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1062. Daptomycin/Ceftaroline in Combination vs. Vancomycin for the Treatment of Methicillin-Resistant *Staphylococcus aureus* Bacteremia

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Background. Vancomycin has historically been the mainstay of therapy for MRSA bacteremia, but severe infections due to vancomycin-intermediate *Staphylococcus aureus* have emerged. In vitro studies have shown that the combination of a β-lactam antibiotic, such as ceftaroline with daptomycin, was synergistic against MRSA. The purpose of this study was to compare outcomes in patients who received daptomycin and ceftaroline in combination vs. vancomycin for the treatment of MRSA bacteremia.

Methods. This was a retrospective exploratory cohort study approved by the institutional review board at Cooper University Hospital. Patients were included if they received daptomycin/ceftaroline (cases) or vancomycin (controls) for the treatment of MRSA bacteremia between November 2010 and March 2017. Cases were matched 1:1 with controls based on source of MRSA bacteremia, age within 10 years, and renal function. The primary endpoint was clinical cure, defined as the improvement of signs and symptoms of bacteremia. Secondary endpoints included microbiologic cure, time to sterilization of blood cultures, duration of hospital stay, overall mortality, and MRSA-related mortality.

Results. Forty-one cases were included. There was no statistical difference between the two groups in microbiologic cure, time to sterilization of blood cultures, overall mortality, or MRSA-related mortality. There were no significant differences between patients in each group including in those with ICU admissions and who required vasopressors. Cases were significantly more likely to have hardware compared with the control group (43.9% vs. 12.2%; $P = 0.0014$). Clinical cure was achieved in 27 patients (65.9%) in the case group and 26 patients (63.4%) in the control group ($P = 0.8173$). Patients in the case group had a statistically longer mean hospital duration (29 days vs. 21 days, respectively, $P = 0.0206$) and more secondary complications such as bone infection ($P = 0.0076$).

Conclusion. Time to sterilization of blood cultures and overall mortality were similar in both groups. Patients in the combination group had longer hospital stays compared with vancomycin monotherapy. Daptomycin/ceftaroline combination therapy is an option for complicated MRSA bacteremia. Larger studies should be conducted to further evaluate this combination.

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1063. Impact of Rapid Organism Identification and a Standardized Algorithm on Antimicrobial Therapy in Patients With Bacteremia

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Background. Bloodstream infection is associated with 12% to 32% mortality. The FilmArray® BCID panel is a multiplex polymerase chain reaction assay (PCR) that can rapidly identify the most common bacterial pathogens in the blood and three antimicrobial resistance genes. In April 2015, Abbott Northwestern Hospital (ANW) implemented the multiplex PCR panel and a pharmacist-driven process to assist with antibiotic tailoring. In August 2017, a standardized algorithm was approved providing first-line and second-line antimicrobial options for each microbial pathogen included in the multiplex PCR panel. The objective of this study was to compare the time from the multiplex PCR panel result to *final* appropriate antibiotic therapy (as defined by the standardized algorithm or when clinical decision was indicated) between pre- and post-algorithm implementation in hospitalized patients with bacteremia.

Methods. Retrospective chart review was performed in 93 randomly selected adult patients with ≥1 positive blood culture in November 2016–February 2017 (pre-algorithm) vs. 93 patients in November 2017–February 2018 (post-algorithm) at ANW.

Results. The two groups did not differ significantly in terms of age (average ~60 years), sex (45% female), intensive care unit admission on day 1 of bacteremia (~41%), infectious diseases (ID) consult within 72 hours of bacteremia (average 72%), bacteremia source, or etiologic bacteria. The median time to final appropriate antibiotic therapy in response to the multiplex PCR result was 19 hours (interquartile range, IQR 4–38 hours) pre-algorithm and 18 hours (IQR 4–31 hours) post-algorithm ($P = 0.34$).

