Studies on the prevalence of *Campylobacter jejuni* in food and stools of patients with acute gastroenteritis in the Gampaha District of Sri Lanka.

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ABSTRACT

The Gram-negative bacterium *Campylobacter jejuni* has extensive reservoirs in livestock and the environment and is a frequent cause of food-borne gastroenteritis in humans. *C.jejuni* is a fastidious, mainly spiral, curved rod shaped bacterium.

The aims of this study were to investigate the prevalence of *Campylobacter jejuni* in food (raw chicken and raw milk) in the retail market and stool samples of acute gastroenteritis patients in the Gampaha District of Sri Lanka and determination of antibiotic sensitivity of isolates. Polymerase Chain Reaction (PCR) was used in confirming some of the isolates as *C.jejuni*. A total of fifty food samples and hundred stool samples of acute gastroenteritis patients were examined from June 2001 to June 2004.

In the present study, *C.jejuni* was isolated from food and stool samples by the enrichment culture technique using *Campylobacter* enrichment broth and agar under microaerophilic conditions. Identification was performed by morphological, biochemical and latex agglutination test using *C.jejuni* (ATCC 33291) as the reference strain.

Kirby – Baur antibiotic susceptibility test (ABST) was performed on all isolates of *C.jejuni*. The antibiotics used were nalidixic acid, tetracycline, erythromycin, vancomycin, ampicillin, chloramphenicol and ciprofloxacin.

Previously designed primers of *C.jejuni* were used to amplify a 159 bp sequence for the PCR confirmation of *C.jejuni* isolates from food and stools. The sensitivity of detection of *C.jejuni* in pure culture using PCR assay was determined.

C.jejuni was recovered from eight, of thirty samples (26.67%) of raw chicken examined. Of the twenty samples of raw milk examined, eleven samples (55%) yielded

C.jejuni. Two out of hundred (2%) samples of stools of acute gastroenteritis patients were positive for *C.jejuni*. The prevalence of *C.jejuni* in food was 38% while in diarrheal stools was 2%.

In the study of antibiotic sensitivity pattern, *C.jejuni* isolates from the two positive stool samples were resistant to erythromycin, ciprofloxacin, ampicillin, and vancomycin. They were susceptible to nalidixic acid, tetracycline and chloramphenicol. Among food isolates, all isolates were susceptible to nalidixic acid, 42.10% to tetracycline, and 10.52% to ampicillin. All food isolates were resistant to erythromycin, ciprofloxacin chloramphenicol, vancomycin 57.89% to tetracycline, and 89.48% to ampicillin.

Some isolates were confirmed using PCR assay and the sensitivity of detection of *C.jejuni* in pure culture was determined which was 64 cells.

According to the results of the present study, prevalence of *C.jejuni* in raw chicken is low compared to that of published literature in USA and UK. The prevalence of *C.jejuni* in gatroenteritis patients is also very low. Ciprofloxacin resistance of *C.jejuni* isolates is a common occurrence noted in the present study and this could be due to the use of enrofloxacin in poultry.

Limitations of the study include an examination of a limited number of samples, specially the food samples. *C.jejuni* is a very fastidious organism which takes a considerably long period to isolate and further the isolation technique requires a number of growth supplements. Due to the time and financial constraints the total number of samples examined in the present study had to be limited. Due to the same reasons only five isolates could be confirmed using PCR assay.