

October 11-12, 2018
Edinburgh, ScotlandJ Infect Dis Treat 2018, Volume 4
DOI: 10.21767/2472-1093-C2-006

Extended-spectrum beta-lactamase producing and multi-drug resistant *Enterobacteriaceae* in Addis Ababa, Ethiopia

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The global emergence and spread of extended-spectrum beta-lactamases (ESBLs) producing *Enterobacteriaceae* have been threatening the ability to treat infection. Hence, this study aimed to determine the prevalence of ESBL producing and multi-drug resistant (MDR) *Enterobacteriaceae* (ESBLs-E) from different clinical specimens in Addis Ababa, Ethiopia. A cross-sectional study was conducted from January 1st to May 30th, 2017 at EPHI. Identification and antimicrobial susceptibility testing (on Muller Hinton agar) was performed on 426 *Enterobacteriaceae* isolates. All *Enterobacteriaceae* were screened for ESBLs production using cefotaxime and ceftazidime as per CLSI guideline. ESBLs species *Enterobacteriaceae* were confirmed by combination disk test (CDT). Data was entered and analyzed by using SPSS V. 20. The most frequent *Enterobacteriaceae* were *E. coli*-228 (53.5%) and

K. pneumoniae-103 (24.1 %). The magnitude of ESBLs-E was 246 (57.7%). The highest frequencies of ESBLs-E were observed in blood specimen (84.4%) and the highest ESBLs production was observed in *K. pneumoniae* (85.4%). Highest resistance level was seen to sulfamethoxazole-trimethoprim (77.0%), augmentin (71.6%), cefotaxime (62.2%), cefepime (60.3) and ceftazidime (60.8%). The resistance to meropenem, amikacin and ceftazidime were 5.2%, 13.8% and 25.1%, respectively. The overall magnitude of MDR level was 68.3%. Of ESBLs-E, 96.3% of them were MDR ($P < 0.001$). There was a high prevalence of ESBLs-E and MDR isolate in Addis Ababa. Most of ESBLs-E were isolated primarily in blood and urine. The highest ESBLs production was observed among *K. pneumoniae*.

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