TITLE: GENOTYPIC RELATION OF HUMAN AND POULTRY LINEAGES OF *Campylobacter jejuni*

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ABSTRACT:

Brazil stands out as a producer and exporter of chicken meat in the world, and, therefore, it is important to ensure its quality and food safety of the consumer, monitoring the presence of pathogens throughout the production process. *Campylobacter jejuni* is an important agent of gastroenteritis worldwide, a fact that leads to the necessity to know better its characteristics, epidemiology and phylogeny. The aim of this study was to analyze strains of *C. jejuni* isolated from chicken carcasses destined for national and international market, and from human clinical patients in order to determine the degree of genetic variability and the different genetic profiles associated with the presence of virulence and adaptation genes. Sixty four strains of *C. jejuni* were analyzed, 20 of them were isolated from human clinical patients (2006-2010) (Fiocruz - RJ - CCAMP and Instituto Adolf Lutz - IAL SP) and 44 from poultry (2015-2016) (LEPIMOL - UFU MG). The presence of eleven genes of virulence, adaptive resistance and associated with Guillain-Barré Syndrome (*flaA*, *pdlA*, *ciaB*, *cadF*, *cdtABC*, *luxS*, *dnaJ*, *htrA*, *cbrA*, *cstII* and *neuA*) were evaluated by the PCR technique. PFGE was used to determine the genetic proximity between the strains. Of all the studied strains, 28 (43.7%) had all the evaluated genes, and 25 (89.3%) were strains of avian origin. The strains isolated from the chicken carcass presented superior pathogenic and adaptive potential ($p < 0.05$), except for the *flaA* gene, where no difference was observed ($p > 0.05$). The molecular typing analysis identified five pulsotypes, of which, none grouped strains from different origins, four restricted to strains originating from chicken carcasses, and one composed of two human strains. It is possible that analysis with contemporaneously isolation can result in a closer relationship between the strains. Although the human lineages were originated from hospitalized patiens, they had limited virulence and adaptation to adverse conditions comparing to those isolated from chicken carcasses, in addition to being totally different from the typing analysis. However, the potential capacity to cause Guillain-Barré Syndrome was the same for strains isolated from humans and birds. In general, poultry strains, probably because they are more recent, were more specialized to adapt to the environment, invade and cause disease in the human host.

Keywords: Adaption, pulsotypes, typing, virulence

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