

What is the pathogenesis of *C. jejuni*-related disease?

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Campylobacters are small Gram-negative spiral rods. *Campylobacter jejuni* (*C. jejuni*), a foodborne organism contracted from untreated water, milk and meat, especially chicken, is one of the most important causes of bacterial diarrhea worldwide. However, its mode of pathogenesis is not clear.

A research article to be published on December 28, 2008 in the *World Journal of Gastroenterology* addresses this question. The research team led by Christopher J Hawkey from Nottingham University Hospital of United Kingdom investigated whether different strains isolated from patients with *Campylobacter* infection had different effects.

Nineteen consecutive strains from community patients with acute bacterial enteritis were isolated and three of them were compared with the laboratory strain 12189. All strains translocated across monolayers but only a minority invaded HCA-7 cells. Strains that invaded HCA-7 cells destroyed monolayer resistance over 6 h, accompanied by increased release of lactate, dehydrogenase, a four-fold increase in permeability to (3H) mannitol, and ultrastructural disruption of tight junctions, with rounding and lifting of cells off the filter membrane. Synthesis of interleukin (IL)-8 and prostaglandin E2 was increased with strains that invaded the monolayer but not with those that did not.

Their results indicated that two distinct patterns of interaction between clinical isolates of *C. jejuni* and a colonic epithelial cell line. Strains that invaded epithelial cells were shown to destroy them, Strains that did not

invade epithelial cells did not affect barrier properties or increase mediator production. The data raised the possibility that with some *Campylobacter* infections the epithelium can be the source of pro-secretory and pro-inflammatory compounds.

Reference: Beltinger J, del Buono J, Skelly MM, Thornley J, Spiller RC, Stack WA, Hawkey CJ. Disruption of colonic barrier function and induction of mediator release by strains of *Campylobacter jejuni* that invade epithelial cells. *World J Gastroenterol* 2008; 14(48): 7345-7352
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