Objectives

- Recognize the significance & timing of changes occurring in hematologic values in the preterm infant with early or late-onset sepsis
- Applying the results of recent studies of neonates with early or late-onset sepsis, outline the potential diagnostic & prognostic implications of specific hematologic laboratory findings
- Based on available clinical research studies, discuss the potential options & benefits of biomarker use to evaluate risk, diagnose and/or monitor early & late-onset neonatal sepsis & include the principal clinical limitations to use at the present time
- Explain the significance of sensitivity, specificity, negative & positive predictive values & the use of a receptor operator characteristic (ROC) curve in evaluating the results of clinical studies involving biomarkers
- Summarize the potential clinical applications and current limitations of non-invasive neonatal salivary analysis including universal screening options as well as detection of infections

Content Outline

1. Changes & Implications of Hematologic Values Frequently Observed in Neonates with Sepsis
   1.1 Red blood cells
   1.2 Leucocytes
   1.3 Lymphocytes
   1.4 Platelets

2. Potential Biomarkers for Detection, Diagnosis & Monitoring of Neonatal Infections
   2.1 Overview of current methods of detection & diagnosis of neonatal infections
   2.2 Characteristics of an ideal biomarker
   2.3 Specific biomarkers
      2.3.1 C-reactive protein (CRP)
      2.3.2 Interleukin 6 (IL-6) & 8 (IL8)
      2.3.3 Tumor necrosis factor a (TNF-a)
      2.3.4 Procalcitonin (PCT)

3. Potential Benefits & Limitations of Neonatal Salivary Analysis
   3.1 Advantages of using saliva as a biofluid for clinical assessments
   3.2 Detection of specific infectious microorganisms
   3.3 Monitoring cytokines and inflammatory markers
   3.4 Current limitations to neonatal salivary diagnostics

Reading Material Resources

Module WB1806: Neonatal Sepsis: Blood, Biofluid & Biomarker Assessments is based on the resources listed below. A copy of the resources are included with the module.


Biomarkers of neonatal sepsis, Deleon C, Shattuck K and Jain SK, NeoReviews, 15(5), May 2015, pp. e297-e308

Detecting infection in neonates: promises and challenges of a salivary approach, Lyengar A and Maron JL, Clinical Therapeutics, 37(3), 2015, pp. 523-526