EDITORIAL

Cholera — Still a Major Health Problem

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The recent outbreaks of cholera in several states of Malaysia serve as a timely reminder that cholera is still a major public health problem in Malaysia. According to the Minister of Health, in 1991 alone there were 504 cases of cholera with 5 deaths[1]. Malaysia is not alone in facing this old adversary. Cholera is endemic in many countries in Asia and Africa. In a recent survey of diarrhoea in Bangladesh, cholera was the most common enteropathogen detected, accounting for 39% of all enteric pathogens[2]. Even in the United States, approximately 1 case a week is being reported, although the majority of cases were acquired during international travel[3]. In late January 1991, cholera made its first appearance in South America in the 20th century. The epidemic started in Peru but spread rapidly throughout most of Latin America. By March 1992, there were already 450,000 cases with over 4,000 deaths[4,5].

The causative agent of cholera, *Vibrio cholerae*, was first described in 1854. There are at least 83 serogroups based on the O antigen but only *Vibrio cholerae* O1 has been implicated in cholera epidemics. It has now been established that river estuaries with brackish water of salinities between 5 - 25 parts per thousand are the natural aquatic habitats of V. cholerae. Temperature also plays an important role in its survival, as the organism is rarely encountered when temperatures fall below 10°C or exceed 30°C. The organism may also occur in the environment in a quiescent state, which, though viable, is undetectable by the usual culture methods[6]. Global warming may affect water ecology to an extent as to enhance the spread of *Vibrio cholerae* to areas previously unaffected[7].

There have been 7 pandemics of cholera to date. The first 6 were due to the *classical* strain of *Vibrio cholerae* O1 and all originated from the Indian subcontinent. The seventh started in the early sixties in Sulawesi, Indonesia, and was due to the biotype el tor. The seventh pandemic swept through much of Asia in the sixties and Africa in the seventies. The Latin American strain is also of the biotype el tor and appears to be related to the seventh pandemic strain[4]. Although cholera is classically described as a water-borne infection, many different foods have also been identified as vehicles for transmission. These include raw and cooked shellfish, other sea foods, millet gruel, peanut sauce, fruit and vegetables.

Although the usual presentation of cholera is severe watery diarrhoea with dehydration and shock, other less usual clinical presentations like cholangitis[8] and bacteremia[9] have been reported. Replacement of fluids and electrolytes is the mainstay of treatment and oral rehydration therapy is probably the most important therapy available in preventing death. Citrate-based oral rehydration solutions have been found superior to bicarbonate-based solutions[10]. Antibiotics lessen the severity and shorten the duration of diarrhoea. Tetracycline remains the antibiotic of choice. A single dose doxycycline treatment has been found to be as effective as multi-dose tetracycline[11]. However, tetracycline resistance has been reported from many counties including Malaysia[12]. Alternative microbial treatments include furazolidone[13], erythromycin[14] and norfloxacin[15].

The detection of *Vibrio cholerae* in clinical specimens involves culture in various enrichment and selective media. More recently, the polymerase chain reaction has been used to detect cholera toxin from cultured strains[5] or from stool specimens[16] as well as in the environment[17]. The use of the polymerase chain reaction in detecting non-culturable but viable *Vibrio cholerae* in water samples is a significant advance and can facilitate the epidemiological control of the disease in endemic areas. The older killed cholera vaccines which are given

parenterally do not give adequate protection. There are new oral vaccines undergoing trials and the results appear to be promising[18-20].

Cholera affects more than just the health of the people. The disease also carries with it economic implications with regards to the tourist industry and the export of food items. It has been said that the existence of cholera is testimony to the inability to provide a consistently decent standard of living to the people. To control or eliminate cholera, human sewage must not be allowed to contaminate potable water sources. This would mean provision of piped, treated water and proper sewage disposal facilities to all the inhabitants of the country. This is simple in theory but difficult in practice. Nevertheless, it is hoped that as Malaysia moves towards 2020 and developed country status, cholera will no longer be a major health problem.

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