

R2563

Abstract (publication only)

Emergence of plasmid-mediated blaNDM-1 in *Klebsiella pneumoniae* and *Escherichia coli* from Thailand

T. Netikul, H.E. Sidjabat*, D.L. Paterson, W. Tantisriwat, P. Kiratisin (Bangkok, TH; Brisbane, AU; Nakhon Nayok, TH)

Objectives: Three carbapenem resistant producing Enterobacteriaceae (two *K. pneumoniae* and one *E. coli*) were referred from two regional hospitals in Thailand. All isolates were recovered from urine samples. All patients had no travel history outside Thailand and no significant previous exposure of antibacterial agents. **Molecular typing** was carried out to provide epidemiologic information in Thailand. **Methods:** The sequence types of all isolates were determined by MLST. Further, they were characterised phenotypically and genotypically for antibiotic resistance mechanisms in particular for the carbapenem resistance mechanism. In addition, the isolates were tested for the presence of aminoglycoside resistance genes including 16S rRNA methylase genes. The location for the blaNDM-1 was determined by plasmid transformation into *E. coli* TOP10 recipient. **Results:** The STs of *K. pneumoniae* were ST11 and ST15. *E. coli* was ST131 and belonged to phylogenetic group B2. All isolates were resistant to all tested carbapenems and cephalosporins. The MICs to meropenem, imipenem and doripenem were all greater than 32 µg/mL, except for the imipenem MIC of one *K. pneumoniae* strain was 8 µg/mL. blaNDM-1 was determined in all three isolates and no other carbapenemase gene was present. All isolates were positive for blaCTX-M-1 group and no ampC was found. Both *K. pneumoniae* possessed blaSHV-1 and *E. coli* possessed blaTEM-1. In addition, *K. pneumoniae* possessed armA 16S rRNA methylase gene. All blaNDM-1 carrying plasmids were transferred by transformation. The MICs to carbapenems on the recipients acquiring the NDM-1 plasmids ranged from 6 to 32 µg/mL. **Conclusion:** The three clinical cases by NDM-1 producing Enterobacteriaceae emphasise further spread of NDM-1 producers in the community in South East Asia, and highlight the importance for surveillance in wider area. The transferability of NDM plasmid and the presence of blaNDM-1 in *E. coli* ST131 showed the potential of further spread of the NDM-1 producers in the community in Thailand.