplete documentation of initial presentation, due to retrospective nature. With such are large percentage of potential patients excluded from use (76%) and difficulty determining eligibility, the implementation of a multi-disciplinary dalbavancin screening tool would aid in determining potential dalbavancin candidates.