

Cholera as a Cause of Acute Watery Diarrhoea

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SUMMARY

Of the 2330 children with acute watery diarrhoea seen in the Paediatric Emergency Room in 1996, 23 were suspected to have cholera on the basis of profuse rice-water stools and rapid dehydration. Fifteen of the isolates obtained were presumptively identified as vibrio cholera, based on their morphological and biochemical characteristics. These isolates were subsequently confirmed as vibrio cholera 01 (Inaba) strain on serological testing. The average age of the confirmed cases was forty four months (Male = 11, Female = 4). The cases were seen following the monsoons, and the consequent flooding. They came from different parts of the city. Response to management was satisfactory in all.

Although cholera is not a common pathogen in diarrhoeal diseases of children in this region, it must nevertheless be kept in mind in special circumstances.

INTRODUCTION

Diarrhoea is one of the leading causes of death in the underdeveloped world¹. An analysis carried out by WHO in 1988 indicates that over 1.3 thousand million episodes of diarrhoea occur each year in children under 5 years of age in Asia (excluding China), Africa and Latin America and that 4 million children in this age group die annually from diarrhoea, 80% of these deaths occur in the first 2 years of life². Repeated episodes of diarrhoea lead to malnutrition and poor growth. In the developing world diarrhoea is the fourth leading cause of mortality under 5 years age and is the leading cause of morbidity³.

The commonest cause of acute watery diarrhoea is considered to be viral especially Rota Virus. Other causes of watery diarrhoea include bacteria e.g. E-Coli, and non-typhoidal Salmonella. Yet another important cause of acute watery diarrhoea is V-cholera, which is not a common pathogen in Pakistan at present. Thus there is a tendency not to consider it in the aetiology of acute watery diarrhoea.

We report here a total of 15 cases of cholera seen in the Paediatric Emergency of Shaikh Zayed Hospital during the year 1996.

MATERIAL AND METHODS

All patients suspected of having cholera based on the clinical picture of passage of profuse rice-water stools as well as shock-like state were included in the study after a detailed history and thorough examination. Specimens were collected in standard sterile wide mouth plastic containers and were transported to the laboratory and inoculated within one hour of collection. Stool specimens were inoculated on SS (salmonella shigella) agar (Difco), MacConkey agar (Difco) and TCBS (Thiosulphate citrate bile salt) agar (Oxoid). Plates were incubated aerobically, at 37°C. for 18-24 hours. Specimen enrichment was carried out by inoculating selenite F broth and alkaline peptone water. Alkaline peptone water was sub-cultured from the surface, after overnight incubation at room temperature on TCBS agar as above.

Suspected colonies - 2mm, yellow sucrose-fermenting on TCBS, non-lactose fermenting on MacConkey agar were Gram stained and checked biochemically after sub-culturing to Nutrient agar, gram negative, catalase positive, oxidase positive, indole positive, urease negative, motile isolates which grew on CLED (cystin lactose electrolyte deficient) agar (Difco) and produced an acid-deep/alkaline-slant reactions on TSI (triple sugar

iron agar) (Difco), without H₂S production were provisionally identified as *Vibrio cholerae*. They were confirmed as "cholera producing" *Vibrio cholerae* (O1 or O139) if positive agglutination reactions were seen with polyvalent O1 serum and O139 serum on serological testing. All isolates giving positive agglutinating reactions with polyvalent O1 serum were further tested with monovalent O1 Ogawa, Inaba and Hikojima sera. The API 20E identification system (Bio Merieux) was used where further biochemical testing was required for confirmation.

RESULTS

Of the 23 cases initially suspected, 15 were found positive for cholera. Analysis of these 15 cases showed that 11 (73%) were males while 4 (27%) were females. The average age of the confirmed cases was forty four months (age range 1 month to 10 years). They came from different parts of the city. Majority of these cases followed the rainy season and the flooding that follows. Besides I/V fluids, antibiotics were given to 11 children while in 3 patients no antibiotics were given. All the patients were treated and discharged in a satisfactory condition.

DISCUSSION

With improving sanitation and health of children, the incidence of diarrhoea decreases. In Pakistan however diarrhoea remains not only a common problem in children but one that causes significant morbidity and mortality.

Although not a common pathogen of acute watery diarrhoea in Pakistan, cholera nevertheless needs to be considered as a possible agent. This organism should be kept in mind in especial circumstances such as following the monsoons or flooding which predisposes to propagation of this bacteria. Recognition is important, since it is an acute, often fatal infection but one whose aetiology, epidemiology, clinical presentation management and control are well understood.

This disease has recently reemerged as a serious microbial threat and a new strain (O139) has been identified. It remains amenable to treatment and in addition to the usual hydration and serum electrolyte balance, use of antibiotics is justified. Long term emphasis however should be on prevention and control, mechanisms, for which are adequate sewerage, avoidance of contaminated food intake and possibly resort to some of newer safe and more effective vaccines.

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