OCCURRENCE OF CAMPYLOBACTER JEJUNI IN DIARRHOEIC AND NON-DIARRHOEIC CHILDREN IN SAO PAULO, BRAZIL

Heriberto FERNANDEZ (1), M. Regina F. TOLEDO (1), Ulysses FAGUNDES NETO (2) and Luiz R. TRABULSI (1*)

SUMMARY

Campylobacter jejuni was looked for in the feces of 262 children, being 189 with acute diarrhoea, 31 with chronic diarrhoea and 42 controls. The organism was isolated from 14 (7.4%), 2 (6.5%) and 6 (14.3%) of the children, and each group, respectively.

INTRODUCTION

During the last decade, Campylobacter jejuni (formerly known as Campylobacter fetus subsp. jejuni) has emerged as a common agent of acute gastroenteritis. Although this organism was known for many years as an animal pathogen, it was not until 1973, in Belgium, that it was first shown to be a common cause of diarrhoea in humans. Since then, C. jejuni has been isolated practically all over the world, and the isolations by Ricciardi et al. was the first reported from Latin-America.

In this note we report the occurrence of C. jejuni in faeces of 262 diarrhoeic and non-diarrhoeic children aged 1 month to 6 years in the city of São Paulo, Brazil.

The children were divided into 3 groups:

i) Control group: 42 well nourished children followed in the.

ii) Acute diarrhoea group: 189 children with watery diarrhoea, probably of infectious etiology, with a duration of less than 10 days.

iii) Chronic diarrhoea group: 31 children with diarrhoea lasting over 2 weeks, or more than 2 attacks of diarrhoea in a period less than 3 months.

Each faecal sample was seeded in a Butzler medium plate and incubated for 48 hours at 42°C under microaerophilic conditions obtained by using the GasPak system without the catalyst.

Suspected colonies were examined for vibrio-like organisms by Gram-staining and confirmed by motility in phase-contrast microscopy, positive catalase and oxidase reactions, ability to grow at 42°C and 37°C but not at 25°C, and by sensitivity to nalidixic acid and resistance to caphalothin.

C. jejuni was isolated from 22 (8.4%) of the 262 children examined, of which 6 (14.3%) were normal, 14 (7.4%) had acute diarrhoea and 2 (6.5%) had chronic diarrhoea (Table I).

C. jejuni was isolated in the 3 groups of children under study and the overall isolation rate of 8.4% falls within the ranges reported in previous surveys.

In children with acute diarrhoea, the micro-organism was isolated in 7.4% of the cases,
rate that is similar to that obtained by SKIRROW in England. However, it is lower than those found in developing countries but higher than that reported by RICCIARDI et al., in Rio de Janeiro.

The incidence of Campylobacter isolations in children with chronic diarrhoea was lower than that reported by these Brazilian Authors. Considering that the review of the literature did not provide more data on the isolation of this bacteria from stools of chronic diarrhoeic patients, it would be necessary to conduct further studies in order to establish a possible role of C. jejuni in chronic diarrhoeic process. It could be particularly important in patients with tropical enteropathy, in which certain enterobacteria are isolated from jejunal aspirates, and which malabsorption is regularly present. Because of its ability to multiply in bile, C. jejuni could proliferate in the bile-rich small intestine producing like Escherichia coli, Klebsiella pneumoniae or Enterobacter cloacae, the malabsorption process observed in tropical enteropathy. In one experiment, malabsorption of sugars was demonstrated in mice inoculated with C. jejuni. On the other hand, C. jejuni was previously isolated from jejunal aspirates of a child with chronic diarrhoea but not from acute diarrhoeic children. In our study, the 2 children with chronic diarrhoea, in which Campylobacter was found in stools, also had tropical enteropathy, and in one of them, the organism was also isolated from jejunal aspirate.

Contrasting with European and American findings, we found that the isolation rate of C. jejuni in normal children is high, but is in agreement with the results obtained in tropical developing countries. This fact complicates the interpretation of the isolation of Campylobacter in children with diarrhoea, opening a new question related to the pathogenic mechanisms of this bacteria. On the other hand, the role of socioeconomic conditions in influencing and determining the distribution of C. jejuni, is an aspect that must be elucidated for a better understanding of the epidemiology of Campylobacter enteritis.

