

Compliance with Guidelines for Management of *Staphylococcus aureus* Bacteremia and its Effect on Mortality

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BACKGROUND

The incidence of *Staphylococcus aureus* bacteremia (SAB) is estimated at 19.7 cases/100000 people. Data reveals that overall the number of MSSA cases are declining, while MRSA cases are increasing. The Infectious Diseases Society of America provides guidelines regarding the management of SAB. An important consideration is the classification of SAB infection as uncomplicated or complicated. This important delineation is based on information such as source of infection, results of repeat blood cultures preformed within 48 to 72 hours, duration of fever and the presence or absence of prosthetic devices. Additionally evaluation of possible metastatic infection such as endocarditis needs to be undertaken as this impacts the course of therapy.

RATIONALE

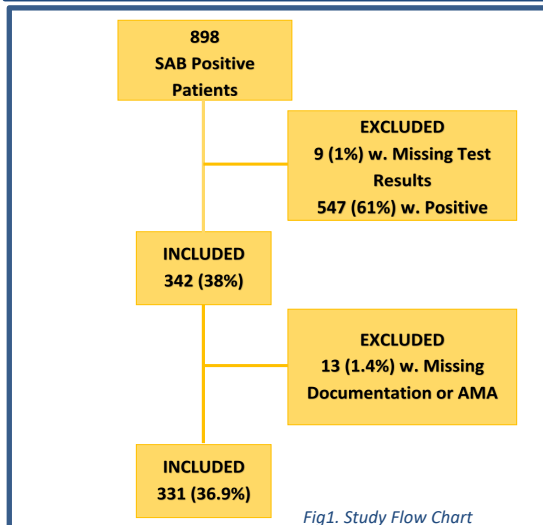
Determine if an infectious diseases consultation results in greater compliance with IDSA guidelines for managing *Staphylococcus aureus* bacteremia

METHODS

Design: Retrospective cohort study of Patients admitted to two community hospitals from 01-01- 2014 to 06-30 2016 with a positive blood culture for methicillin-sensitive *Staphylococcus aureus* (MSSA), methicillin-resistant *Staphylococcus aureus* (MRSA), or coagulase-negative *Staphylococcus* (CoNS).

Inclusion Criteria: 18+ years old, Inpatient or observation class
Exclusion Criteria: Polymicrobial blood stream infection at time of initial blood culture, in another study, Immunocompromised patients : HIV positive with a CD4+ count of <100 cells/ μ L or neutropenia (absolute neutrophil count <500 cells/ μ L), died within first 48 hours of admission, leave AMA during treatment.

RESULTS



- Complicated SAB resulted more often in ID consult than uncomplicated SAB. An ID consult was associated with increased compliance with IDSA guidelines. (table1)
- Patients with an ID consult had a significantly higher duration of antibiotic treatment, an earlier start of treatment, and a lower mortality within 90 days of blood culture
- An ID consult reduced 90-day mortality by 69%, OR 0.313[CI 95 % (0.313-0.154), p=0.001] and transesophageal echography by 78%, OR 0.228[CI 95 % (0.228-0.052), p=0.05].

RESULTS

Table 1: Population Characteristics and Patient Outcomes

	Compliance w. SAB Guidelines N = 205	Non-Compliance w. SAB Guidelines N = 126	P-value
Patient Characteristics			
Age, Years Med.(IQR)	61 (45 -74)	64 (52.5 - 81)	0.205
Female, %(N)	38% (77)	39% (49)	0.809
Hemodialysis at the Time of Blood Culture, %(N)	11% (22)	7% (9)	0.187
Implanted Prosthesis or Device, %(N)	19% (39)	19% (24)	0.552
IV Drug User	19.5% (40)	9.5% (12)	0.036
Bacteremia Results			
Uncomplicated <i>Staphylococcus aureus</i> Bacteremia, %(N)	39% (80)	59.5% (75)	<0.0001
Complicated <i>Staphylococcus aureus</i> Bacteremia, %(N)	61% (125)	38% (50)	<0.0001
MRSA, %(N)	52% (107)	56% (71)	0.464
MSSA, %(N)	48% (99)	44% (55)	0.411
Procedures			
Infectious Diseases Consult within 7 Days of Culture, %(N)	98.5% (202)	52% (66)	<0.0001
Repeat Blood Cultures Within 2-4 Days of Culture, %(N)	98% (200)	56% (70)	<0.0001
Echocardiogram within 10 Days of Culture, %(N)	99% (203)	46% (58)	<0.0001
Transesophageal Echocardiogram, %(N)	31% (64)	9.5% (12)	<0.0001
Transthoracic Echocardiogram, %(N)	91% (187)	48% (61)	<0.0001
Removal of Catheters, %(N)	74% (151)	39% (49)	<0.0001
Duration of Effective ABx TX, Days, Med. (IQR)	30 (14-42)	10 (4-21.5)	<0.0001
Days btw. Blood Culture Results and ABx T _x , Med.(Min, Max)	0 (0,7)	0 (0,12)	<0.0001
Outcomes			
Mortality within 90 Days of Blood Culture, %(N)	7% (14)	24% (30)	<0.0001
Relapse within 90 Days of Treatment, %(N)	2% (4)	6% (7)	0.071

CONCLUSION

ID consultation in the setting of SAB has been shown to increase compliance with IDSA guidelines and reduce 90-day mortality.