

Influence of a pharmacist led treatment algorithm for the management of staphylococcus bacteremia

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Background

- Staphylococcus bacteremia has a prevalence rate of 80,000 cases per year and a mortality rate of up to 60%¹
- IDSA recommends vancomycin as a first line agent for the treatment of MRSA bacteremia²
- There is not a widely used or recommended treatment algorithm for the management of staphylococcus bacteremia
- Saint Elizabeth's Medical Center (SEMC) utilizes rapid diagnostic testing for identification of positive blood cultures
- Pharmacists intervene to optimize bacteremia therapy upon notification from the microbiology laboratory
- Despite these efforts, management of staphylococcus bacteremia continues to be a challenge

Objective

Evaluate impacts of implementing a pharmacist-driven algorithm to guide treatment selection for staphylococcus bacteremia

Methods

- Single center study with a retrospective and prospective phase
- Treatment algorithm was designed in conjunction with the infectious disease (ID) consult service
- Prospectively a pharmacy resident identified gram positive blood cultures during weekdays and recommended the appropriate treatment based on the algorithm

Retrospective Data

• Jun 2019 - Sep 2019

Intervention Implementation

• Oct 2019

Prospective Data

• Oct 2019 - Jan 2020

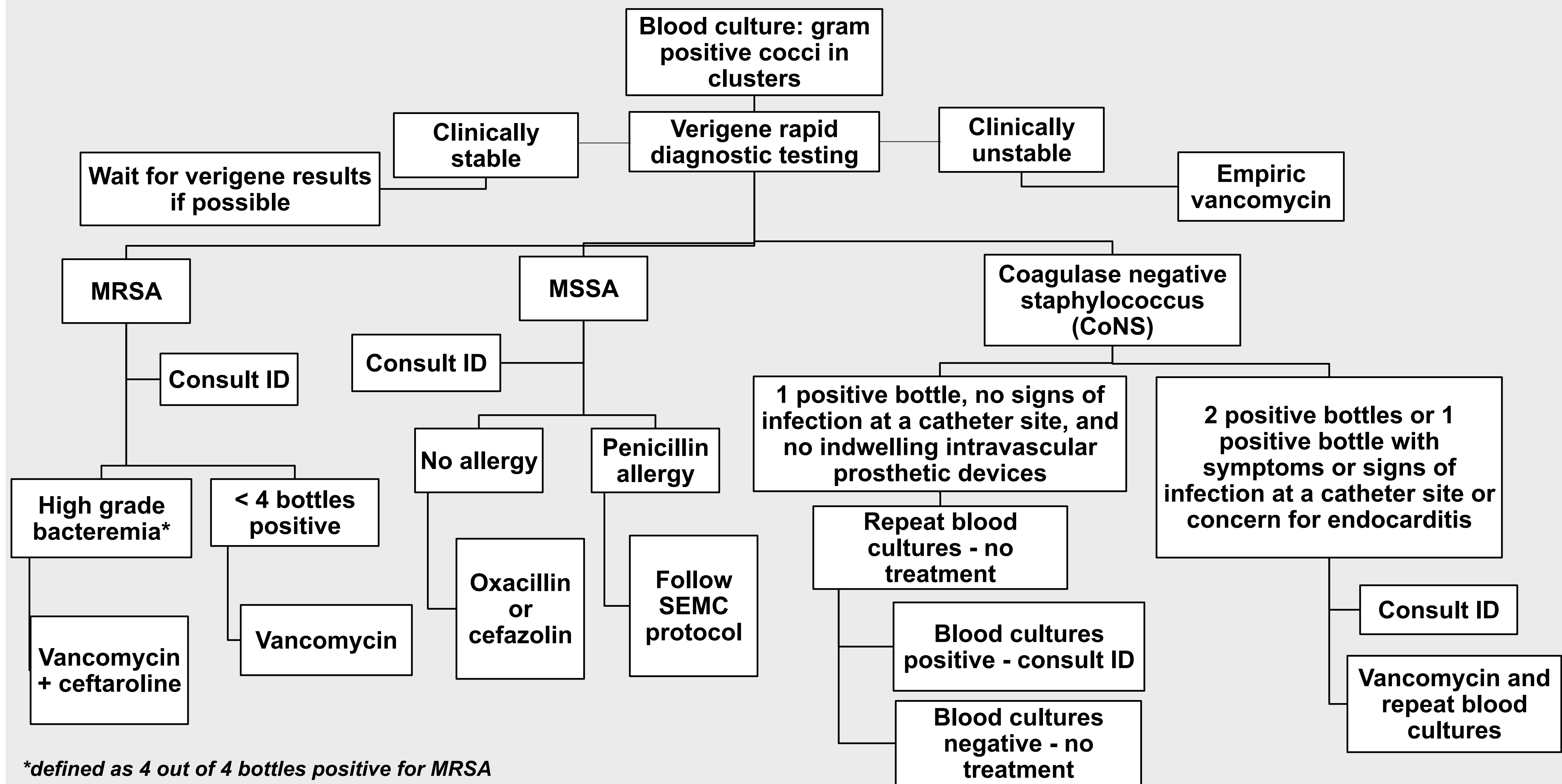
Inclusion Criteria

- > 18 years old
- Positive blood culture for staphylococcus

Exclusion Criteria

- Treatment initiated at outside hospital
- Cultures drawn at dialysis clinic

Treatment Algorithm^{3,4}



Results

Baseline Characteristics	Pre algorithm (n=64)	Post algorithm (n=46)	p-value
Male, n (%)	39 (61)	26 (57)	0.64
Age, average	64	63	0.79
CoNS bacteremia, n (%)	48 (75)	35 (76)	0.89
MSSA bacteremia, n (%)	8 (12.5)	8 (17)	0.47
MRSA bacteremia, n (%)	8 (12.5)	3 (6.5)	0.30
ID consulted, n (%)	32 (50)	22 (48)	0.82

Primary Outcome: Algorithm adherence, n (%)	Pre algorithm	Post algorithm	p-value
Overall	29 (45)	33 (72)	0.006
MRSA bacteremia	5 (63)	3 (100)	0.49
MSSA bacteremia	6 (75)	8 (100)	0.46
CoNS bacteremia	18 (37.5)	22 (63)	0.02

Results continued

Secondary Outcomes: Days to negative blood culture, average	Pre algorithm	Post algorithm	p-value
Overall	2.3	2.2	0.68
MRSA bacteremia	3.1	3.3	0.90
MSSA bacteremia	2.9	2.3	0.55
CoNS bacteremia	2.0	2.0	1.0
Days to de-escalation, average	Pre algorithm	Post algorithm	p-value
Overall	2.1	1.3	0.04
MSSA bacteremia	1.0	1.6	0.41
CoNS bacteremia	2.4	1.2	0.03
Length of hospital stay (days), average	Pre algorithm	Post algorithm	p-value
Overall	12.1	10.6	0.59
MRSA bacteremia	10.8	10.3	0.90
MSSA bacteremia	16.5	11.4	0.44
CoNS bacteremia	11.7	11.1	0.79

Conclusion

- A staphylococcus bacteremia treatment algorithm optimizes treatment and shortens time to de-escalation in CoNS bacteremia
- Importance of continuity of antimicrobial stewardship and prospective pharmacist interventions
- Future direction is to create an order set for staphylococcus bacteremia and implement system wide

Limitations

Small sample size at a single institution

Prospective interventions not conducted on weekends

Excluded dialysis patients and patients initiated on therapy at an outside hospital

References

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Disclosure

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