



BACTERIAL ETIOLOGY OF ENTERIC INFECTIONS IN CHILDREN ATTENDING AT OUTPATIENT CLINICS IN NORTHEASTERN BRAZIL

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BACKGROUND AND AIMS

Diarrheal disease is a public health problem that mostly affects children in developing countries, where approximately 1.9 million children die each year (Bryce et al., *Lancet* 365, 2005; Marcus, *Curr. Opin. Pediatr.* 20, 2008). This disease is also responsible for chronic malnutrition due to malabsorption, and it has impacts on cognitive development, in particular semantic fluency (Oriá et al., *Med. Hypotheses*, 73, 2009). Diarrhea can be caused by a variety of pathogens, including bacteria, protozoa, helminths, and virus. In developing areas, due to the poor hygiene and sanitation, enteric bacteria and parasites are highly prevalent (Podewils et al., *Semin. Pediatr. Infect. Dis.* 15, 2004).

This work aimed to determine the main bacterial enteric pathogens causing diarrhea in children treated in emergency rooms in Fortaleza, Ceara, Brazil.

METHODS



Children attended with diarrhea

Parents received information about the study

Parental consent

Questionnaire regarding clinical signs and symptoms

Collection of stool samples



MAC CT-SMAC HE SS CVA

Biochemical tests

Subculture with Selenite broth was employed for diagnosis of *Salmonella* sp. and *Shigella* sp. when the primary culture did not presented growth of characteristic colonies 

Biochemical tests included API20E (Biomerieux, Durham, NC), Gram staining and oxidase activity 

Identification of *Escherichia coli* serogroup 0157 was assessed by *E. coli* 0157 Latex Kit (Oxoid, Cambridge, UK) 

RESULTS

A total of 432 stool samples from children with diarrhea were collected between May 2008 and April 2009. Male children were 58.1% (251/432) and 35.9% (155/432) were younger than 1 year of age. At least one bacterial pathogen was detected in 30.3% (131/432) of children, and 3.1% (4/131) were positive for two pathogens. The description of these enteropathogens and associated clinical signs and symptoms are shown in the Figures below.

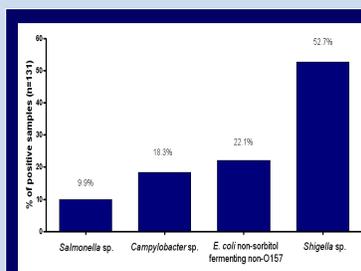


FIGURE 1. Bacterial enteric pathogens detected in children with diarrhea attended in emergency rooms in Fortaleza, Ceara, Brazil.

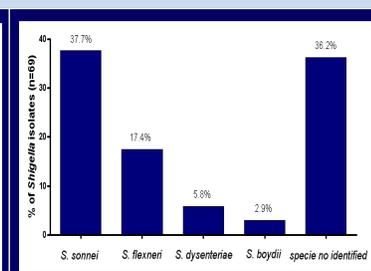


FIGURE 2. Species of *Shigella* detected in children with diarrhea attended in emergency rooms in Fortaleza, Ceara, Brazil.

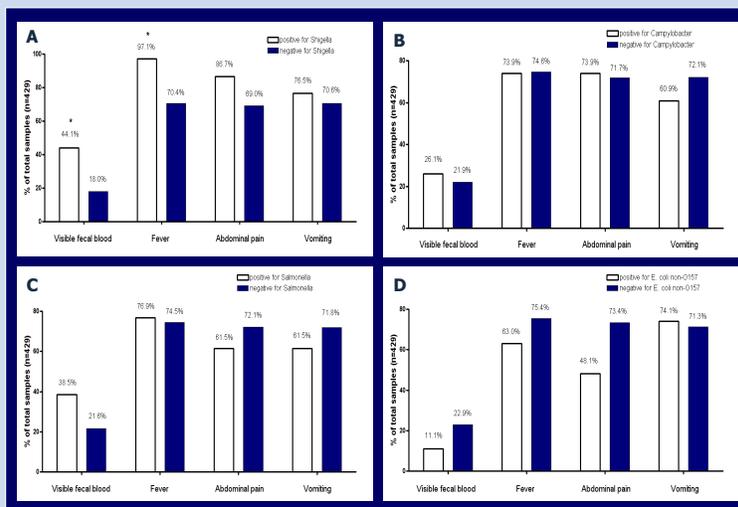


FIGURE 3. Clinical signs and symptoms observed in children with diarrhea attended in emergency rooms in Fortaleza, Ceara, Brazil. A=*Shigella* sp., B=*Campylobacter* sp., C=*Salmonella* sp., D=*E. coli* non-sorbitol-fermenting non-O157. * P<0.05

CONCLUSIONS

Bacterial enteric pathogens remain important agents of diarrhea in children attended in emergency rooms in Fortaleza.

Shigella sp. was the major causative organism with significant associations with bloody stools and fever.

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