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Molecular characterization of extended spectrum beta-lactamases producing *Enterobacteriaceae* causing lower urinary tract infection in pediatric population

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Urinary Tract Infections (UTIs) continue to be the one of the most common cause of infections in pediatric patients in the community. It is important to identify significant trend on anti-microbial resistance that may influence empirical treatment & antibiotic stewardship. This study was designed with an objective of determining the prevalence of resistance mechanisms in ESBL producing *Enterobacteriaceae* isolated from pediatric patients attending Pediatrics Clinic (PEC) Al Saad, Qatar. The isolates were identified by MALDI-TOF and phenotypic antimicrobial susceptibility testing was performed by BD Phoenix and confirmed by double disk synergetic test (DDST). PCR and multiplex PCR-were performed for molecular characterization of different groups of ESBL. Out of a total of 566 positive urine cultures, *E. coli* (84%) was the most predominant uropathogen followed by *K. pneumoniae* (11%) and 197 (34.8%) were found to be ESBL producing *Enterobacteriaceae* isolates. Male to female ratio was 1: 4.7. Of these positive ESBL isolates, 119 were included in our study with *E. coli* being the pre major dominant isolate 104 (87.4%), followed by *K. pneumoniae* 13 (11%) then *E. cloacae* 1(0.8%) and *C. koseri* 1 (0.8%). TXM was found to be the gene responsible for 63% of ESBL, followed by TEM 23.5 then a combination of TEM and SHV 9.2% and 4.2% were due to SHV. In conclusion, to our knowledge, there are no published data on UTI etiological agents and their analogues genotypic characteristics of resistant species of bacteria among children in Qatar. Our findings generate crucial information about the molecular epidemiology of resistant Gram-negative bacteria in pediatric population in Qatar. Accordingly, it will help in understanding the ESBLs dynamic and associated risk factors. More importantly it will help in establishing the anti-microbial stewardship program in Qatar and limiting the spread of antibiotic resistant bacteria in the community by implementing the evidence based infection control measures.

Biography

Eltai N Omer has completed her PhD from Humboldt University, Berlin, Germany and Postdoctoral studies from University of the West of England, UK. She is Research Associate at Biomedical Research Centre, Qatar University. She has published many papers in the field of Antibiotic Resistance. Her research interests are multidisciplinary with emphasis on molecular diagnostic approaches, antimicrobial susceptibility & resistance, test of new natural antimicrobial agents. She is adopting the one health system approach by studying antimicrobial resistance in agriculture, environment and human in Qatar.

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