

00437 Association Between Maternal and Neonatal Surface Colonization at Birth and the Development of Neonatal Early-onset Sepsis.

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Aims: This study aimed to assess the concordance between maternal and neonatal surface cultures with blood culture isolates; and evaluate the association between surface colonization and neonatal early-onset sepsis (EOS).

Methodology: This was a case-control study of neonates born and admitted to the Department of Neonatology, KK Women's and Children's Hospital with blood-culture confirmed EOS (<3 days of life) from 2009-2017. Maternal bacterial colonization (placental, subchorionic/amniotic, genital, urine) were determined from cultures taken within 7 days prior to delivery. Neonatal colonization was determined from ear swab bacterial cultures at admission. Concordance was the presence of the same organism in both the mother and neonatal surface cultures with EOS isolate.

Result: There were 56 neonatal EOS infections during the study period. Gram negative organisms were the most common cause of EOS, accounting for 66% of all cases. *Escherichia coli* (45%), Group B *Streptococcus* (27%), *Klebsiella pneumoniae* (5%), *Listeria monocytogenes* (5%) were the most common microorganisms isolated. Maternal bacterial colonization was present in 60% and neonatal surface colonization in 42% overall. Compared to those without EOS, neonates with EOS had a higher likelihood of having maternal colonization (73% vs 46%, $p < 0.01$) and neonatal colonization (75% vs 9%, $p < 0.0001$). The concordance of organisms isolated in EOS isolate and maternal surface colonization was 34/41 (83%), whereas concordance between EOS and neonatal surface isolate was 37/41 (90%). The concordance was much higher for neonates ≤ 32 weeks whereby maternal colonization was 28/31 (90%) and neonatal swab cultures was 32/35 (91%).

Conclusion: There is significant association between maternal and neonatal surface colonization with EOS. Isolates were mostly similar between that found in maternal and neonatal surface with the EOS isolate, especially for neonates ≤ 32 weeks. Our results illustrate the importance of perinatal surface colonization in the development of EOS.