



Epidemiology of *Staphylococcus aureus* Bacteremia in a Large Tertiary Center



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Background

Staphylococcus aureus infection is the leading cause of community-acquired and healthcare-associated bacteremia with high morbidity & mortality.

Methods

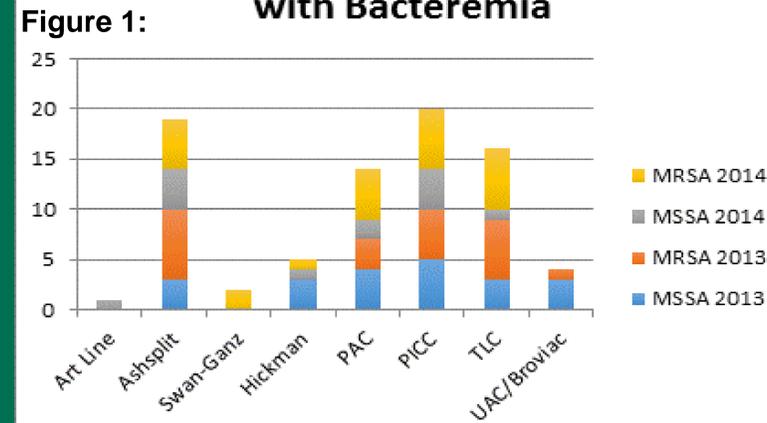
Electronic medical records of patients with Methicillin resistant(MRSA) and sensitive(MSSA) *Staphylococcus aureus* bacteremia over the last 2 years were reviewed and data was extracted on

- a. Demographics
- b. Clinical characteristics
- c. Mortality
- d. Length of stay, Readmissions
- e. Microbiology data

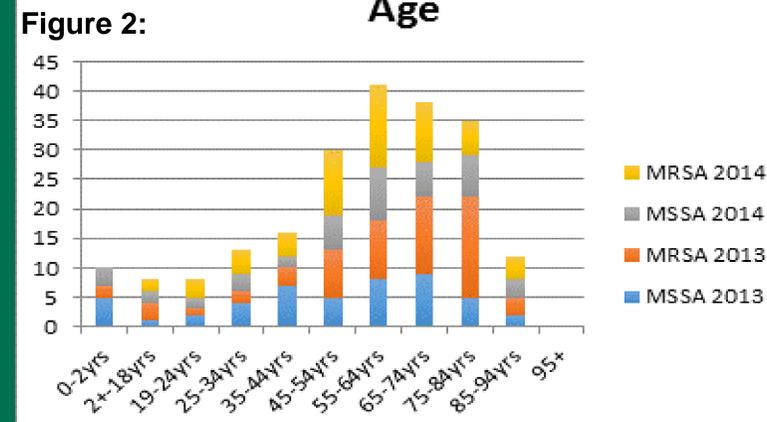
Results

- 211 patients were enrolled. 57%(n=123) had MRSA.
- 58%(n=123) are males. Caucasian(77%) and African American(17%).
- Cardiac & Nephrology patients had a higher incidence of bacteremia with 21%(n=45) & 13%(n=29) respectively.
- No significant variation was noted in the incidence between summer & winter months.
- More than 50%(n=109) of the infections were seen among 45-74 year age group, with 55-64 year group(n=41, Figure 2) being more common.
- Infections with community onset(CO) accounted for 67% (Figure 3) with the remaining being originated in Hospital(HO).
- Readmission within 90 days was required in 35.3%, 28.3% of MSSA & MRSA patients respectively. Out of these readmissions 34.4% & 50% of MSSA & MRSA patients already had recent history of bacteremia.

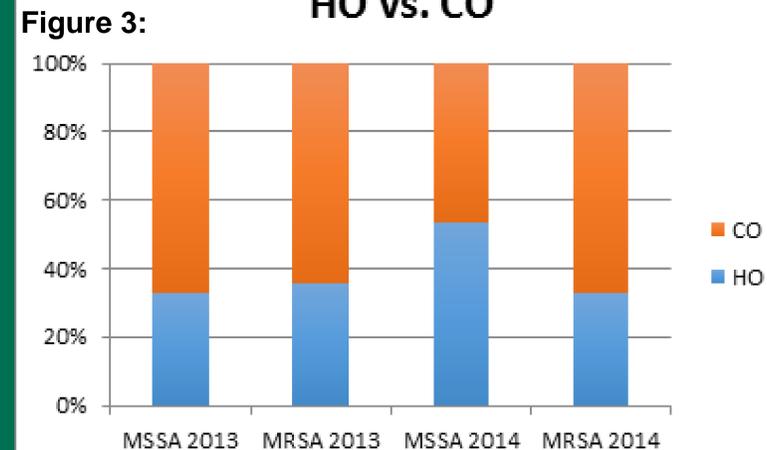
Type of Central Line Associated with Bacteremia



Distribution of Bacteremia by Age



HO vs. CO



Results...contd

- An average of 16.6% of MSSA population died within 90 days of admission compared to 37.5% in MRSA.
- Time needed to clear blood cultures was 5.8/7.55 days(MSSA/MRSA). Average length of stay is 21 days for both MSSA & MRSA.
- Central line was a possible source (Figure 1) in 57%(n=52), 60%(n=72) of MSSA, MRSA patients. Of these, 65.3% of MSSA(n=34) and MRSA(n=47) had positive central line tip cultures most commonly among those with PICC and Ashsplit lines.
- Obese patients(BMI>30) seemed to have higher incidence of infections (42%) compared to patients with normal BMI(25.6%).
- The top five comorbidities remained the same for both MSSA and MRSA patients consisting of Hypertension, Diabetes, Chronic kidney disease/End stage renal disease, Hyperlipidemia, Coronary artery disease / Peripheral vascular disease.

Conclusions

- Cardiac and Nephrology patients are at higher risk of *Staphylococcus aureus* bacteremia.
- The rate of readmission in MSSA bacteremia is comparable to that of MRSA.
- Mortality within 90 days is higher and time needed to clear blood cultures is longer, in patients with MRSA bacteremia.

References

- [Clin Microbiol Rev. 2015 Jul;28\(3\):603-61. doi: 10.1128/CMR.00134-14.](#)
- [Clin Microbiol Rev doi:10.1128/CMR.00134-14.](#)