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Abstracts of GCCMID 2018 - Oral Presentation

Unusual High Prevalence of Oxa-181 Carbapenemase-Producing Enterobacteriaceae from ICU Patients in Kuwait Hospitals

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Background: OXA-181 carbapenemase, a variant of OXA-48, was initially reported in India but has also been sporadically detected and reported in many other countries, excluding Kuwait. The purpose of this study was to report an explosive emergence of OXA-181-producing carbapenem-resistant Enterobacteriaceae (CRE) among ICU patients in 2 Kuwait teaching hospitals.

Materials/Methods: A total of 1053 Enterobacteriaceae were isolated from the rectal swabs of ICU patients of 2 teaching hospitals (Adan (AH) and Mubarak (MH)) between January 2016 and December 2017. They were identified by VITEK-2 and their susceptibility determined by E-test. Carbapenemase-producing isolates were confirmed by phenotypic and polymerase chain reaction (PCR) methods and then subjected to molecular characterization by using known primers to determine the genes mediating resistance. Their clonal relationship was determined by pulsed-field gel electrophoresis (PFGE).

Results: Fifty (4.7%) of the isolates were confirmed as CRE, of which 42 (84%) were carbapenemase-producers (CPE). Thirty-six (72%) of these harbored blaOXA-181 gene followed by 5 (11.9%) blaOXA-48 gene and 1 (2.3%) blaNDM-5. Twelve (33.3%) of OXA-181 CPE co-harbored 2 blaNDM-5, 6 blaKPC-2, 1 blaVIM-1,1 blaVIM-5 and 2 blaNDM-1, genes. The XbaI PFGE profile-based Dendrogram of the isolates showed that the 85% similarity criterion resolved 7 pulsotypes, designated A, B, C, D, E, F, and G.. Further analysis revealed that 7 subpulsotypes A1, A2, A5, A6, C1, C2, and E1 were from unit D in the medical ICU of MH and subpulsotypes A3, A4, B1, B3, D1,D2,D3,D4, F1,F2,F3,G1 and G2 were from surgical/medical ICUs in AH. 100% similarity was demonstrated among 8 isolates from AH and 2 from MH.

Conclusions: There was an unusually high proportion of OXA-181-prodicing CPE among our isolates in the 2 hospitals. The 85% clonal relatedness between the isolates over a 2-year period suggests a serious potential silent threat to hospital-acquired infections in Kuwait.

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The One-Day Point Prevalence of Infections in a Tertiary Care Center in Saudi Arabia

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Background: One day surveillance is a feasible tool to estimate the burden of infections in hospitals and monitor the antimicrobials use and microbial resistance. We conducted this study as part of point prevalence multi-center study, aiming to provide a reliable local data. There was no similar study conducted in the region.

Methods: One day point-prevalence surveillance conducted on April 3, 2018 on inpatient who were diagnosed to have infection at King Abdulaziz Medical City, Riyadh. Demographics and clinical data were collected. Same-day surgery, dialysis, ambulatory or emergency room patients and those receiving prophylactic antibiotics were excluded.

Results: Among 1082 admitted patient were reviewed, 37% (401/1082) were diagnosed to have an infection. Respiratory tract infections were the most documented 32% (127/401) followed by Urinary tract infections (UTI), soft tissue infections & Blood stream infections (BSI) accounted for 16%(63/401), 9%(38/401) & 8%(34/401) respectively. Hospital acquired infections accounted for 39% (156/401) of these patients.

Hospital acquired Pneumonia were the major nosocomial infections 37% (58/156) followed by nosocomial UTIs 20.5% (32/156) and BSIs 11.5%(18/156). 59% (146/247) of pathogens found in the 247 cultures were Gram negative rods. Antibiotic susceptibility of gram negative rods showed Carbapenems resistance in 19% (28/146) of isolates. gram positive cocci accounted for 26% (64/247) of cultures. The majority were Staph aureus 66% (42/64), MRSA (methicillin resistant Staphylococcus aureus) were found in 40% (17/42).

Conclusion: The infection prevalence in one day at KAMC is 37%. Of these, hospital acquired infections(HAIs) rate is 14% (156/1082). WHO reports of infection prevalence in developing countries vary from 5% to 19%. The results were consistent with WHO reports. The most frequent type of infection is hospital acquired Pneumonia followed by catheter related UTI and BSI. Annual clinical surveillance of infections in hospitalized patients is needed to monitor and implement effective future plans.

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