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Session: 84. Novel Insights into Bacteremia and Endocarditis
Thursday, October 3, 2019: 2:30 PM

Background. MSSA is a leading cause of bloodstream infection (BSI) and its incidence is on the rise. Standard of care (SOC) is prolonged parenteral therapy with nafcillin, oxacillin, or cefazolin. Ceftriaxone is active against MSSA and can be given conveniently as a daily infusion.

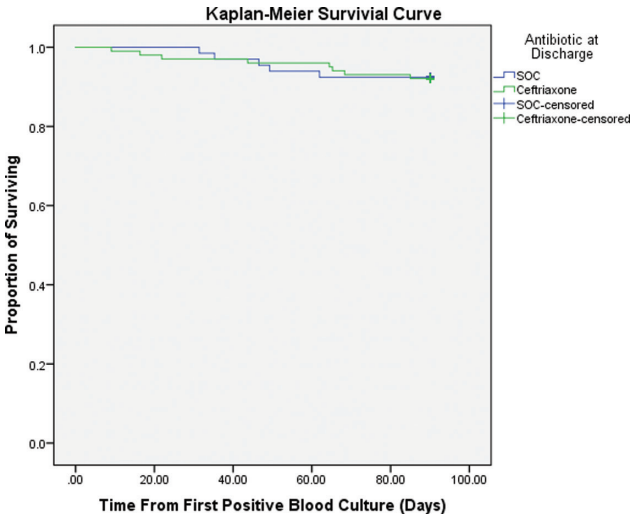
Methods. We conducted a retrospective analysis of hospitalized adults with MSSA BSI from December 2014 to May 2018, defined as ≥1 blood cultures positive for MSSA and discharged on outpatient parenteral antimicrobial therapy (OPAT) on either ceftriaxone, cefazolin, or oxacillin. We excluded patients with ESRD and polymicrobial infections. We collected demographics, comorbidities, outcome data, and treatment-related adverse events. The primary outcome was 90-day mortality with secondary outcomes of clinical failure and microbiologic failure. Clinical failure was defined as readmission for any infection within 90 days of discharge or a change in antibiotics from the planned course of therapy after discharge. Microbiologic failure was defined as reinfection with MSSA within 90 days of discharge from any site.

Results. In total, 167 patients had a BSI with MSSA. Of those patients, 66 (39.5%) were discharged on SOC and 101 (60.5%) on ceftriaxone. The two groups were similar in terms of their demographics (Table 1). The SOC group had more cases of endocarditis with 34 (51.5%) than ceftriaxone with 25 (24.8%) (P = 0.001). LOS for the SOC group had a median of 14.05 days whereas the ceftriaxone group had a median length of stay of 7.88 (P = 0.004). In the SOC group, 5 (7.6%) patients died compared with 8 (7.9%) patients in the ceftriaxone group within 90 days of the onset of bacteremia which was not statistically significant (P = 0.94) (Figure 1). There were 4 (6.1%) cases of microbiologic failure in SOC and 7 (6.9%) cases in the ceftriaxone group (P = 0.83). For clinical failures, the SOC had 6 (9.1%) cases compared with the 19 (18.8%) cases in the ceftriaxone group (P = 0.13).

Conclusion. Ceftriaxone was not statistically different when compared with SOC in terms of mortality, microbiologic failure, or clinical failure. Though clinical failures numerically were more frequent in the ceftriaxone group. Ceftriaxone maybe a reasonable and convenient option to SOC for patients with uncomplicated MSSA BSI discharged on OPAT, but further studies are needed.

Table 1

Demographics	Ceftriaxone (n=101) (%)	SOC (n=66) (%)	p-value
Median age on admission (IQR), years	61.0 (48.0, 71.3)	57.0 (42.7, 68.3)	0.122
Male sex	64 (63.4)	48 (72.7)	0.208
Race			0.835
Caucasian	77 (76.2)	51 (77.3)	-
African American	21 (20.8)	14 (21.2)	-
Other	3 (3.0)	1 (1.5)	-
LOS (IQR), days	7.9 (5.8, 14.5)	14.1 (8.7, 19.6)	0.001
Elixhauser comorbidity Index (95% CI)	4.3 (3.6 - 5.0)	4.2 (3.3 - 5.2)	0.754
ICU stay	28 (27.7)	33 (50.0)	0.003
Bacteremia > 72h	23 (22.8)	18 (27.3)	0.509
Insurance			0.163
Private	42 (41.6)	28 (42.4)	-
Government	50 (49.5)	26 (39.4)	-
None	9 (8.9)	12 (18.2)	-



Disclosures. **All Authors:** No reported Disclosures.

