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-wks gestation
• 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.
• The pathway of neonatal colonization to EOGBSD is not well understood.

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 participant/neonate dyads
• Measures: Intrapartum GBS maternal 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.
• Analysis: Demographic and perinatal characteristics of sub-study participants were analyzed using descriptive statistics.

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 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.

BACKGROUND
• Primary prevention strategies to reduce antepartum GBS under investigation include probiotic use and vaccine development.
• PROBIOTIC USE DURING PREGNANCY has been show to reduce the probability of a GBS positive result by 44%3

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.

RESULTS
• 26 (86.67) of 30 participants were enrolled in the parent study.
• 22 (73.33) of 30 participants were enrolled in the sub-study.
• 22 (73.33) of the 30 participants were enrolled in the probiotic group.
• 11 (78.57) of the 14 probiotic group participants were enrolled in the sub-study.
• 26 (86.67) of the 30 participants were enrolled in the placebo group.
• 11 (78.57) of the 16 placebo group participants were enrolled in the sub-study.

• The current strategy for GBS screening is the best available but may result in both under and over treatment of GBS during labor.
• Birthing people are exposed to large doses of IV antibiotics.
• Residual GBS remains a problem and continued research of primary prevention for EOGBSD and LOGBSD deserve further study, especially regarding probiotic use and vaccine development.

• One barrier to these studies is the very large sample size that will be needed to reduce EOGBSD.
• Probiotics may be part of a future primary prevention strategy to reduce antenatal GBS.

REFERENCES

FUNDING
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