

## Correspondence

### **An outbreak of cholera among a rural population in south India: Is it time to vaccinate the children in endemic areas?**

Sir,

Cholera, the most dreadful of all diarrhoeal diseases, is an acute intestinal infection, caused by *Vibrio cholerae*, which afflicts 3 to 5 million of people and causes 0.1 million deaths every year<sup>1,2</sup>. Cholera outbreaks have been infrequently reported from developed countries<sup>3</sup> and often reported from various parts of developing, and underdeveloped countries mainly owing to poor sanitation of potable water<sup>2,4-6</sup>. In India sporadic cases of acute watery diarrhoea occur throughout the year, especially in rural areas. These sporadic cases have potential to cause epidemic outbreaks when the drinking water gets contaminated with the faeces of affected people<sup>6,7</sup>. A similar outbreak was emerged in the rural part of Theni district, located in the south Indian State of Tamil Nadu. The region was recognised to be endemic to cholera, and the present outbreak was documented during middle of the summer 2010, among the population of Uthamapalayam village.

The aetiologic agent of the seventh cholera pandemic is *V. cholerae* O1 biotype El Tor, which has completely replaced its counterpart classical biotype over a period of time<sup>2,4,8</sup>. The members of the serogroup O1 are further classified into two major serotypes, Ogawa and Inaba. According to the earlier reports from India, El Tor *V. cholerae* O1, serotype Ogawa has been the predominant causative organism of cholera outbreaks<sup>6,7,9</sup>.

Stool and rectal swab specimens were collected from the randomly selected patients attending the Government Theni Medical College (GTMC) Hospital, and various primary health care centres of Theni district during May 12-20, 2010. All specimens were bacteriologically investigated for aetiology by following standard procedure<sup>10</sup> at the Department of

Microbiology, GTMC. Isolates of *V. cholerae* were biotyped by polymyxin B (50 units) susceptibility test<sup>10</sup>. Serotyping was performed using the antiserum obtained from King Institute of Preventive Medicine, Chennai. Antimicrobial susceptibility test was carried out by Kirby-Bauer disc diffusion method adhering to Clinical Laboratory Standards Institute (CLSI) guidelines<sup>11</sup> using the commercially available ampicillin (10 µg), chloramphenicol (30 µg), trimethoprim-sulphamethoxazole (TMP-SMX) (1.25/23.75 µg) and tetracycline (30 µg) antibiotic discs (Hi-media, Mumbai) with ATCC 25922 *Escherichia coli* as control.

Of the 66 faecal samples collected during the study period, *V. cholerae* O1 was isolated in 37 samples (56%). All the isolates of *V. cholerae* were identified as El Tor biotype, and Ogawa serotype. The water samples from Uthamapalayam village were also analysed, which revealed the contamination of drinking water with El Tor *Vibrio cholerae* O1, Ogawa serotype. During this outbreak one death (10 yr old, female) was documented due to severe dehydration, on the second day of the epidemic. More than 1000 cases were reported with similar clinical symptoms during the epidemic period. Since, the resources were limited, only a few of the randomly selected cases were investigated.

A uniform antibiotic susceptibility pattern was observed among all clinical isolates of *V. cholerae*. All isolates were found to be resistant to ampicillin and TMP-SMX, and sensitive to chloramphenicol. Four clinical isolates were found to be resistant to tetracycline during the late stage of epidemic, suggesting a development of resistance due to inappropriate use of antibiotics. The emergence of resistance to tetracycline among *V. cholerae* is now well-documented<sup>9</sup> and it was observed in 11 per cent of isolates in current epidemic.

In conclusion, the present study documented the cholera outbreak in rural set up of Theni district, south India. The source of the outbreak was found to be the contaminated water provided by the municipal water supply. The present outbreak indicates the lacunae in the arrangements of potable water, sanitation and hygienic practices in the rural area, which are not uncommon in developing and underdeveloped countries, and it also suggests the immediate implementation of vaccination among the children who are residing in the high risk areas<sup>1,2,12</sup> to evade the cholera associated mortality.

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