TITLE: DETECTION OF TEM, SHV, OXA-LIKE-1 AND CTX-M FAMILIES OF EXTENDED SPECTRUM β-LACTAMASES IN *ESCHERICHIA COLI* AND *KLEBSIELLA PNEUMONIAE* FROM COMMUNITY-ACQUIRED URINARY TRACT INFECTIONS IN SALVADOR-BAHIA.

AUTHORS: GALVAO, V. S.[1]; LEAL, H. F.[2]; BASTOS, L. O. P.[1]; REIS, J. N.[1]; CORDEIRO, S. M[1].

INSTITUTION: [1]FACULDADE DE FARMÁCIA, UNIVERSIDADE FEDERAL DA BAHIA, SALVADOR, BA (RUA BARÃO DE JEREMOABO, ONDINA, CEP: 40170-115, SALVADOR-BA, BRAZIL); [2]CENTRO DE PESQUISAS GONÇALO MONIZ, SALVADOR, BA (RUA WALDEMAR FALCÃO, CANDEAL, CEP: 40296-710, SALVADOR-BA, BRAZIL).

ABSTRACT:

Urinary tract infection (UTI) is considered one of the leading bacterial infections in the community environment, reaching 30-35% of episodes in the adult population. Studies have shown an increase in the number of community-acquired UTI cases due to enterobacteria with high levels of resistance, mainly because of extended-spectrum β-lactamases (ESBL).The present study is evaluating the presence of resistance genes in *E.coli* and *K. pneumoniae* isolates identified in UTI cases of patients seen at the Laboratory of Clinical Microbiology at the Pharmacy School of the Federal University of Bahia. Antimicrobial susceptibility test was performed by disk diffusion according to the standards of the Clinical Laboratory Standard Institute. The ESBLs production was verified by the disk approximation method. Screening for cephalosporins-resistant *E.coli* and *K.pneumoniae* isolates was performed by a set of two multiplex PCRs (bla_{TEM}, bla_{SHV}, $bla_{\text{OXA-1-like}}$ and $bla_{\text{CTX-M-1}}$, $bla_{\text{CTX-M-2}}$, $bla_{\text{CTX-M-9}}$). From June 2016 to the present, 2605 urocultures were carried out, 11.2% (292/2605) were positive, being *Escherichia coli* the most frequent agent in 59.9% (175/292), followed by *Streptococcus agalactiae* 12.3% (36/292) and *Klebsiella pneumoniae* with 11.4% (33/292). *Citrobacter* spp, *Enterobacter* spp, *Proteus* spp, *Enterococcus* spp and *S. saprophyticus* represented 16.4% (48/292) of the identified cases. ESBL production was detected in 2.7% of *E. coli* (5/175) and in 15.1% (5/33) of the *K. pneumoniae isolates*. All 10 ESBLs-producing isolates were resistant to ampicillin, cephalosporins and aztreonam. The most frequent ESBL genes identified were: TEM and OXA-1-like (2 of 10) genes; OXA-1-like (2 of 10); SHV (2 of 10) and TEM (1 of 10). All will still be tested for the $bla_{\text{CTX-M-1}}$, $bla_{\text{CTX-M-2}}$, $bla_{\text{CTX-M-9}}$ genes. The emergence of ESBL-producing strains in uropathogens from the community setting is of concern due to the high resistance to multiple antibiotics, which can result in failures in the empirical therapies, leading to the development of complicated UTIs cases. Thus, the regional surveillance of these resistances is highlighted, as well as the awareness of microbiologists and clinicians for the correct and early detection that will impact in the choice of effective treatment.

Keywords: community-acquired UTIs; *E. coli; K. pneumoniae;* antibiotic susceptibility; ESBLs genes.

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