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Recurrence of *Streptococcus agalactiae* Bacteremia – Risk Factors and Complications

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INTRODUCTION

- *Streptococcus agalactiae,* also known as Group B *Streptococcus* (GBS), can cause both mild infections and invasive GBS (iGBS) infections including bacteremia.
- IGBS infections in non-pregnant adults have been occurring with increasing frequency, however there are no guidelines for optimal antibiotic treatment and duration of therapy.
- With a lack of standardized treatment, we are concerned about recurrence of GBS bacteremia and its associated risk factors.
- To the best of our knowledge, our study represents the largest US study to date focusing on non-pregnant adult patients with first episode of GBS bacteremia.

METHODS

- Retrospective multi-center study in New York metropolitan area from January 1, 2016 to December 31, 2019.
- Inclusion criteria: Non-pregnant patients 18 years or older with GBS found in blood culture.
- Data collected through electronic medical chart review.
- The primary objectives were evaluating the incidence of recurrent GBS bacteremia and identifying any risk factors associated with recurrence and complications of GBS bacteremia.
- Recurrence was defined as GBS bacteremia within 1 year after the initial positive GBS blood culture.

RESULTS

- There were 388 distinct patients who had a positive blood culture. Recurrence occurred in 19 patients (4.6%). One case of recurrence was excluded because predictive variables were not available for analysis.
- The median age was 69 years and median BMI was 29. Patients were predominately white (62.1%) and male (56.4%).

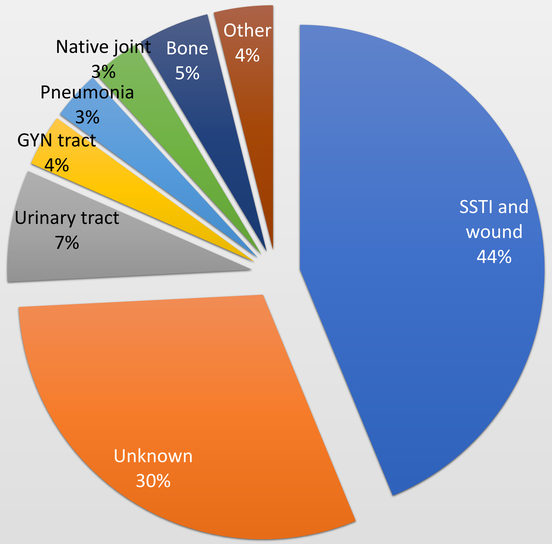

Chart 1: Sources of GBS bacteremia.

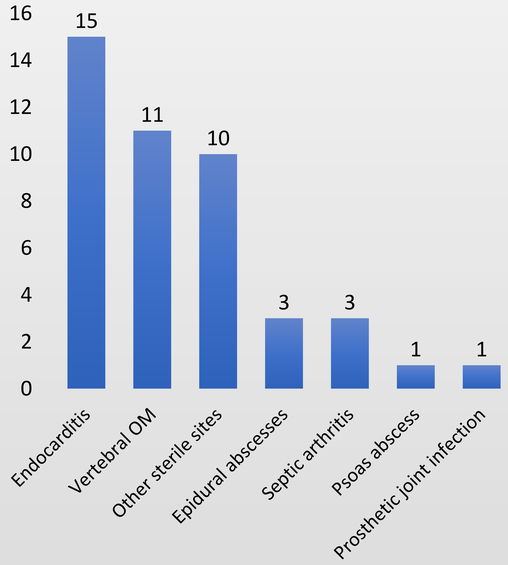

Chart 2: Complications of GBS bacteremia.

Variables	Odds Ratio (OR)	95% CI	p-value
Duration of antibiotic therapy	0.989	0.955 - 1.025	0.549
Heart diseases	0.493	0.190 - 1.278	0.145
Metabolic diseases	1.727	0.489 - 6.098	0.579
Chronic kidney diseases	1.829	0.579 - 5.778	0.294
Allergic to penicillin or cephalosporin	**3.200**	**1.149 - 8.913**	**0.026**
Implantable cardiac devices	**5.933**	**1.764 - 19.957**	**0.004**
β-lactams as initial treatment	1.158	0.372 - 3.607	0.800
Vancomycin as initial treatment	0.468	0.163 - 1.338	0.156
Other antibiotics as initial treatment	**3.490**	**1.077 - 11.313**	**0.037**

Table 1. Multivariable logistic analysis on different variables.

RESULTS

- There was a statistically significant increase in recurrence of bacteremia in patients with implantable cardiac devices (ICDs), in patients allergic to penicillin or cephalosporin, and in patients who did not receive β-lactams or vancomycin as initial treatment (Table 1).
- This study did not identify any other underlying comorbidities significantly associated with recurrence.
- The most common sources of GBS bacteremia were skin and soft tissue/wound infection, urinary tract infection, and GYN infection. One hundred eighteen patients (30.4%) did not have a source identified (Chart 1).
- Fifteen patients (3.9%) were found to have possible endocarditis
- Twenty-nine patients (7.5%) had other complications, including vertebral osteomyelitis, epidural abscesses, and septic arthritis (Chart 2).
- Penicillin was the antibiotic most patients were allergic to (14.4%), followed by sulfa drugs (3.6%), quinolones (2.8%) and cephalosporin (2.3%).
- Rash was the most common reaction reported (8.8%), followed by other miscellaneous reactions (8.0%), and hives (3.9%).

CONCLUSION

- To the best of our knowledge, this study is the largest in the US to evaluate risk factors associated with recurrent GBS bacteremia focus on patients with first episode of GBS bacteremia.
- Patients who had ICDs, were allergic to penicillin or cephalosporin, and who did not receive β-lactams or vancomycin as initial treatment were associated with recurrence.
- Detailed history of allergy to antibiotics should be obtained for all patients.
- More data are needed to support including GBS as a major criterion in modified Duke criteria.