THE EFFICACY OF AN ANTENATAL PROBIOTIC INTERVENTION TO REDUCE RESIDUAL GROUP B STREPTOCOCCUS (GBS)

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PROBLEM

• GBS is part of the human microbiome but is also a leading cause of infectious neonatal morbidity and mortality due to vertical transmission during birth.
• Early Onset GBS (EOGBSD) disease onset 0-7 days
• Late Onset GBS (LOGBSD) disease onset 7-49 days
• Standard of care (SOC) GBS cultures obtained at 36-weeks
• If present, receive Intrapartum antibiotic prophylaxis
• Intrapartum GBS cultures are not a standard of care.
• The current rate of EOGBSD in the US is 0.22/1000 births
• Birthing people are exposed to large doses of IV antibiotics.
• One barrier to these studies is the very large sample size that is needed.

METHODS

• Design This sub-study added an intrapartum exploratory arm to an existing double-blind, randomized placebo-controlled trial funded by the NIH.
• The goal of the parent study was to demonstrate the efficacy of an oral probiotic intervention to reduce GBS colonization at 36 weeks gestation and decrease the need for IAP.
• Desired sample size was 25 participants/neonate dyads
• Measures: Intrapartum maternal GBS vaginal to rectal cultures were collected by CNMs upon labor admission. Neonatal oral and nasopharyngeal swabs were obtained within the first two hours of life.

RESULTS

• 30 intrapartum participants were enrolled
• 28 with complete data.
• There was one case of residual GBS (probiotic group)
• There was a 13.3% rate of mismatch between 36-week SOC cultures and intrapartum cultures.
• Logistic regression showed that 36-week SOC swabs significantly predicted intrapartum GBS results (p=0.005).
• No GBS was recovered from neonatal oral and nasopharyngeal swabs.

RESULTS

<table>
<thead>
<tr>
<th>GBS at 36 week and Intrapartum</th>
<th>Placebo (N=16)</th>
<th>Probiotics (N=14)</th>
<th>Placebo change</th>
<th>Probiotics change</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrapartum GBS negative</td>
<td>11 (68.75)</td>
<td>12 (75)</td>
<td>1 (7.69)</td>
<td>11 (71.43)</td>
<td>0.6887</td>
</tr>
<tr>
<td>Intrapartum GBS positive</td>
<td>5 (31.25)</td>
<td>3 (21.43)</td>
<td>0 (0)</td>
<td>2 (14.29)</td>
<td>0.639</td>
</tr>
<tr>
<td>36 wk GBS negative</td>
<td>10 (62.5)</td>
<td>12 (85.7)</td>
<td>0 (0)</td>
<td>14 (92.86)</td>
<td>0.8859</td>
</tr>
<tr>
<td>36 wk GBS positive</td>
<td>5 (31.25)</td>
<td>2 (14.29)</td>
<td>0 (0)</td>
<td>2 (14.29)</td>
<td>0.8859</td>
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BACKGROUND

• Primary prevention strategies to reduce antenatal GBS under investigation include probiotic use and vaccine development.
• PROBIOTIC USE DURING PREGNANCY has been shown to reduce the probability of a GBS positive result by 44%

OBJECTIVE

• To explore the outcomes of antepartum exposure to probiotic or placebo on maternal and neonatal intrapartum residual GBS.
• Hypotheses: (a) more intrapartum participants in the probiotics group will test negative for GBS on vaginal/rectal swabs compared to those in the placebo group; and (b) fewer neonates born of probiotic group participants will have GBS on post-birth nasal/oral pharynx cultures compared to those in the control group.

REFERENCES


FUNDING

Malloy, E. 2020 March of Dimes Graduate Nursing Scholarship
Hanson, L., & Malloy, E., Victoria A. Wallace Research Award, Marquette University, College of Nursing
Hanson L, NIH R21HD095320 The Efficacy of Probiotics to Reduce Antepartum Group B Streptococcus Colonization.