Assessment of Appropriate Treatment of *Staphylococcus aureus* Bacteremia

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BACKGROUND

- *Staphylococcus aureus* bacteremia (SAB) increases rates of morbidity and mortality and requires rapid and appropriate antimicrobial selection to resolve symptoms and remove the infection
- Treatment of choice is a β-lactam or vancomycin for MSSA and MRSA bacteremia, respectively
- Uncomplicated SAB:
  - Short-course treatment with systemic antibiotics for 14 days
  - Long-course treatment for 28 days is preferred to eliminate potential for complications and relapse
- Complicated SAB:
  - Long-course treatment is recommended at ≥ 4 weeks

OBJECTIVE

- To assess appropriate treatment of SAB (by antibiotic selection and duration of therapy) and to determine if targeted therapy, relapse or SAB-related readmission, length of stay, and mortality rates were affected by the presence of an Infectious Disease (ID) consultation
  - Primary Outcome
    - Percentage of patients treated appropriately for SAB (by antibiotic selection and duration of therapy)
  - Secondary Outcomes
    - Antimicrobial stewardship interventions
    - Timing of ID consults
    - Difference in outcomes due to presence of an ID consult
      - Appropriate targeted therapy
      - Recurrence or SAB-related readmission, length of stay, and mortality rate

METHODS

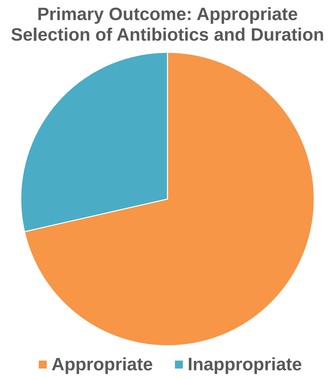
- A retrospective chart review was conducted by Wellstar hospital system in the greater Atlanta area from January 1 to June 30 in 2017
- Patients were identified from microbiology reports of positive blood cultures with *S.aureus*
- Information collected includes baseline characteristics, selection and duration of antibiotic therapy, presence of ID consultations, and follow up reports of complications post therapy
- Patient Population
  - Inclusion criteria
    - ≥ 18 yrs of age
    - *S. aureus* isolated from one or more blood cultures
  - Exclusion criteria
    - Antibiotic susceptibilities unavailable prior to death
    - Care withdrawn prior to therapy being selected or targeted therapy completed
- Statistical analysis: descriptive analysis

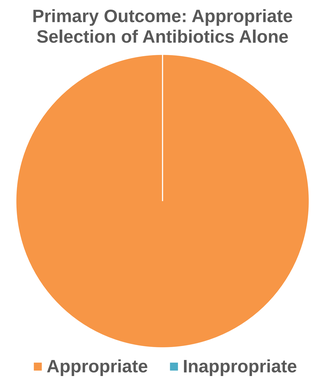
RESULTS

- Eight patients at Wellstar North Fulton hospital presented with *S. aureus* bacteremia during January, 2017 to June, 2017
- One patient was excluded as care was withdrawn prior to the completion of targeted therapy

Primary Outcome:

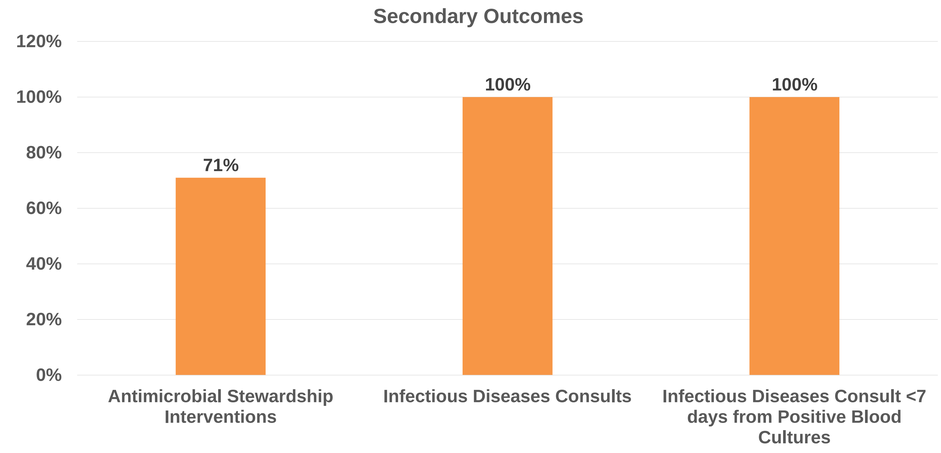
- Percentage of patients treated appropriately for SAB based on:
  - Antibiotic selection: 7 out of 7 patients
  - Duration of therapy: 5 out of 7 patients





Secondary Outcomes:

- Antimicrobial Stewardship Interventions: 5 out of 7 patients had documented interventions that were accepted
- Timing of ID Consultations: 4 out of 7 patients had an ID consult placed on the first day. ID was consulted on days 2, 3, or 5 for the remaining patients



DISCUSSION

- Complete data collection and analysis at all Wellstar facilities pending
- At Wellstar North Fulton hospital, primary outcome of appropriate treatment of SAB based on appropriate antibiotic selection and appropriate duration of therapy was met in 71% (5 out of 7) patients
  - However, one patient expired prior to the completion of therapy. Primary outcome was met in 83% (5 out of 6) patients if excluding that patient.
  - One patient who qualified for long-course treatment received only a short course
- Vancomycin was the most common agent used for MRSA bacteremia. Alternatives included daptomycin, ceftaroline, and linezolid based on concurrent infections
- Vancomycin was started initially for the MSSA patients but later changed to ceftriaxone or nafcillin upon confirmation of MSSA. Some patients also received piperacillin/tazobactam or meropenem for MSSA for concurrent Gram-negative and anaerobic coverage
- Difference in outcomes due to the presence of ID consultation was difficult to assess in this small subset of patients.
  - Upon completion of data collection/assessment at all facilities, these outcomes will be evaluated

CONCLUSION

- *S.aureus* bacteremia was treated appropriately in majority of patients when reviewing selection of antibiotics and duration of treatment. Practitioners will be educated to re-emphasize longer treatment durations for patients with diabetes, evidence of immunosuppression, metastatic infection, endocarditis, prosthetic or intravascular devices, and lack of improvement within 72 hours of antibiotic treatment.

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DISCLOSURES

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