30th Global Experts Meeting on

Neonatal Nursing & Maternal Healthcare

May 14-15, 2018 Singapore

Optimizing the umbilical cord: Identifying cord blood neutropenia to help predict early onset sepsis

Victoria Mattox
Valley Children's Healthcare & Hospital, USA

Statement of the Problem: Early Onset Sepsis (EOS) in newborns can be hard to identify due to multiple contributing factors and a lack of early reliable markers that allow for definite identification. Clinicians depend on determining whether risk factors such as prematurity, Prolonged Rupture Of Membranes (PROM), under treatment for GBS positive or unknown mothers and chorioamnionitis are present to help determine if there is a need to evaluate and treat sepsis prospectively. The identification of cord blood neutropenia has been introduced as an independent and adjunct marker to help identify EOS. The purpose of this study was to establish reference values for cord blood neutrophil counts per gestational age and to look at the sensitivity, specificity and favorable likelihood ratio of cord neutropenia as an independent marker and as an adjunct marker to detect EOS in newborns >34 weeks' gestational age.

Methodology & Theoretical Orientation: This study was done in a retrospect. A cohort was identified and included mother-infant pairs that experienced singleton deliveries between 2009 and 2014 at Centre Hospitalier Universitaire de Sherbrooke (Quebec, Canada). Each mother-infant pair that was included had cord blood neutrophil counts recorded. A standard criterion was used by the clinicians to identify EOS cases from the sample by examining medical records. Diagnostic values were fixed for neutropenia per gestational age. Finally, a nested case-control design was utilized to quantify the worth of neutropenia in the detection of EOS independently and along-side other known risk factors.

Findings: The cohort identified included 8,590 mother-infant pairs. There were 84 sepsis cases identified. Neutrophil counts were closely related to gestational age and when neutropenia was adjusted for gestational age, there was good specificity but poor sensitivity. Cord blood neutropenia as an adjunct to other EOS risk factors revealed an increase in sensitivity without decreasing specificity.

Conclusion & Significance: Cord blood neutropenia adjusted for gestational age is remarkably associated with EOS and the addition of neutropenia to established risk factors for sepsis does increase the rate of detection of EOS.

victoriamattox19@gmail.com