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Prevalence and molecular characteristics of ESBL associated with the pediatric population in Qatar**Nahla Omer Eltai, Hadi M Yassine, Asmaa A Al Thani, Marwan A Abu Madi, Ahmed Ismail, Emad Ibrahim and Walid Q Alali**

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Urinary tract infection (UTI) is one of the most common pediatric infections and it may cause permanent kidney damage. The β -lactam antibiotics have traditionally been the main treatment for *Enterobacteriaceae*; nonetheless, the emergence of species producing β -lactamases has rendered this class of antibiotics largely ineffective. There are no published data on UTI etiological agents and antimicrobial resistance profile among children in Qatar. The aim of this study was to identify the most common extended-spectrum beta-lactamases (ESBL) producing species associated with UTIs, to determine the phenotypic profiles of antimicrobial resistance of *Enterobacteriaceae* and to characterize at the molecular level of the genes encoding resistance in ESBL produced by *Enterobacteriaceae* among pediatric patients in Qatar. A total of 635 *Enterobacteriaceae* were isolated from 727 urine cultures, collected between February and June 2017 from children (0-15 years) diagnosed with UTI at Pediatric Emergency Center, Doha, Qatar. Most of the UTI were reported among 0-5 year's old (73.6%) children. Initial screening with phoenix revealed 201 (31.7%) as extended spectrum β -lactamases (ESBL) producing *Enterobacteriaceae*. The most predominant pathogen of these was *E. coli*, 166 (83%), followed by *K. pneumoniae*, 22 (11%). One hundred and ten (110) isolates were included for further analysis. ESBL resistance was further confirmed by double disc synergy test and PCR. The highest resistance was encoded by blaCTX-M (59%) genes, primarily bla CTX-MG1 (89.2%), followed by bla CTX-MG9 (7.7%). Thirty-seven percent (37%) of bacteria were harboring multiple bla genes (two genes or more). Analyzed samples were categorized into seven clonal clusters according to the presence and absence of seven genes. In conclusion, our data designate a high occurrence of CTX-MG1 indicating a high dynamic transmit-ability in the community that could have a significant impact on public health, mostly through horizontal transmission in healthcare facilities. In addition, our results indicate an escalated problem of ESBL in pediatrics with UTI, which mandates the establishment of the antimicrobial stewardship program. Moreover, our findings revealed that the use of cephalosporins, gentamicin and trimethoprim/sulfamethoxazole is compromised in Qatar among the pediatric population with UTI, leaving carbapenems and amikacin as the therapeutic option for severe infections caused by ESBL producers. The negative impact of the extensive use of carbapenems could lead to carbapenamase resistant *Enterobacteriaceae*.

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