Top Newborn Articles
Early Onset Sepsis

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Background Knowledge

• Onset of sepsis during first 72 hours of life, most often caused by vertical transmission of bacteria during intrapartum period
• Approximately half of cases are associated with maternal and perinatal risk factors
• Infants typically symptomatic at birth, or within the first 12-24 hours of life

AAP Committee on Fetus and Newborn Guidelines

A Systematic Review and Meta-analysis

- Systematic review and meta analysis evaluating (1) antibiotic usage and (2) safety with usage of the EOS calculator compared to conventional management

- 175,752 infants included across 13 studies
  - 4 studies with before/after analysis of EOS calculator implementation
  - 9 studies with hypothetical database analysis

• Systematic review and meta analysis evaluating (1) antibiotic usage and (2) safety with usage of the EOS calculator compared to conventional management
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Meta analysis of 6 studies with before/after data with implementation of the EOS calculator.

Overall risk ratio favors use of EOS calculator in before/after studies.

Not every case of EOS is predictable, and close clinical monitoring is necessary regardless of strategy. Limited safety data, but no current evidence of inferiority of EOS calculator usage.
• Review paper comparing serial clinical observation (SCO) strategies in two regions of Italy, the United Kingdom, and the United States


- Use standardized form that focuses on general well being, skin color, and respiratory signs
  - Cantoni et al (2013) comparing 7628 infants with conventional strategy vs 7611 infants with SCO with reduction in antibiotics (1.2% vs 0.5%, P < 0.01), reduction in lab screening (6.3% vs 0.5%, P < 0.01), no clinical deterioration in infected infants due to treatment delay

- Initial exam by physician, remaining by RNs with physician available in house for further evaluation
  - Joshi et al (2019) reduction in antibiotic use (12.3% vs 5.1%, P < 0.001) and CRP use (16.6% vs 7.6%, P < 0.001), 6 cases of EOS and no adverse outcomes

- Formal criteria for evaluation, thorough education focused on well being, perfusion, respiratory signs
  - Joshi et al (2019) reduction in antibiotic use (12.3% vs 5.1%, P < 0.001) and CRP use (16.6% vs 7.6%, P < 0.001), 6 cases of EOS and no adverse outcomes
We know now that the Early Onset Sepsis Calculator and Serial Clinical Observations are strategies to safely target antibiotic use in late preterm and term infants at risk for early onset sepsis. Next steps to consider:
- At your institution, what will be the workflow and who will it include in these strategies?
- How long should infants be monitored for prior to discharge?
- After antibiotics are started, infant is well appearing, and blood culture is negative, how long should antibiotics be kept on for?

Thank you!

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