Conclusion. The median time from the multiplex PCR result to *final* appropriate antibiotic therapy was ~19 hours pre- and post-algorithm. Previous studies showed a median of 21 hours to *first* appropriate de-escalation. Therefore, ANW performs very well in de-escalating antimicrobial therapy promptly. However, most of the rapidity in antibiotic change was driven by ID providers, who treated >70% of patients. Opportunities for improvement exist for non-ID providers in tailoring antimicrobial therapy and for pharmacists in engaging and providing recommendations in a timely manner.

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1064. Clinical Outcomes of Daptomycin in Combination With Ceftaroline or Anti-Staphylococcal Penicillins for Patients With Persistent MRSA Bacteremia

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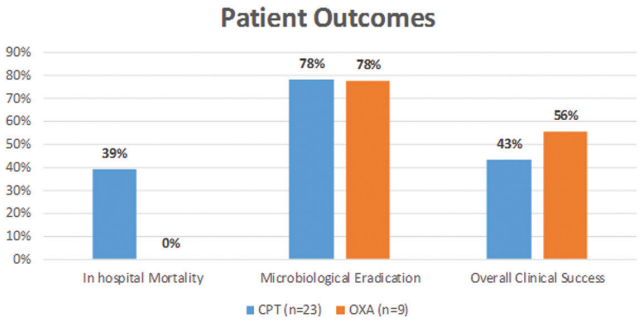
Background. Daptomycin-β-lactam (DAP-BL) combinations demonstrate in vitro synergy against MRSA; however, the clinical efficacy of combo is limited. Our objective was to compare the outcomes of patients with persistent MRSA bacteremia treated with DAP-BL combinations.

Methods. Retrospective, cohort study of hospitalized patients receiving DAP with ceftaroline (CPT) or oxacillin (OXA) between March 2012 and February 2018. Patients with persistent MRSA bacteremia despite ≥4 days of vancomycin therapy were included. Clinical success was defined as resolution of signs and symptoms of infection, microbiological eradication and in hospital survival.

Results. Thirty-two patients included. Forty-four percent were male, median age was 61 (range: 26–78), and the median Charlson score was 2 (range: 0–11). Sixteen percent were IVDU. Sources of bacteremia included endocarditis (31%), bone/joint (31%), skin soft tissue (28%), and catheter (25%); 53% had more than one source. At the onset of combo therapy, median Pitt Bacteremia score was 1 (0–7). ID was consulted in all patients. Twenty-three and nine patients received DAP in combo with CPT or OXA, respectively. Baseline demographics, underlying disease, and clinical characteristics were comparable between groups. Patients receiving DAP-CPT had higher median Pitt Bacteremia scores (2 vs. 1; $P = 0.04$) and shorter median durations of prior vancomycin (8 vs. 10 days; $P = 0.02$) than did patients receiving DAP-OXA. Source control was pursued equally between groups. Median time to clearance of bacteremia following combo therapy was 3 (0–24) vs. 2 (−1–16) days in the DAP-CPT and DAP-OXA groups, respectively ($P = 0.45$). Corresponding rates of clinical success (43% vs. 56%) and microbiologic eradication (78% for both) did not vary between groups (figure). In hospital mortality occurred in 39% of patients receiving DAP-CPT and 0% of patients receiving DAP-OXA ($P = 0.03$). Adverse events occurred in 35% and 44% of patients, respectively.

Conclusion. We have demonstrated high rates of microbiologic eradication and reasonable clinical success rates with DAP-BL combination therapy. Patients receiving DAP-CPT had higher severity of illness at baseline, which paralleled with higher mortality. These data provide compelling evidence for future studies designed to determine the optimal BL in combination with DAP for persistent MRSA bacteremia.



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1065. Evaluation of a *Staphylococcus aureus* Bacteremia Treatment Checklist

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Background. *Staphylococcus aureus* bacteremia (SAB) is associated with high morbidity and mortality. Appropriate management involves repeat blood cultures, echocardiography, drug selection/route, and duration of therapy. Multiple studies have demonstrated improved outcomes in patients who are managed by infectious disease (ID) physicians compared with non-ID physicians; however, not all sites have access to an ID provider. To improve management of SAB, a checklist was developed and approved for use in a large healthcare system in August 2015.