Strategies for the prevention of early-onset neonatal group B streptococcal sepsis: a decision analysis.

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Abstract

OBJECTIVE: To perform a decision analysis to understand better the implications of 19 potential group B streptococcus screening and treatment strategies.

METHODS: We searched the literature to locate appropriate articles from which to derive probability estimates. Using decision analysis, we determined the likely outcomes of 19 group B streptococcus screening and treatment strategies and focused on three main outcomes: 1) number of expected cases of early-onset neonatal group B streptococcal sepsis, 2) percentage of gravidas treated with intrapartum antibiotics, and 3) total costs.

RESULTS: The strategy recently recommended by two committees of the American Academy of Pediatrics (universal 28-week maternal rectovaginal group B streptococcal culture and treatment of culture-positive, high-risk patients in labor) is among the least effective at reducing neonatal sepsis and the most costly. Strategies based on the currently available rapid streptococcus identification tests are ineffective at reducing neonatal sepsis and are costly. Three strategies outperform the rest: 1) Universal intrapartum maternal antibiotic treatment is the most effective strategy in reducing early-onset neonatal group B streptococcal sepsis (6% of expected) and is also the least costly; 2) intrapartum treatment based solely on risk factors (recently endorsed by ACOG) lowers the
rate of neonatal sepsis to 31% of expected with an 18% maternal treatment rate and low total costs; and 3) universal 36-week maternal culture, and treatment of all patients experiencing preterm birth and all culture-positive patients results in 14% of expected neonatal sepsis, with a 27% maternal treatment rate and low total costs.

**CONCLUSION:** Given the present state of knowledge, three strategies emerge from this decision analysis as most optimal for the prevention of early-onset neonatal group B streptococcal sepsis: universal treatment, treatment based on risk factors, and treatment based on preterm delivery and 36-week culture status.

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