**TABLE I**

| Children             | Positive | Negative | Total |
|----------------------|----------|----------|-------|
| Non-diarrhoeic       | 6        | 36       | 42    |
| With acute diarrhoea | 14       | 175      | 189   |
| With chronic diarrhoea | 2       | 29       | 31    |
| Total                | 22       | 240      | 262   |

**RESUMO**

Ocorrência de Campylobacter jejuni em crianças com diarréia e normais em São Paulo, Brasil

Campylobacter jejuni foi pesquisado nas fezes de 262 crianças, sendo 189 com diarréia aguda, 31 com diarréia crônica e 42 sem sintomatologia gastrintestinal. A bactéria foi encontrada em 14 (7,4%), 2 (6,5%) e 6 (14,3%) das crianças, em cada um dos grupos, respectivamente.

**REFERENCES**

1. BILLINGHAM, J. D. — Campylobacter enteritis in the Gambia. Trans. R. Soc. Trop. Med. Hyg. 73: 641-644, 1981.

2. BLASER, M. J.; GLASS, R. I.; HUQ, M. I.; STOLL, B.; KIBRIYA, G. M. & ALIM, A. R. M. A. — Isolation of Campylobacter fetus ssp. jejuni from Bangladeshi children. J. Clin. Microbiol. 13: 744-747, 1980.

3. BLASER, M. J.; HARDESTY, H. L.; POWERS, B. & WANG, W. L. L. — Survival of Campylobacter fetus subsp. jejuni in biological milieus. J. Clin. Microbiol. 11: 309-313, 1980.

4. BLASER, M. J. & RELLER, L. B. — Campylobacter enteritis. New Engl. J. Med. 305: 1444-1452, 1981.

5. BOKKENHEUSER, V. D.; RICHARDSON, N. J.; DRYNER, J. H.; ROUX, D. J.; SCHUTTE, A. B.; KOORNHOF, H. J.; FREITMAN, I. & HARTMAN, H. — Detection of enteric campylobacteriosis in children. J. Clin. Microbiol. 9: 227-232, 1979.

6. BUTZLER, J. P.; DEKEYSER, P.; DETRAIN, M. & DEHAEN, P. — Related "vibrio" in stools. J. Pediatr. 82: 493-495, 1973.
7. BUTZLER, J. P. & SKIRROW, M. B. — Campylobacter enteritis. Clin. Gastroenterol. 8: 737-765, 1979.

8. CADRANEL, S.; RODESH, P.; BUTZLER, J. P. & DEKEYSER, P. — Enteritis due to "related Vibrios" in children. Am. J. Dis. Child. 126: 152-155, 1973.

9. KLIPSTEIN, F. A.; HOLDEMAN, L. V.; CORCINO, J. J. & MOORE, W. E. C. — Enterotoxigenic intestinal bacteria in tropical sprue. Ann. Int. Med. 79: 632-641, 1973.

10. KLIPSTEIN, F. A.; SHORT, H. B.; ENGERT, R. F.; JEAN, L & WEAVER, G. A. — Contamination of the small intestine by enterotoxigeneic coliform bacteria among the rural population of Haiti. Gastroenterology 70: 1035-1041, 1976.

11. LUECHTEFELD, N. W.; WANG, W. L. L.; BLASER, M. J. & RELLER, L. B. — Campylobacter fetus subsp. jejuni: background and laboratory diagnosis. Lab. Med. 12: 461-467, 1981.

12. MADGE, D. S. — Campylobacter enteritis in young mice. Digestion 20: 389-394, 1980.

13. RICCIARDI, I. D.; FERREIRA, M. C. S.; OTTO, S. S.; OLIVEIRA, N.; SABRA, A. & FONTES, C. F. — Thermophilic Campylobacter associated diarrhoea in Rio de Janeiro. Rev. Bras. Pesquisas Méd. e Biol. 12: 189-191, 1979.

14. SKIRROW, M. B. — Campylobacter enteritis: a "new" disease. Br. Med. J. 2: 9-11, 1977.

15. SMITH, J. P.; DURFEE, K. & MARYMONT Jr., J. H. — Incidence of Campylobacter enteritis in the Midwestern United States. Am. J. Med. Technol. 46: 81-84, 1980.

— Recebido para publicação em 22/6/1983.