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Paper Poster Session V

Carbapenem resistance in *Klebsiella*

Study of NDM(+) *Klebsiella pneumoniae* strains in a general hospital

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**OBJECTIVE:** The laboratory investigation of *Klebsiella pneumoniae* NDM (+) strains and the study of the patients clinical characteristics.

**MATERIAL AND METHOD:** Nine *Klebsiella pneumoniae* NDM (+) strains isolated from seven hospitalized patients were included in our study. Seven of them were obtained from Intensive Care Unit patients (rectal swabs n=2, oropharyngeal swabs n=2, surgical site infection n=1, bloodstream culture n=1 and peritoneal fluid n=1), one from the Urology Department (surgical site infection) and one from Internal Medicine Department (urine culture). The identification of the strains and the antibiotic susceptibility testing were performed with the automated system Vitek II (Bio Merieux France). The MIC values were confirmed via E-test. The phenotypic detection of NDM carbapenemase was conducted with the Meropenem and EDTA test. The detection of the bla<sub>NDM</sub> gene was performed with PCR. The DNA fingerprinting was conducted with Pulse Field Gel Electrophoresis (Central Public Health Laboratory, Hellenic Centre of Disease).

**RESULTS:** All cases were observed in one month (June 2014). Only 4 patients (1 multisite infection) developed infection while the remaining 3 were colonized in rectum (n=1) in oropharynx (n=1) or in both sites (n=1). The four cases of infection included the following: The first person was an accident victim suffering from multiple traumas, delivered in the ICU from a regional hospital, colonized in rectum. Finally he developed surgical site infection which concluded to septicemia from a NDM strain. The second patient also hospitalized in ICU developed peritonitis after a surgical procedure in the abdominal area. The third patient from the Urology Department suffered from a surgical site infection and the fourth (Internal Medicine Department) developed urinary tract infection. All were Greek citizens and referred prior hospitalization in the last 6 months; three of them had severe underlying diseases. Four patients deceased. PFGE revealed significant similarity between the DNA fingerprints demonstrating possible outbreak and spread.

**CONCLUSIONS:** The emergence of *Klebsiella pneumoniae* NDM (+) strains in Greece is considered alarming while the discharge from the hospital of carriers increases significantly the risk of the spread of these strains in the community.