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Ctx-m, Tem, and Shv Beta- lactamases in clinical isolates of *Klebsiella* species in Ile-Ife, Nigeria

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Background: Extended Spectrum Beta Lactamases (ESBLs) that mediate resistance to 3rd generation cephalosporins are now observed worldwide. Numerous types of ESBLs exist and can be found in nosocomial infections with *Klebsiella pneumoniae* strains in hospitals in Nigeria. However, there is no information available on the detection and prevalence of beta-lactamases of *Klebsiella pneumoniae* in clinical samples in Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC), Ile-Ife, Nigeria.

Methods & Materials: In this analytical cross sectional study, between January 2012 and January 2013, 600 isolates were received from different clinical samples. Susceptibility of the isolates to different antibiotics was determined by disk diffusion method using NCCLS guidelines. The MICs of ceftazidime was determined using broth dilution assay. Isolates showing MICs$\geq$ 4 μg/ml for ceftazidime were phenotypically confirmed for ESBL production using double disc synergy method. The positive ESBL isolates were subjected to Polymerase Chain Reaction (PCR) to study the target genes. Demographic data were assessed and all data were analyzed accordingly.

Results: Patient's mean age was 65 ± 26.36 year. Three hundred and twenty six (54.3%) cases were females and Two hundred and eighty two (45.6%) cases were males. Clinical presentation of infection were 189 cases of respiratory infection (31.5%), 129 cases of septicaemia (21.5%), 117 cases of wound infection (19.5%), 96 cases of UTI, (16%), 36 cases of STI (6%) and 33 cases of meningitis (5.5%). All the isolates were sensitive to imipenem. Resistance to ceftazidime and cefotaxime were 43.5% and 46.2% respectively. Frequency of 375 (62.5%) cases of positive ESBL was recorded. The prevalence of SHV, CTX-M and TEM genes among these isolates were 32% (n = 120), 36% (n = 135) and 32% (n = 120) respectively. There was no significant correlation between ESBL positivity, age, ward and clinical presentation.

Conclusion: The incidence of ESBL producing isolates of *Klebsiella pneumonia* is high in OAUTHC, Ile–Ife, Nigeria. These are associated with multiple drug resistance and pose a special therapeutic challenge. Routine evaluation of ESBL producing pathogens in the hospital can help clinicians in empirical treatment of high risks patients with serious nosocomial infection.

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Rate of co-colonization with serotypes of strep pneumonia isolated from nasopharyngeal swab

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Background: Streptococcus pneumoniae normally colonizes the nasopharynx in 4-6 first months of life and can be found in 5-10% of healthy adults and 20-40% of healthy children. Colonization with more than one distinct strain of the same species, also termed Co-colonization is probably required for horizontal gene transfer between different pneumococcal strains. In this study we studied the rate of Co-colonization in healthy children less than 2 years in Tehran.

Methods & Materials: This study was conducted on 1302 healthy children (702 boys and 600 girls) for 2 months from June to July 2009. Specimens were collected with nasopharyngeal swabs and S. pneumoniae serotyping was performed by Multiplex PCR assay.

Results: overall pneumococcal carrier rate was 34.2%. There was no association of carrier state with sex and age groups (P = 0.70, P = 0.92). The most frequently isolated serotypes were: 19, 6, 14, 19F, 17, 21, 20, 12F, 11 and 3. These 10 serotypes accounted for 60% of all detected strains. Rate of co-colonization was 17.3% among all samples (225/1302) and 50.6% among carriers of S. pneumoniae (225/445). The most common serotypes in colonization with a single serotype were: serotype 17 (9.5%), 14 (8.2%), 20 (7.7%), 11 (6.8%) and 6 (6.4%), however the most common serotypes in cases with co-colonization were: serotype 19 (24%), 6 (19.6%), 19F (18.7%), 14 (17.8%) and 21 (13.8%).

Conclusion: Our findings reveal a high percentage of nasopharyngeal co-colonization with different serotypes of S. pneumoniae in young healthy carriers in our population.

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