

TITLE: CHARACTERIZATION OF *Escherichia coli* ISOLATES OBTAINED FROM PATIENTS UNDERGOING PERITONEAL DIALYSIS IN BRAZIL

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ABSTRACT:

Peritonitis is a common complication in patients undergoing peritoneal dialysis, taking them to hospitalization and unfavorable clinical outcomes. *Escherichia coli* have been reported as the most frequent etiologic agent in peritonitis infections due Gram-negative bacilli (GNB). The objective of this study was to characterize *E. coli* isolates, obtained from episodes of bacterial peritonitis occurred from 1997 to 2015, in patients undergoing peritoneal dialysis at University Hospital of Botucatu Medical School, São Paulo, Brazil. The *E. coli* isolates were characterized regarding the presence of genes responsible for encoding adhesins, toxins and siderophores. They were also assigned into distinct phylo-groups, using a quadriplex PCR method, and the antimicrobial susceptibility profile was evaluated against the following antimicrobial drugs: amikacin, ceftazidime, cefepime, ciprofloxacin and imipenem. The identification of somatic (O) and flagellar (H) antigens was performed by standard agglutination tests with specific O1–O181 and H1–H56 antisera. Extended-Spectrum β -lactamase (ESBL) production was investigated by double disk-synergism method, and genes, related with ESBL and plasmid-mediated quinolone resistance (PMQR), were investigated by PCR. During the 18 years in which this study was performed, 178 peritonitis episodes due GNB were recorded. Among these episodes, 61.2% were caused by members of the Enterobacteriaceae family, of which we obtained 27 *E. coli* isolates, and 38.8% due non-fermenting GNB. The majority of the *E. coli* isolates were classified in the phylo-groups B1, B2 or F, and genes responsible for encoding virulence factors were more prevalent in *E. coli* from the phylo-groups B2 and F. None of the serogroups detected was prevalent; however, two O7:HNM (non-motile) and two O160:H25 isolates, with high degree of similarity in the PFGE analyses, were observed. The ESBL-producing *E. coli* investigation revealed that two isolates produced this phenotype, with the CTX-M and TEM types of β -lactamases concomitantly detected in these isolates. Additionally, we demonstrated that five *E. coli* isolates were resistance to ciprofloxacin, and two of them harbored the *aac(6)-Ib-cr* PMQR-gene. In conclusion, the *E. coli* isolates obtained from patients with peritonitis did not show a common virulence profile and were susceptible to most of the antimicrobial drugs tested, despite the unsuccessful treatment observed in several patients included in this study.

Keywords: *Escherichia coli*, peritoneal dialysis, antimicrobial resistance, ESBL, PMQR.

Development Agency: Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP N° 2013/21379-8)