

CAMPYLOBACTER ENTERITIS AMONG TURKISH CHILDREN

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SUMMARY: During a four and a half month period, we examined faecal samples from 340 children with acute enteritis and 100 controls by bacterial culture for pathogens, especially to assess the importance of campylobacter. Campylobacter species were isolated from 36 (10.6%) of diarrheal patients. This isolation rate was higher than the other enteropathogenic bacteria. Campylobacter alone was responsible for the illness in 33 (9.6%) patients. Common symptoms in patients infected with Campylobacter species were diarrhea (100%), fever (44.4%) and abdominal pain (38.8%). In the control group 2 (2%) were found to excrete Campylobacter species.

Key Words : Campylobacter, gastroenteritis, children.

INTRODUCTION

Campylobacter species are firmly established as common causes of gastroenteritis in man, particularly in children under the age of two years (1).

Campylobacter-associated gastroenteritis is an important medical problem in many countries (2,3). The results show a different epidemiological pattern in developed countries than in still developing countries. In developed countries, the incidence of Campylobacter infection is low, and there are a few healthy carriers (4-6). In developing countries, the incidence of Campylobacter infection in diarrhea is higher and there are numerous healthy carriers (7-9).

We investigated the incidence of Campylobacter species from patients with diarrhea and from asymptomatic children, the correlation with clinical illness.

MATERIALS AND METHODS

In a four and a half month period (July 14 to November 30, 1988), stool samples from 340 children with gastroenteritis and from 100 healthy children were examined. Children ranging in age from a few days to 14 years entered this study. All strains were from sporadic cases. We did not observe an outbreak during that period.

Rectal swabs from diarrheal cases and from healthy children were collected and were placed in Cary-Blair medium. Swabs were transported, at ambient temperature, for plating within 18 hours. All stool samples were examined routinely for species of campylobacter, salmonella and shigella. For the isolation of Campylobacter species, each faecal specimen was plated on Butzler-selective medium (Oxoid) which was supplemented with 5% defibrinated, lysed sheep blood (1). The plates were incubated at 42°C in an anaerobic jar, containing a "Gas Pak" (Oxoid, microbiology System) without a catalyst. After incubation for 48 hours, Campylobacter species were identified by colony morphology, Gram stain, motility by darkfield illumination, growth at 25°C, susceptibility to nalidixic acid and cephalotin, nitrate reduction, H₂S in triple sugar iron (TSI), and the presence of catalase and oxidase (1,5).

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Table 1: Rate of isolation of enteric bacterial pathogens.

Species	Number of isolates
Compylobacter	33
jejuni	23
coli	10
Salmonella species	4
Shigella species	11
Campylobacter coli+Shigella species	2
Campylobacter coli+Salmonella species	1

Table 2: Age distribution of children with Compylobacter enteritis

Age in years	Number of patient s examined	Number of campylobacter strains isolated (%)
1	157	13 (8.28)
1-4	122	19 (15.57)
5-9	18	4 (2.22)
10-14	7	-
Total	304	36

Table 3: Symptoms of Compylobacter Enteritis (n=36).

Symptoms	Number of Patients (%)
Diarrhea	100 (100)
Watery	12 (33.3)
Mucoid	13 (36.1)
Mucoid and blood stained	4 (11.1)
Bloody	(5.5)
Loose	5 (13.8)
< 6 times per day	23 (63.9)
> 6 times per day	13 (36.1)
Temperatures	
< 36.9°C	13 (36.1)
37.0 - 37.9°C	7 (19.4)
38.0 - 38.9°C	14 (38.8)
> 39°C	2 (5.5)
Abdominal pain	14 (38.8)
Vomitting	23 (63.88)

RESULTS

Of the various pathogens examined, Compylobacter species were the most frequent enteropathogen isolated, having been found in 36 samples (10.6 %). In 33 (9.6 %) of the 340 cases, Compylobacter species were the only pathogen isolated (Table 1). It was excreted from two of the 100 stools (2%) from samples of the healthy children.

Of these patients, 58.3% were male and all were out-patients. The rate of isolation was highest in one to four years of age (Table II).

DISCUSSION

The results of this study show that thermophilic campylobacters rank among the most frequent bacterial pathogens causing enteritis in Turkey. In our study, the incidence of campylobacter was higher among diarrheal patients than was either salmonella or shigella. This finding is consistent with resent reports (10,11). In 33 of 36 cases with Compylobacter infection, campylobacter was the only enteropathogen isolated; while in the remaining there cases other enteropathogens were found as well. Isolation of Compylocabter species with the other enteropathogens was also reported in several studies (12,13).

In pviously documented studies, campylobacters have been recovered from about 4-40% of diarrheal patients (1,2,7,10,11). It is noteworthy that "carries" of enteric campylobacter are rarely observed in developed countries, where its prevalence is low (6,11). On the other hand, in still developing countries, both the carrier state and the prevalence of the bacterium is high (5-7). In our study, the isolation rate of Compylobacter jejuni/coli from patients with diarrhea was 10.6%. If the isolation rates of Compylobacter species from diarrheal and healthy children are compared, the rate was significantly higher in the diarrheal group (P<0.05). This disparity may be due to fewer subjects or due to cultural geographic characteristics and environmental factors.

Several authors have reported a high propotion of isolates from infants and young children (1,9,13). Our present results show similar trends (Table II).

In our study, a mild to moderate diarrhea, of watery and mucoid stool and fever were frequent, but abdominal pain was less common. Cameron *et al.* (14), reported that abdominal pain was less frequent in children than in adults, because its subjective quality. In developed countries, bloody diarrhea and fever are common consequences of Compylobacter jejuni/coli infection (5, 6), whereas in still developing countries such severe manifestations of the infection are uncommon (9). The disparity between clinical and epidemiological patterns of Compylobacter infections in our country as well as in other countries may be due to differences of host and age.

The present study suggests that campylobacter may be a more common agent for disease than previously thought, at least in this area of Turkey. Further epidemiological studies in various areas of Turkey and elsewhere are necessary, to evaluate the importance of campylobacter as a cause of diarrhea in children.

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