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LETTER TO EDITOR (VIEWERS CHOICE)

# CULTURE PRESCRIPTION PRACTICES FOR SUSPECTED NEONATAL BACTERIAL INFECTIONS IN COUNTRIES WITH LIMITED RESOURCES

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In resource-limited countries, when neonatal bacterial infection is suspected, empirical antibiotic therapy is initiated with a triple combination of a third-generation cephalosporin (Cefotaxime or Ceftriaxone), Ampicillin or Cloxacillin, and Gentamycin.[1] While this approach has been effective in past decades, it is now showing its limitations. With the emergence of resistant bacterial strains, this probabilistic protocol is experiencing increasing failures in the management of neonatal infections.[2,3,4] Prescribing a culture as part of the diagnostic and management process for neonatal infections remains imperative. The aim of this study was to assess practitioners' practices in prescribing cultures for suspected neonatal bacterial infections in the city of Garoua, Cameroon.

This was a retrospective descriptive cross-sectional study covering data from December 2018 to June 2024. The study was conducted in the neonatology departments of three referral hospitals in Garoua. All newborns aged 0 to 28 days admitted for neonatal infection were included, provided they had an available and well-documented medical record, a culture sample with an antibiotic susceptibility test performed, and a recorded result. Cochran's formula[5] was used to calculate the sample size. With a minimum size of 71 patients. Approvals from administrative authorities and ethical clearance were obtained. Sociodemographic, clinical, and bacteriological data were recorded using a data collection form. Data were recorded and analyzed using SPSS 25.0. The association between categorical variables was assessed using the Odds Ratio and p-value, with a 95% confidence interval and a significance level of 5%. The mean age of the newborns was 13.44 ± 8.48 days. Newborns older than 3 days predominated (68%). The sex ratio was 1.22. The predominant clinical signs were hyperthermia (82%), tachypnea (60%), tachycardia (40%), behavioral disorders, and neurological disorders. The total number of newborns admitted to the three neonatology departments was 7,615 with various diagnoses. Among them, 5,961 had a suspected neonatal infection, representing a hospital incidence of 78.27%. Confirmation of neonatal infection was sought in 464 newborns (7.78%), who were sampled for culture. The results of the various cultures performed were positive in 172 newborns (37.06%) and negative in 62.94%. Among the 172 positive cultures, 100 files were well-documented, including the identified bacterial species and antibiotic susceptibility test results. Some cases had 2 or 3 cultures performed, totaling 117 cultures across the 100 files (Figure 1).

All neonates admitted were initially treated with a protocol combining a 3rd-generation cephalosporin, gentamycin, and ampicillin or cloxacillin. This treatment was adjusted once culture results were available. The bacterial ecology identified 12 bacterial species, predominantly Gram-positive bacteria (53.5%), with Staphylococcus aureus (18.8%) as the most common species. Gram-negative bacteria accounted for 45.5%, with Klebsiella pneumoniae (12.3%) being the most frequent. Amikacin showed the highest sensitivity to the identified pathogens, while antibiotics used in the empirical protocol exhibited high resistance rates. Progression was favorable in 58% of cases, while 17% of neonates died.

There is a high hospital prevalence of neonatal infection, yet an insufficient prescription of culture tests to confirm the diagnosis. This practice should be improved to ensure optimal management.

**Compliance with Ethical Standards**
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