Prenatal Onset of GBS Sepsis (PO-GBS-EOS) is a Distinct Cause of Stillbirth and Perinatal Mortality

JA McGregor, MD,CM1,2 Perhach, M2

Institutions: 1 LA Best Babies Network, California Hospital Medical Center, Los Angeles, CA; 2 GBS International, Pomona, CA

ABSTRACT

Introduction: Intrauterine infections are increasingly recognized as a possible preventable cause of PM.

Methods: We conducted a systematic review of intrauterine infections and the impact on early neonatal mortality.

Results: We identified 26 studies involving PO-GBS sepsis. Of these, 4 GBS+ mothers reported "membrane stripping" for labor induction with subsequent SB or EOS. Only 6 mothers recalled any peripartum fever or infection.

Conclusion: There is insufficient knowledge to support the CDC's proposed POGBS sepsis. Our limited uncontrolled "internet commons" enquiry supports clinical observation of perinatal infection after "membrane stripping" in GBS+ mothers, and identifies that POGBS sepsis is the most likely cause of intrapartum fever or other "mild" infections of appropriate infection.

Background:

• Group B streptococcus (GBS) was identified as a leading cause of perinatal infection in the 1970s.

• The prevalent “dogma” is that GBS exposure and subsequent infection occurs only during passage through the GBS colonized birth canal. This notion is the basis of the present CDC's POGO and AAP guidelines to prevent GBS Early Onset Sepsis (EOS).

• Non-congruent observations by Katz and more recently Tuchela, Wendel and Sheffield suggest that GBS infection occurs before birth, across intact fetal membranes and causes both stillbirth (SB) and perinatal depression (PD) with depressed Apgars and neonatal death.

• Systematic epidemiologic investigations may allow for investigations to possible reduce risks of pre-labor onset of GBS infections.

Goals:

• Review and Analyze prior observations including:
  o Animal models
  o Microbiologic findings
  o Microbiologic
  o Immunologic
  o Clinical experiments
  Which can justify naming “prenatal onset of early GBS neonatal infection (PO-GBS-EOS)”

• Provide rational for expanded epidemiologic studies suggest strategies which may reduce risks of PO-GBS-EOS

Methods:

1. Review/Analyze available information justifying “official” designation of prenatal onset GBS infections

2. Evaluate this proposal using historical “causal criteria” i.e., Kock’s postulates & Bradford Hill causal criteria

3. Apply pathophysiologic principles including innate and acquired immunologic prevention strategies (i.e., vaccination, microecologic, and clinical strategies to reduce risk of perinatal GBS infection including SB 20-29 and very early PTB and/or late miscarriage (16-20 weeks gestation)

Conclusions:

1) GBS similar to other “perinatal pathogens” is an apparent cause of intrathoracic infection (1st chorioamnionitis “CAM” or intramembranous infection “IAP”) can cause SB and very early PTB and possibly EM

2) Intrauterine infection or prenatatal onset GBS may explain GBS selective culture based antibiotic chemoprophylaxis (IAP)

3) Recognition of PO-GBS-EOS can allow renewed experimentation in order to further reduce risks of GBS perinatal disease including: Rapid “Point of Care”; microbial testing as well as adjuvant VACCINATION or other novel strategies

Recommendations:

1. Reconcile well funded national study group to explore novel strategies to further reduce risk of GBS neonatal disease burden

2. These strategies can include separate or in combination with culture guided IAP:

3. VACCINATION

4. Microecologic

5. Clinical Strategies - screen UTI/ASB

6. Further refine – microbial screening i.e., early in pregnancy, UTI/ASB, and in labor after ROM

7. Improve operational procedures to enhance efficacy of IAP

References


