Retrospective Review of the Clinical Evaluation, Treatment and Management of *Aerococcus* species Bloodstream Infections

Mary L Staicu Pharm D, Mary Lourdes Brundige Pharm D, Maryrose Laguio-Vila MD

Rochester General Hospital, Rochester, NY

Background and Objectives

- With the development of advanced microbiologic identification systems, *Aerococcus* species (sp.) previously interpreted as α-hemolytic streptococci, is becoming increasingly recognized as a human pathogen[1-4]
- Challenges surrounding the treatment of *Aerococcus* sp. infections include variation in antibiotic susceptibilities and the lack of interpretive breakpoints[1]
- In 2015, our institution identified over 500 unique *Aerococcus* sp. isolates from inpatient and outpatient cultures
- We evaluated the clinical approach and management of *Aerococcus* sp. isolated from the blood at our institution

Methods

- This was a single-center, retrospective evaluation in hospitalized adult patients in which *Aerococcus* sp. was isolated from the blood in 2015
- The primary objective was to characterize the clinical approach to the treatment of *Aerococcus* sp. bloodstream infections (BSI)
- The secondary objective was to describe the clinical outcomes in patients treated for an *Aerococcus* sp. BSI

Results Summary

Demographics	Value (n=9)
Age in years, mean (SD)	74.6 (12.5)
Female gender (%)	5 (56)
Diabetes mellitus	3 (33)
***Aerococcus* sp.**	
A. urinae	3 (33)
A. viridans	5 (56)
A. species	1 (11)
Clinical Course	**Value (n=8)**
Suspected Source (%)	
Urine	4 (50)
Lung	2 (25)
Intraabdominal (IA)	1 (13)
Skin and soft tissue (SST)	1 (13)
Antibiotic Therapy (%)	
Penicillin-based regimen (PCN)	3 (38)
Cephalosporin-based regimen (Cephalo)	2 (25)
Combination of classes (Combo)	2 (25)
Vancomycin (Vanco)	1 (13)
Antibiotic Duration in Days, mean (SD)	13 (4.5)

Results

Value	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9
Age, years	79	72	64	68	87	69	54	93	86
***Aerococcus* sp.**	*A.urinae*	*A.viridans*	*A.urinae*	*A.viridans*	*A.viridans*	*A.viridans*	*A.viridans*	*A.*species	*A.urinae*
Positive Blood Culture(s)	2 of 4 (aerobic)	2 of 4* (aerobic/anaerobic)	1 of 4 (anaerobic)	1 of 4 (aerobic)	1 of 4 (aerobic)	1 of 4 (aerobic)	1 of 4* (aerobic)	1 of 4 (aerobic)	1 of 4 (anaerobic)
Echocardiogram Result	TEE no vegetation	TTE no vegetation	NA	NA	TTE no vegetation	TTE no vegetation	NA	NA	TEE no vegetation
Infectious Source	Urine	Lung	Urine	SST	Urine	Lung	NA	IA	Urine
Antibiotic therapy	PCN	PCN	Cephalo	Vanco	Cephalo	Combo	None	PCN	Combo
Antibiotic duration, days	21	10	7	14	9	12	NA	14	17
Hospital length of stay, days	21	22	8	14	9	13	17	8	48
Readmission within 30 days	No	No	Yes	No	Yes	Yes	Yes	Yes	No

*Cultures deemed contaminated; Transesophageal echocardiogram (TEE); Transthoracic echocardiogram (TTE); Not applicable (NA); Clinical and Laboratory Standards Institute (CLSI)

Discussion

- We describe the clinical approach to the treatment and management of *Aerococcus* sp. isolated from the blood in 9 patients that presented to our institution in 2015
- *A.urinae* has been described to cause invasive infections in the elderly population; however, there was no documentation of BSI complications or metastatic disease[1]
- Blood culture contamination was suspected in two patients. One patient received system antibiotic therapy for the treatment of a respiratory tract infection
- CLSI provides interpretive susceptibility criteria for research use only. In vitro analyses display low minimum inhibitory concentrations (MIC) to β-lactam antibiotics and vancomycin, but a wide range of MICs to fluoroquinolones and trimethoprim/sulfamethoxazole[5]
- All patients were treated with antibiotics that are thought to be active against *Aerococcus* sp.
- Readmission within 30 days was observed in 5 (56%) patients. Two of these readmissions were thought to be secondary to an infectious cause, including Patient 7 who did not receive antibiotic therapy during the admission in which *Aerococcus* sp. was identified. Blood cultures were not obtained upon readmission

Conclusions

- *Aerococcus* species infections are becoming increasingly recognized as a human pathogen, particularly in elderly patients, at our institution
- There is a wide variation to the clinical management of BSI which further emphasizes the need for provider education and approved susceptibility breakpoints for clinical use

Author Disclosures

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have direct or indirect interest in the subject matter of this presentation: None of the authors have anything to disclose

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Corresponding author mary.staicu@rochesterregional.org **Phone** 585 922 5732

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