Efficacy of current antibiotic regimens for neonatal sepsis at a tertiary hospital: Pathogens and susceptibility, demographic profile, clinical manifestations and outcome, morbidity and mortality rate

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Neonatal sepsis is a leading cause of morbidity and mortality among both term and preterm infants. With growing antibiotic resistance, this retrospective, descriptive study determined if the current antibiotic regimens used at a tertiary hospital are still effective against the pathogens identified in blood culture in cases of neonatal sepsis from January 1, 2000 to December 31, 2015. Demographic profile, stratification to early- and late-onset sepsis, clinical manifestations, laboratory results, complications and antimicrobial susceptibility of the isolated organisms were analyzed. Prematurity and low birth weights were the major risk factors for developing neonatal sepsis. Respiratory symptoms were the most common clinical manifestations seen. The pathogens were evenly divided between gram-negative *bacilli* and gram-positive *cocci*, but gram-negative *bacilli* had higher mortality rate. The current antibiotic regimen of cefuroxime and amikacin for early-onset neonatal sepsis were changed in 57% of cases, indicating that a constant re-evaluation of any regimen is necessary to determine if an antimicrobial upgrade is necessary. Although piperacillin-tazobactam has been favored for late-onset sepsis in the unit in the last 15 years, more septic neonates ended treatment on a carbapenem. There was no growth of ESBL *E. coli* nor *Klebsiella pneumoniae* in blood isolates in spite of 15 years of current antimicrobial usage practices. A regimen of cefuroxime and amikacin for early-onset sepsis will miss a minority of pathogens while a carbapenem or piperacillin-tazobactam, with or without amikacin, is still effective for late-onset sepsis. Vancomycin, should be added in late-onset sepsis, if staphylococcal disease is suspected.

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