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ASSOCIATION BETWEEN PRENATAL ANTIBIOTIC EXPOSURE AND NEONATAL GROUP B STREPTOCOCCAL INFECTION RISK: A POPULATION-BASED COHORT STUDY

A recent study published in the Journal of Infection by researchers at the Karolinska Institute (Sweden) analyzes the correlation between antibiotic therapy administered during pregnancy and the incidence of Group B Streptococcus (GBS) infection in neonates. Despite the implementation of risk-based intrapartum antibiotic prophylaxis (IAP) strategies in 2008, GBS infections continue to account for 40% of all early-onset neonatal sepsis cases in Sweden, suggesting the need to investigate additional risk factors.

Methodology The cohort study utilized data from four Swedish national registers, comprising 1,095,644 singleton live births recorded between 2006 and 2016. The primary objective was to evaluate the impact of prenatal antibiotic exposure on neonatal susceptibility to GBS infection.

Key Results The prevalence of prenatal antibiotic exposure was 24.5%, with 4.9% of pregnancies exposed in more than one trimester. The overall incidence of GBS infection was 0.71 per 1,000 live births. Statistical analysis revealed the following:

- Overall Risk Increase: Neonates exposed in utero to antibiotics presented a GBS infection incidence of 0.86 per 1,000 within the first 4 weeks of life, compared to 0.66 per 1,000 in the unexposed group. This translates to an adjusted Odds Ratio (aOR) of 1.29, indicating a 29% increased risk.
- Risk Stratification: The association was statistically significant among pregnancies without classic risk factors for GBS (aOR=1.34), whereas no significant correlation was observed in pregnancies with at least one pre-existing risk factor (aOR=0.91).
- Temporal Variable: The strongest association was identified with antibiotic administration during the third trimester of pregnancy (aOR=1.67).

Discussion and Pathophysiological Mechanisms The authors postulate that the underlying mechanism may involve iatrogenic maternal dysbiosis. Systemic antibiotic administration can disrupt the balance of the vaginal microbiota, leading to the depletion of Lactobacillus species—microorganisms essential in inhibiting GBS colonization.

Conclusions Although the study does not establish definitive causality, the results highlight a statistically relevant association between prenatal antibiotic therapy and an increased risk of neonatal GBS infection, particularly in the absence of other maternal risk factors.

Further research, including dose-response analyses and detailed intrapartum administration data, is required to validate these findings in the context of rising antibiotic resistance and the lack of an approved maternal vaccine.

Translated and adapted from LAINE BERGSOM, December 18, 2025.