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The phenotypic detection of carbapenem-resistant organisms in orthopedic wound infections in Ile-Ife

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This study investigated the phenotypic detection of carbapenem-resistant organisms in orthopedic wound infections in Ile-Ife to determine antibiotic sensitivity patterns of isolates and evaluate carbapenemase resistance in relation to patients' physiological, hospital and demographic parameters, from patients at the Obafemi Awolowo University Teaching Hospitals Complex between January to June 2015. Bacterial isolates were identified using MICROBACT identification kits and antibiotic susceptibility was evaluated by the Kirby-Bauer method. Carbapenemase and Metallo-beta lactamase (MBL) production were assessed by Modified Hodges Test and Disk potentiation method according to CLSI standards. The association between different variables was tested using Chi-square. Of the 180 specimens processed, 68.33% produced 162 isolates, 56.79% were gram-negative bacilli (GNB). *Staphylococcus aureus* was the predominant organism isolated (30.86% of isolates) followed by *Pseudomonas aeruginosa* (22.84% of isolates). GNB and GPC showed varied sensitivity to imipenem, meropenem, ceftazidime, cefuroxime, gentamicin, ofloxacin, augmentin, cefixime and ciprofloxacin. Prevalence of imipenem resistance for GNB was 7.61% and for GPC was 4.92%, while meropenem resistance for GNB was 14.13% and 16.39% for GPC isolates. Carbapenemase production was observed in 8.71% of GNB isolates with the highest prevalence of *P. aeruginosa* isolates while MBL production was observed in 5.44% of total GNB isolates. *P. aeruginosa* is the predominant GNB found in OWI while *Staphylococcus* spp is the predominant GPC in this environment. Carbapenem resistance was observed among both GPC and GNB. Carbapenemase production including MBLs was highest in *P. aeruginosa*. Occurrence and possible spread of carbapenemases especially MBL among GNBs is established in this environment.

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