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An audit of culture-proven neonatal sepsis at a tertiary hospital in South Africa: a retrospective review

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ABSTRACT

Background. Approximately one third of under five deaths occur during the neonatal period. Neonatal sepsis (NNS) being major cause of morbidity and mortality.

Sick newborns are provided with early empiric antibiotic therapy from birth. The choice of empiric antibiotic therapy is based on surveillance data of antimicrobial sensitivity patterns in culture isolates. Neonatal pathogens vary not only between different neonatal units but also over time in the same unit. The antibiotic susceptibility patterns of pathogens also change with time and with emergence of multidrug resistant organisms.

The aims of this study was to describe neonates with confirmed blood streams proven sepsis, as well as the causatives organisms. This information will be used as part of Charlotte Maxeke Johannesburg Academic hospital (CMJAH) neonatal unit antimicrobial stewardship and guide empiric antibiotic therapy.

Methods. This was a descriptive retrospective study from January 2018 to June 2019. The clinical data of neonates with confirmed blood stream culture, and the susceptibility profile of organisms were reviewed.

Results. There were 382 neonates with positive blood stream culture, which represent a NNS incidence of 15.5 per 100 admissions. Late onset neonatal sepsis (LONS) represented the majority of NNS, 12.3 per 100 admissions (n=304). The commonly identified organism overall was *Coagulase-negative Staphylococcus* (CONS) (45.9%), followed by *Acinetobacter baumannii* (11.7%)*, Staphylococcus aureus* (10.4%)*, Klebsiella pneumoniae* (9.3%) and *Escherichia coli* (4.1%). The majority of *Staphylococcus aureus*, *Klebsiella pneumoniae,* and *Escherichia coli* were respectively methicillin-resistant *Staphylococcus aureus* (MRSA) (87.5%), extended spectrum beta-lactamase *Klebsiella pneumoniae* (ESBL *Klebsiella pneumoniae*) (88.9%), and ESBL *Escherichia coli* (56.3%). *Candida parapsilosis* (2.8%) was the predominant fungus, susceptible to amphotericin B.