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Decrease suspected sepsis work-up and empirical antibiotic use in newborns ≥ 35 weeks with implementing the early-onset sepsis (EOS) calculator in a newborn nursery

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Background: Antibiotics are the most commonly prescribed medications in the neonatal population throughout the country, especially in well appearing infants in the first few days of life. Many undesirable consequences have been associated with unnecessary sepsis evaluations and antibiotic exposure. In our institution, those infants who were born to mothers with chorioamnionitis diagnoses, we obtained blood work at birth including complete blood count with differential (CBC/d), blood culture and initiated empiric antibiotics. Repeated CBC/d along with C-reactive protein (CRP) was collected at twenty four hours of life. Additionally, infants who were born to mothers with prolonged rupture of membranes (PROM) also received the same laboratory evaluation without empiric antibiotics.

Methods: The Kaiser Early-Onset Sepsis (EOS) calculator was implemented on June 1, 2018 in the newborn nursery to newborns born to mothers with chorioamnionitis, PROM and preterm infants born to mothers with unknown GBS or GBS+ but inadequately treated.

Results: We have effectively decreased the antibiotic usage rate (AUR), blood work evaluations and the lengths of hospital stay since June 1, 2018. During the first three month period, our sepsis laboratory evaluation rate on asymptomatic infants with risk factors decreased from 100% to 15.7% and the empiric antibiotic use decreased from 100% to 2.9%.

Discussion: Initial challenges we encountered with planning and implementing the EOS calculator were concerns regarding a drastic practice change and the fear of missing treatment for possible sepsis. With careful interdisciplinary planning and education, ensuring proper team notification and consult for all infants at risk, usage of the EOS calculator and close follow-up, provider support gradually improved.

Biography

Ke-Ni N Tien has been in neonatal clinical practice since 1991, having worked in Taiwan and some of the nation's top ranked Neonatal Intensive Care Units. She currently serves as a Neonatal Nurse Practitioner (NNP) full-time with Cleveland Clinic Children's and part-time with Johns Hopkins Children's Center. She has completed her Master of Science in Nursing at Arizona State University in 2007 and is currently a Doctoral candidate in nursing practice (DNP) with the University of Maryland. Her interests concentrate on the synthesis of neonatal research, education and quality improvement projects, transforming data driven interdisciplinary team approaches into tangible improvement outcomes.

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