Characterization of Antimicrobial Susceptibility and Its Association with Virulence Genes Related to Adherence, Invasion, and Cytotoxicity in Campylobacter jejuni and Campylobacter coli Isolates from Animals, Meat, and Humans

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Resumen

The aim of this research was to statistically analyze the association between antimicrobial susceptibility/resistance to erythromycine, gentamicin, ciprofloxacin, and tetracycline and 11 virulence genes associated with adherence, invasion, and cytotoxicity in 528 isolates of Campylobacter coli and Campylobacter jejuni obtained from retail meat and fecal samples from food-producing animals and human patients. A high percentage of Campylobacter strains were resistant to antimicrobials, specifically ciprofloxacin and tetracycline. Moreover, we observed a wide distribution of virulence genes within the analyzed strains. C. jejuni strains were more susceptible to antimicrobials, and showed greater number of virulence genes than C. coli strains. Genes related to invasion capability, such as racR, ciaB, and pldA, were associated with antimicrobial-susceptible strains in both species. The genes cdtA and dnaJ, a citotoxin unit and an adherence-related gene, respectively, were associated with antimicrobial-resistant strains in both species. In conclusion, Campylobacter strains show a statistically significant association between antimicrobial susceptibility and the presence of virulence genes.

Palabras clave

KeyWords Plus:COMMERCIAL POULTRY FLOCKS; ANTIBIOTIC-RESISTANCE; TOXIN PRODUCTION; SPP.; STRAINS;FOOD; INFECTION; SYSTEM; COLONIZATION; CONSUMPTION

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