

**PREVALENCE AND MOLECULAR CHARACTERIZATION OF EXTENDED SPECTRUM BETA-LACTAMASES (ESBL) PRODUCING *Klebsiella pneumoniae* ISOLATED IN NEONATAL INTENSIVE CARE UNIT FROM ANNABA, ALGERIA**

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**Abstract:**

*Klebsiella pneumoniae* is opportunistic pathogen known to cause urinary tract infections, respiratory diseases, bacteremia and secondary infections of surgical wounds especially in hospitalized immunocompromised patients with severe underlying diseases or admitted to neonatal intensive care unit. The aim of this study was to evaluate the rate of Extended Spectrum Beta-Lactamases (ESBL) among strains of *Klebsiella pneumoniae* (ESBL-Kp) isolated in pediatric and neonatal intensive care unit during the years 2010 and 2011 in hospital of Annaba, Algeria using phenotypic and genotypic identification.

Bacteria were identified using both API20E commercial system and MALDI TOF mass spectrometry. Antibiotic susceptibility testing was performed using the disk diffusion method. Minimum inhibitory concentrations (MICs) of strains resistant to beta-lactam antibiotics were determined by E. Test.

Standard PCR amplification and sequencing were performed using previously published primers for amplification of genes coding for ESBL [*bla-shv*, *bla-tem*, *bla-ctx-m*].

Clinical isolates manifested high-level resistance to the majority of antibiotics especially the B-lactams. No strain was resistant to imipenem and colistin. The results of E. Test confirmed the results of disk method. We report a high rate of ESBL-Kp when 48 of a total of 51 patients (94.1%) admitted to Pediatric and Neonatology became colonized by ESBL-producing *Klebsiella pneumoniae*. In our study, the diversity of ESBLs was due to persistence of previously identified enzymes TEM-1, CTXM-1 group and (SHV-1, SHV-11, SHV-12) and the emergence of new enzymes in our geographical area (SHV-133, SHV-1a, SHV-2a, SHV-33, SHV-26, SHV-32).

This study revealed a high rate of ESBL *Klebsiella pneumoniae* then offers an insight into the risk of spread of carbapenemase-mediated resistance which becoming a worrisome global problem. Our results emphasize the need for adequate surveillance of multidrug resistant strains in Algerian hospitals especially in Pediatric and neonatal intensive care unit.

**Keywords:** ESBL, *Klebsiella pneumoniae*, Multidrug resistant, neonatal intensive care unit, Algeria