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Clinical and bacteriological profile of neonatal sepsis: A prospective hospital based study

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Background: Neonatal sepsis remains one of the leading causes of mortality and morbidity in developing countries. The ever-changing microbiological spectrum and emergence of antibiotic resistance poses renewed challenges to clinicians world-wide. Accurate and judicious clinical and laboratory diagnosis and appropriate management is warranted for better outcome.

Objectives: To determine the pattern of neonatal sepsis in the neonatal unit of Jigme Dorji Wangchuck National Referral Hospital (JDWNRH), to correlate clinical profile with culture proven sepsis and evaluate the bacteriological spectrum and antimicrobial profile of organisms.

Methods: A prospective cross-sectional study was conducted in the neonatal unit of JDWNRH for a period of one year from 1st January to 31st December 2016. Neonates suspected of clinical sepsis were included in the study and segregated as early onset and late onset disease. Sepsis screens were done and cultures sent under aseptic conditions. Clinical features, neonatal and maternal risk factors for early and late onset sepsis were assessed and analyzed using Chi-square test analysis. Bacteriological spectrum of organisms was studied and their antimicrobial sensitivity profile analyzed.

Results: During the study period, incidence of true culture positive neonatal sepsis was 19 per 1000 admissions with a blood culture positivity rate of 14%. Culture positive early and late onset sepsis was found in 54.5 % (n=24) and 45.5 % (n=20) of cases respectively. Preterm, low birth weight, low APGAR scores (Appearance Pulse Grimace Activity Respiration) and maternal use of intra-partum antibiotics were associated with early onset sepsis and use of parental nutrition was associated with late onset sepsis. Sepsis screens had a high sensitivity and negative predictive value. *Coagulase-negative Staphylococci, Klebsiella pneumoniae*, and *Acinetobacter* were the most common blood culture isolates. Gram negatives had high resistance to commonly used antibiotics. Culture proven sepsis had higher mortality than culture negative sepsis and gram negative had higher mortality than gram positive septicemia.

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