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Epidemiology Of Bacterial Bloodstream Infections In Very Low Birth Weight Neonates At Charlotte Maxeke Johannesburg Academic Hospital

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Introduction: Very low birth weight (VLBW) neonates are at a higher risk of neonatal sepsis because of immature immune system and prolonged hospitalization. The pattern of causative pathogens changes with time therefore frequent surveillance remains essential.

Objectives: To review bacterial organisms causing bloodstream infections and their associated antimicrobial susceptibility pattern.

Methods: A retrospective observational study between 1st January 2016 and 31st December 2016 was performed. The study population included all VLBW neonates with blood culture proven infection who were admitted to the neonatal unit at Charlotte Maxeke Academic Johannesburg Hospital (CMJAH).

Results: A total of 184/479 (38.4%) neonates had culture proven bacterial sepsis accounting for a total of 206 episodes of bloodstream infection (BSI). There were twenty-two (10.7%) episodes of early onset sepsis (EONS) and 184 (89.3%) late onset sepsis (LONS) respectively. Gram positive organisms accounted for the majority of isolates with *Coagulase negative Staphylococci* (CoNS) being the commonest pathogen in EONS at 68% and LONS at 35% respectively. The retrospective nature of the study meant that it was not possible to determine if CoNS were contaminants or pathogens. There was no case of *Streptococcus agalactiae* in the EONS. The number of multidrug resistant organisms was more common in LONS than EONS with extended beta lactamase producers in 20% of gram negatives. The majority of *S. aureus* isolated in LONS were methicillin resistant staphylococcus aureus (MRSA). Accordingly, the overall susceptibility to the first line antimicrobials is low.

Conclusion: The current first line therapy does not provide adequate cover. There is poor susceptibility to ampicillin by most pathogens but it is still remains an antibiotic of choice for EONS. LONS is still more predominant than EONS. Meropenem and vancomycin are suitable option for LONS.

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