

Management of *Staphylococcus aureus* Bacteremia in Adults

Staphylococcus aureus Bacteremia (SAB)

MSSA

MRSA

Cefazolin 2g every 8h or 6g continuous infusion¹

Vancomycin 15 mg/kg every 8-12h¹

Early ID consult highly recommended

- Obtain surveillance blood cultures until negative²
- Identify source and drain/remove if able
- Echocardiogram to r/o endocarditis (TEE preferred)³

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

¹ Both cefazolin and vancomycin must be renally adjusted; vanc 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

Complicated or Uncomplicated bacteremia?

Uncomplicated

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

Complicated

- Does not meet uncomplicated criteria

DURATION
 AT LEAST 2 WEEKS
 OF IV THERAPY

DURATION
 4-6 WEEKS OF IV
 THERAPY⁴

RATIONALE FOR RECOMMENDATIONS

***Staphylococcus aureus* bacteremia (SAB) mortality ranges from 20%-40%.¹ 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 SAB²⁻⁵
- **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 bacteremia⁶⁻⁹
 - Cefazolin has demonstrated similar efficacy and decreased toxicity compared to the anti-Staphylococcal penicillins (ie, oxacillin/nafcillin)¹⁰⁻¹²
- **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 perforation¹³⁻¹⁴
 - TEE recommended for patients with prosthetic valves, those rated at least “possible infective endocarditis (IE)” by clinical criteria, or complicated IE (paravalvular abscess)¹⁴
 - Possible IE by clinical criteria as defined by modified Duke criteria is either 1 major and 1 minor criterion OR 3 minor criteria¹⁴
- **Parenteral antibiotics for entire course of therapy**
 - Whether the entire course must be given parenterally is unknown
 - Very limited data for the oral treatment of this serious infection exists (mortality rate 20%-40%)¹
 - 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 therapy¹³
- **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^{13,15-18}
 - Patients meeting the definition of uncomplicated SAB who receive < 2 weeks of therapy are at higher risk for relapse^{15,18}

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