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Distribution of ESBLs among Escherichia coli isolates from outpatients with recurrent UTI and their antimicrobial susceptibility

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Introduction: Extended-spectrum β -lactamase-producing strains of Enterobacteriaceae are considered as emerging pathogens. They occur as a major problem in hospitalized as well as community based patients. Major outbreaks involving ESBL strains have been reported from all over the world. Recurrent urinary tract infection (recurrent UTI) is one of the risk factors for infection with ESBL-producing E. coli in hospitalized and non-hospitalized patients.

Methodology: Ninety one E. coli isolates from outpatients with recurrent UTI were surveyed phenotypically and genotypically for ESBL production and tested for antimicrobial susceptibility.

Results: Of 91 E. coli isolates, 75.8% were resistant to each of cefotaxime and ceftazidime and 74.7% produced ESBLs. CTX-M-type was the most frequent ESBL (accounting for 70.3%) with CTX-M-1 being the only subtype possessed by these isolates. The prevalence of OXA and SHV-type was 32.9% and 10.9%, respectively. None of the isolates produced TEM β -lactamase. All OXA-type ESBL produced concomitantly with CTX-M1. Both ESBL producers and non-producers had high resistance to ampicillin followed by trimethoprim-sulphamethoxazole, third generation cephalosporins and tetracycline; whereas no isolate showed resistance to imipenem and meropenem. Totally, resistance rates of ESBL producers were higher than that of ESBL non-producers as well as multidrug resistance (52.7% vs. 8.7%, respectively).

Conclusions: Our study documented high distribution of ESBLs among E. coli isolates from outpatients with recurrent UTI with CTX-M as the predominant ESBL. In the current situation, it is important that antibiotic treatment should be started only after getting proper sensitivity report from the laboratory.

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