Detection of Beta-Lactamase and Extended Spectrum Beta-Lactamase from Bacteria Causing Neonatal Sepsis

{Original Article (Pathology)}

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ABSTRACT

Objectives: The aim of the present study was to detect Beta-Lactamase and ESBL (Extended Spectrum of Beta-Lactamase) by bacteria causing neonatal sepsis.

Study Design: Observational Study.

Place and Duration of Study: The study was conducted at the department of Microbiology, Basic Medical Science Institute of JPMC during the period of August 2009- July 2010. The blood samples were taken from babies admitted at National Institute of Child Health.

Materials and Methods: The study included 200 babies between the ages of 1 to 30 days who were presumed to have sepsis on clinical grounds. Neonates who had already been given antibiotics prior to admission and those who had congenital anomaly were excluded. Two hundred (200) blood samples were processed for blood culture. In the laboratory, each specimen were inoculated on differential and selective (Blood agar, MacConkey agar and Chocolate agar) media accordingly. For beta-lactamase production, we performed Chromogenic Cephalosporin method and for ESBL (Extended Spectrum of Beta-Lactamase) we performed double disc diffusion method.

Results: Two strains of *staphylococcus* and single isolated strain of *Haemophilus influenzae* yielded positive beta-lactamase production. Two strains of each *Enterobacter cloacae* and
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*Klebsiella pneumoniae* and one strain of *Escherichia coli* were positive for ESBL production.

**Conclusion:** According to our study, prevalence of beta-lactamase and ESBL in the total number of bacteria was low in NICH Karachi. Therefore, beta-lactam antibiotics remain the drug of choice in infections. ESBL detection must be routinely performed in clinical laboratories, as false reporting would result in treatment failure.

**Key Words:** Beta-Lactamase, ESBL (Extended Spectrum of Beta-Lactamase), DDDT (Double Disc Diffusion Test).

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