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Maternal Fever, Prematurity and Early Onset Sepsis

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Early onset sepsis in premature infants remains a diagnostic challenge. Classical teaching includes presence of maternal fever as a risk factor. Sung et. al¹ provide evidence in premature infants 24–34 weeks gestational age questioning the value of maternal fever as a criterion for chorioamnionitis. If maternal fever is removed from a model proposed, prediction improves by increasing sensitivity from about 14% to 34% while only decreasing specificity from 92% to 78%. The improved prediction model uses maternal fever OR the following: leukocytosis, maternal tachycardia, fetal tachycardia, uterine tenderness, and foul smelling vaginal discharge. A recent study from the NICHD Neonatal Research Network,² showed that only 26% of infants 22–36 weeks gestation with culture proven early onset sepsis were born to mothers with fever $\geq 38.0^{\circ}\text{C}$. Hence, a definite need exists to re-evaluate the diagnostic criteria of maternal fever and its impact on early onset sepsis.

A recent NICHD workshop panel³ noted that the term “chorioamnionitis” has been used to describe a heterogeneous array of conditions characterized by infection and inflammation or both, with a consequent great variation in clinical practice for mothers and their newborns, particularly for infants > 34 weeks gestation. A proposal to replace the term “chorioamnionitis,” with a more general, descriptive term, “Intrauterine Inflammation or Infection or both,” abbreviated as *Triple I*, was recommended by the panel. The panel noted that it is particularly important to recognize that an isolated maternal fever is not synonymous with chorioamnionitis.³

Diagnostic criteria for chorioamnionitis have been fraught with overtreatment of infants. Intrauterine infection, inflammation or both (Triple I) may help to better define infants at high risk for early onset sepsis. Premature infants are at higher risk for EOS than term infants.⁴ Sung et. al.¹ provide data which support the lack of sensitivity of maternal fever in the diagnosis of early onset sepsis in premature infants.

These data also have important implications for obstetric providers. Most data guiding the use of antibiotics to treat presumed chorioamnionitis are decades old. As with many aspects of medicine, there has been “indication creep” for the diagnosis of chorioamnionitis (triple I) and use of antibiotics prior to and during labor. Many women with isolated fevers, often associated with neuraxial analgesia are given a diagnosis of chorioamnionitis and are treated with antibiotics. Since not every intrapartum fever is of infectious origin, treating all fevers with antimicrobial agents will result in over treatment of mothers. The infants are then

exposed to antimicrobial agents in an attempt to treat rare cases of early onset sepsis (EOS). This results in an increase in the workload for health care providers and cost.

The data from Sung¹ underscore the need to identify pregnancies and infants who will benefit from antibiotics and in which cases antibiotics are best avoided.

Refs

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