Management of *Staphylococcus aureus* Bacteremia in Adults

**Staphylococcus aureus Bacteremia (SAB)**

- **Cefazolin** 2g every 8h or 6 g continuous infusion

**MSSA**

- Obtain surveillance blood cultures until negative
- Identify source and drain/remove if able
- Echocardiogram to rule out endocarditis (TEE preferred)

**MRSA**

- Vancomycin 15 mg/kg every 8-12h

**Complicated or Uncomplicated bacteremia?**

**Uncomplicated**

- Exclusion of endocarditis (by TEE)
- No implanted prosthesis
- Clearance of bacteremia in 2-4 days
- Defervesence with 72 hrs of effective tx
- No evidence of metastatic infection

**DURATION**

AT LEAST 2 WEEKS OF IV THERAPY

**Complicated**

- Does not meet uncomplicated criteria

**DURATION**

4-6 WEEKS OF IV THERAPY

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MSSA = methicillin susceptible *S. aureus*
MRSA = methicillin resistant *S. aureus*
TEE = transthoracic echocardiogram
TEE = transesophageal echocardiogram
CI = continuous infusion

1 Both cefazolin and vancomycin must be renally adjusted; vancomycin trough level 30 min prior to 4th dose, goal trough 15-20 mcg/mL
2 UHS Antibiotic Subcommittee advises that a single blood culture may be ordered every other day starting on day 4 after the initial positive blood culture
3 TEE recommended for pts with prosthetic valves, rated “possible IE” by clinical criteria, or complicated IE (paravalvular abscess); “Possible IE” as defined by modified Duke criteria is either 1 major + 1 minor criterion OR 3 minor criteria
4 Duration dependent on extent of disease; osteomyelitis may require up to 8 weeks of treatment
RATIONALE FOR RECOMMENDATIONS

**Staphylococcus aureus** bacteremia (SAB) mortality ranges from 20%-40%. Importantly, some aspects of clinical management have been associated with better outcomes:

- Early ID consult highly recommended
  - Management of SAB by Infectious Disease specialists has demonstrated higher cure rates, fewer relapses and decreased mortality in patients with SAB.

- Beta-lactam therapy preferred over vancomycin for Methicillin susceptible **Staphylococcus aureus** (MSSA) bacteremia
  - Both nafcillin and cefazolin have demonstrated superior outcomes including fewer treatment failures and decreased mortality over vancomycin in patients with MSSA bacteremia.
  - Cefazolin has demonstrated similar efficacy and decreased toxicity compared to the anti-Staphylococcal penicillins (ie, oxacillin/nafcillin).

- TEE is preferred over TTE to rule out endocarditis
  - TEE is preferred in adults with SAB because of its superiority, compared with TTE, for the detection of vegetations and identification of complications, such as intracardiac abscess and valvular perforation.
  - TEE recommended for patients with prosthetic valves, those rated at least “possible infective endocarditis (IE)” by clinical criteria, or complicated IE (paravalvular abscess).
  - Possible IE by clinical criteria as defined by modified Duke criteria is either 1 major and 1 minor criterion OR 3 minor criteria.

- Parenteral antibiotics for entire course of therapy
  - Whether the entire course must be given parenterally is unknown.
  - In the absence of additional studies among patients with SAB, transition from parenteral to oral therapy should be done cautiously and only in those with uncomplicated bacteremia and/or those with a compelling indication against parenteral therapy.

- Duration of treatment for uncomplicated SAB vs complicated SAB
  - Patients meeting the definition of complicated SAB who receive “short course” therapy (ie, 2 weeks), are at higher risk for relapse and metastatic complications to include, but not limited to, infective endocarditis, septic arthritis, or vertebral osteomyelitis.
  - Patients meeting the definition of uncomplicated SAB who receive < 2 weeks of therapy are at higher risk for relapse.

References: