Implications of Group A *Streptococcus* (GAS) Rectovaginal Colonization in Pregnancy: Preliminary Analysis

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**Objectives**

1. Determine rates of GAS rectovaginal colonization in our pregnant patient population.
2. Investigate management strategies used in our institutions, including intrapartum prophylaxis.
3. Assess rates of peripartum complications among pregnant patients colonized with GAS.
4. Assess if infants born from mothers colonized with GAS had any infectious complications within the early neonatal period.

**Background**

GAS is well recognized as a causative agent of puerperal sepsis. Invasive GAS infections in the peripartum period occur at a rate of approximately 6/100,000 women in the US [1], with case fatality rates of 2-60% [1,2]. Adverse neonatal outcomes, including stillbirth or neonatal death, have been noted in mothers with invasive GAS infection [3].

Rectovaginal colonization with GAS in the pregnant population is reported between 0.03-1% [4], although no Canadian data has been reported. Reports are limited on the outcomes of these patients. An n=2 case series demonstrated two invasive GAS infections in mothers known to be colonized [5].

Rectovaginal swabs are routinely carried out in the third trimester of pregnancy to assess for carriage of Group B Streptococcus. Reporting practices vary by laboratory, with some centres reporting GAS if it is identified. Although no formal guidelines exist to guide the obstetrical care of these patients, some experts suggest intrapartum prophylaxis with penicillin [4].

The goal of this study is to assess the implication of GAS rectovaginal colonization on peripartum and neonatal outcomes.

**Methods**

The databases of two large academic hospital microbiology laboratories in Winnipeg (Manitoba, Canada) were searched for rectovaginal swab specimens received between January 2011 and December 2018. All results from these specimens were reviewed, and patients for whom GAS was recovered on a rectovaginal swab were identified for inclusion in this study. A retrospective chart review was carried out for these patients. The associated prenatal record, labour and delivery record and neonatal chart were reviewed. Ethics approval was obtained prior to beginning data collection.

**Results**

Within the study period, a total of 31,502 swabs were collected. GAS was isolated from 64 (0.2%), relatively stable over the study period.

We present preliminary data of the first ten patients reviewed from site 1. None of the patients received treatment at the time of diagnosis. One patient received penicillin G in labour as GAS prophylaxis, a second had a co-infection with GBS and received penicillin G for GBS prophylaxis and a third received no intrapartum antibiotics but was discharged home on oral penicillin. Interestingly, within our group, only half of obstetric providers noted the positive GAS swab in the prenatal record. All patients delivered liveborn singleton gestations.

One patient (3/8), who did not receive antibiotics, developed puerperal sepsis with septic pelvic thrombophlebitis requiring ICU stay and hospitalization for 28 days. Her neonate developed a superficial skin infection at the naillbeds which grew GAS.

**Table 1. Clinical Characteristics of the Study Group (n=10).**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
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<tbody>
<tr>
<td>Maternal Age</td>
<td>Mean 24.3</td>
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<tr>
<td>Primiparous</td>
<td>1 (10%)</td>
</tr>
<tr>
<td>Multiparous</td>
<td>9 (100%)</td>
</tr>
<tr>
<td>Medical comorbidities</td>
<td>4 (40%)</td>
</tr>
<tr>
<td>Pregnancy complications</td>
<td>3 (30%)</td>
</tr>
<tr>
<td>Substance use history</td>
<td>2 (20%)</td>
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</tbody>
</table>

**Discussion**

The GAS colonization rate of our cohort was similar to rates previously reported in the literature. In this preliminary analysis, 12.5% of those without prophylaxis and none with prophylaxis patients developed invasive GAS infection with associated neonatal sequelae.

Strengths of our study include evaluation of a large number of rectovaginal swabs from two academic hospital microbiology laboratories over a prolonged time period. These laboratories perform microbiology diagnostic testing for all major hospitals in Winnipeg, as well as a number of rural sites. Both laboratories utilized the same protocol for workup of rectovaginal swabs, which includes routine reporting of GAS when identified.

Complete review of all patients identified to carry GAS is planned to ensure the entire cohort supports these findings and conclusions.

At this time, management practices are variable. Penicillin intrapartum prophylaxis is inexpensive, widely used for GBS and acceptable to both healthcare professionals and patients. However, further evidence of its efficacy in preventing invasive GAS infection is necessary prior to making recommendations.

There remains a knowledge gap in the implications of a positive results, as evidenced by the limited documentation and action of obstetricians.

**Conclusions**

1. GAS colonization was identified on 0.2% of rectovaginal swabs collected in the antepartum period.
2. Management strategies appear variable among obstetricians, with the majority choosing expectant management. Intrapartum prophylaxis with penicillin was less commonly used.
3. Within our cohort, two of the ten patients colonized with GAS developed infectious complications, 1 minor and 1 major. It remains uncertain if antimicrobial prophylaxis may reduce this risk.
4. One of ten infants delivered from colonized mothers developed a mild infectious complication related to GAS.

**References**


