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The difficulties to confirm the diagnosis of early neonatal infection

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Early-onset neonatal infection (EONI) refers to an infection arising within first 72 h after birth. Neonatologists have struggled for years to find ways of identifying the handful of babies with serious illnesses among the thousands who present with the clinical setting of EONI. It has often been the case that accurate histories, careful examination and clinical acumen are not enough and babies with serious illnesses are missed while others are unnecessarily treated. The risk factors for EONI are well known as infections during pregnancy with mainly group B *streptococci* (GBS) (5), preterm labor, premature rupture of membranes (PROM) and chorio-amnionitis. The problem arises when attempting confirmation of infection. Blood culture is considered the gold standard but requires aminimum of 1-2 mL of blood obtained via umbilical artery catheter or peripheral vein. It is time consuming: results take 24-48 hours and can yield false-positive results due to contamination or false-negative due to inappropriate amount of blood collected White blood counts and platelets as biomarker for EONI have proven poor predictive values in babies and children. Interleukins are good markers but their short life in blood circulation limits their diagnostic value. Both C reactive protein (CRP) and procalcitonin (PCT) seem to be more useful for detecting serious illness than WBC but neither is able to identify all children with serious bacterial infection. The reported diagnostic accuracy of PCT and CRP for the diagnosis of bacterialinfections has varied across studies. Procalcitonin (PCT), a precursor of calcitonin is a 116 amino acid protein secreted by the C cells of thyroid gland in normal situation but its levels may increase during septicemia, meningitis, pneumonia and urinary tract infection. This marker also is produced by macrophage and monocyte cells of various organs in severe bacterial infection and sepsis. Usefulness of PCT for early diagnosis of neonatal sepsis is well established now but its clinical use is lagging behind the use of CRP. This may be due to its cost. The effect of failure to reach an early decision about treating EONI in third world countries is even more: inappropriate antibiotics use and emergence of resistance increased health care cost and increased mortality. A study is to evaluate the use PCT marker, as compared to CRP, on outcomes of suspected EONI is underway. The main outcome will be the reliance on PCT as a single biomarker for EONI by observing suspected EONI case by case up to one month of age.

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