
Diagnosics For Neonatal Sepsis: Current techniques & Novel Approaches

Sneha Elsa Sam

28/3/2022

Abstract

Around the globe, the third leading cause of neonatal mortality is neonatal sepsis. Preterm babies are the most susceptible to infection than children at any other age since they have seriously reduced humoral response. The common cause of early-onset sepsis is Group B *Streptococcus* (GBS) and *Escherichia coli* bacteria.

Signs Of Neonatal Sepsis

- Diminished spontaneous activity
- Less vigorous sucking
- Anorexia
- Apnea
- Convulsions
- Bradycardia
- Temperature instability (hypothermia/ hyperthermia)

Challenges In Diagnosis

An accurate diagnosis in the case of neonatal sepsis can be difficult since neonates present subtle symptoms and the condition itself resembles multiple common conditions in the neonatal period like congenital pneumonia or necrotizing enterocolitis.

Conventional Techniques

Blood cultures are the conventional gold standard. But since the positivity rate can be low, molecular diagnosis methods like PCR, real-time PCR, pyrosequencing. Many studies has revealed that real-time PCR assays have a 96% specificity and 96% sensitivity.

Novel Diagnostic Approaches

<https://rdcu.be/cJ1KR>

Cord Blood-Cord blood is the first hematological source from the neonate and does not require an invasive procedure or infliction of pain. Cord blood culture samples

Maternal Serum- Examination of prenatal maternal serum can disclose histological chorioamnionitis, which is considered a risk factor for early onset sepsis.

Novel Biomarkers- Measurements of amniotic fluid (92% accuracy) and biomarkers identified from proteomic and metabolic studies have been very promising.

Gene Expression Profiling- This method has proved the repression of genes corresponding to zinc-related biology is linked to patients with septic shock. This method is yet to be prospectively utilized in the neonatal setting.

Conclusion

Early diagnosis and treatment plays a vital role in managing neonatal sepsis. The neonatal sepsis management has to integrate a combination of techniques to be effective. Due to the high rate of morbidity and mortality in neonates, efforts to reduce the rates of infection is the most important intervention in neonatal care.
