

The Role of 16S rRNA Gene Sequencing in Confirmation of Suspected Neonatal Sepsis

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ABSTRACT

Different molecular assays for the detection of bacterial DNA in the peripheral blood represented a diagnostic tool for neonatal sepsis. We targeted to evaluate the role of 16S rRNA gene sequencing to screen for bacteremia to confirm suspected neonatal sepsis (NS) and compare with risk factors and septic screen testing. Sixty-two neonates with suspected NS were enrolled. White blood cells count, I/T ratio, C-reactive protein, blood culture and 16S rRNA sequencing were performed. Blood culture was positive in 26% of cases, and PCR was positive in 26% of cases. Evaluation of PCR for the diagnosis of NS showed sensitivity 62.5%, specificity 86.9%, PPV 62.5%, NPV 86.9% and accuracy of 79.7%. 16S rRNA PCR increased the sensitivity of detecting bacterial DNA in newborns with signs of sepsis from 26 to 35.4%, and its use can be limited to cases with the most significant risk factors and positive septic screen.

KEYWORDS: neonatal sepsis, 16S rRNA sequencing, septic screen.