851. Validation of Quick Pitt Bacteremia Score in Patients with Staphylococcus aureus Bloodstream Infection

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Background. A quick version of the Pitt Bacteremia Score (qPitt) was recently derived based on five binary variables each assigned one point (Table 1). The qPitt broadened respiratory failure definition, simplified mental status, and eliminated fever from the original Pitt bacteremia score. The qPitt had high discrimination in predicting mortality in patients with Gram-negative bloodstream infection (BSI) and outperformed other acute severity of illness scores. This retrospective cohort study aims to evaluate the qPitt performance in patients with *Staphylococcus aureus* BSI and compare its discrimination to quick Sepsis Related Organ Failure Assessment (qSOFA).

Methods. Hospitalized adult patients with *S. aureus* BSI at Prisma Health-Midlands hospitals in South Carolina from January 1, 2015 to December 31, 2017 were identified. Multivariate logistic regression was used to examine risk factors for 28-day all-cause mortality. The area under receiver operating characteristic curve (AUROC) was used to evaluate discrimination of qPitt and qSOFA in predicting 28-day mortality (primary outcome). In-hospital and 90-day mortality were examined as secondary outcomes.

Results. Among the 398 patients with *S. aureus* BSI, the median age was 63 years, 241 (61%) were men, 173 (43%) had methicillin-resistant *S. aureus* (MRSA) BSI, and 95 (24%) died within 28 days of BSI. After adjustments for age, clinical and microbiological characteristics in the multivariate model, all five individual components of qPitt were independently associated with 28-day mortality (Table 1). There was a 3-fold increase in 28-day mortality for each point increase in qPitt (odds ratio 3.11, 95% confidence intervals: 2.40–4.02, P < 0.001). Mortality was 2% in patients with qPitt of 0 and increased to 14%, 24%, 50%, and 82% in patients with qPitt of 1, 2, 3, and ≥4, respectively. The qPitt had higher discrimination in predicting 28-day mortality than qSOFA (AUROC 0.82 vs. 0.77, P = 0.001). The qPitt also performed well in predicting in-hospital and 90-day mortality (AUROC 0.80 and 0.76, respectively).

Conclusion. The qPitt has good discrimination in predicting mortality in patients with *S. aureus* BSI. These results support using the qPitt as an acute severity of illness score in future studies.

Table 1: Independent risk factors for mortality following *Staphylococcus aureus* bloodstream infection

Quick Pitt bacteremia score variables	OR (95% CI)	P-value
Temperature <36° C	3.14 (1.45-6.79)	0.004
Systolic blood pressure <90 mmHg or vasopressor use	2.95 (1.58-5.51)	<0.001
Respiratory rate ≥25 breaths/minute or need for mechanical ventilation	2.60 (1.35-4.98)	0.004
Cardiac arrest	9.15 (2.36-35.43)	0.001
Altered mental status	2.78 (1.56-4.96)	<0.001

*OR: odds ratio; CI: confidence intervals

Disclosures. **All Authors:** No reported Disclosures.

852. The Cefazolin Inoculum Effect and Methicillin-Susceptible Staphylococcus aureus Osteoarticular Infections in Children: Does It Matter?

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Background. Select methicillin-susceptible *Staphylococcus aureus* (MSSA) strains may produce β-lactamases with an affinity for first-generation cephalosporins (1GC). In the setting of a high inoculum, these β-lactamases may promote clinically meaningful cleavage of 1GCs, potentially resulting in antibiotic failure, a phenomenon known as the cefazolin inoculum effect (CIE). Acute hematogenous osteoarticular infections (AHOAIs, including osteomyelitis and septic arthritis) are the most common manifestation of invasive *S. aureus* infection in children. We evaluated the prevalence and potential impact of CIE among MSSA AHOAI isolates at two children's hospitals.

Methods. MSSA AHOAI isolates were obtained through surveillance studies at Texas Children's and St. Louis Children's Hospitals from January 2011 to December 2018. Isolates were tested for CIE via a macrobroth dilution assay with an inoculum of