

TITLE: ENTEROAGGREGATIVE *Escherichia coli* IN DIARRHEIC STOOLS OF IMMUNOCOMPROMISED PATIENTS FROM BRAZIL: PHENOTYPIC, MOLECULAR CHARACTERIZATION.

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ABSTRACT

Enterοaggregative *Escherichia coli* (EAEC) is a pathogen associated with acute and persistent diarrheal disease in children, adults and mainly in immunocompromised patients. The standard method of diagnosis of this pathotype is the phenotypic adhesion assay, however, it has sought the establishment of the molecular diagnostic. In the period from 2013 to 2015, 487 isolates were obtained from 100 diarrheic stools samples of immunocompromised patients of University Hospital, in Londrina, in the North of Paraná State, Brazil, in order to verify the presence of EAEC. First, HEp-2 cell adherence assay was performed on all samples analyzed for phenotypic characterization and after, the genotypic characterization using the diagnostic genes: *aaiC*, *aaiA*, *aatA* and *aggR*. In the positive strains for the diagnostic genes were investigated the virulence genes: *astA*, *pet*, *pic*, *aap*, *shf*, *aafA*, *aggA*, *agg3A* e *agg4A*. The antimicrobial susceptibility test, the biofilm formation test and the serotyping were also performed. Strains from 93 patients adhered to HEp-2 cells in an aggregative fashion and 15 had at least one diagnostic gene. The phenotypic detection was significantly higher than molecular ($p < 0.05$). The virulence genes (*pet*, *agg3A* and *agg4A*) were not found and the others were observed in strains of at least one patient in whom the diagnostic gene was previously observed. The distribution in the phylogenetic groups observed was: A (25%), D (0%), B1 (25%) and B2 (8.33%), C (8.33%), E (8.33%). Only strains of one patient did not produce biofilm. A total of 13 serotypes were identified of these 12, as far as it is known, have not been described to EAEC and the serotype of difficult identification in Brazil of the strain 042. Strains of two patients presented resistance to trimetoprim + sulfamethoxazole and three intermediate resistance to cephalothin. The study demonstrated a high prevalence of EAEC strains in immunocompromised patients in southern Brazil. It was also demonstrated that the adhesion assay presented the highest index of identification of EAEC, in contrast, it was verified that the genotypic assay to date does not achieve a high power of identification, due to the genetic variability of these strains, so the studies with EAEC are important and the development of molecular markers.

Keywords: Enterοaggregative *Escherichia coli*, immunocompromised, diarrheic stools, diagnostic genes

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