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## Abstract

An observational prospective study was conducted at Mayo Hospital, Lahore, Pakistan during the period of February to August 2014. The aim was to determine in vitro antimicrobial susceptibility of different antibiotics against clinical isolates of bone and associated wound infections. A total of 107 pus samples were aseptically collected and cultured as per Standard Operating Procedure (SOP). All isolates were identified by using gram stain and different biochemical reactions. Antibiotic testing was performed by Kirby Bauer disc diffusion method. Among 107 specimens, 63 (59%) were growth positive while 44 (41%) samples were growth negative. The age of patients ranged from 10-78 years (with mean age of male  $39.75 \pm 14.86$  and of female is  $37.31 \pm 19.64$ ). From 63 samples, *Staphylococcus aureus* 27 (43.7%) was the predominantly isolated pathogen followed by *Pseudomonas aeruginosa* 21 (33.3%), *E. coli* 14 (22.2%) and *Acinetobacter* spp. 1 (0.15%). The most frequently infected bones were femur 17 (26.69%) and ulna 13 (20.63%). The dominant pre-disposing factor which aids in bone infection was diabetes mellitus with a frequency of 18 (16.82%) followed by HCV 12 (11.21%) and then IHD 9 (8.41%). Antibiotic susceptibility testing showed that imipenem (85%) and tazobactam+piperacillin (74%) were sensitive for gram positive bacteria while, resistant against ampicillin (100%) and chloramphenicol (56%). Gram negative bacteria were sensitive for imipenem (90.4%) and meropenem (85.7%) and least sensitive for ampicillin (100%), amoxicillin (93%) and vancomycin (100%). The high number of causative microorganisms and their increased resistance to commonly used antimicrobial agents provided important information to guide clinician's to practice aseptic procedures and balanced use of antibiotics.