Cholera Among Americans Living in Peru

Cholera rarely occurred in North Americans before the recent Latin American epidemic. Only 10 cases were identified from 1960 to 1980, for an estimated rate of 1.7 per million travelers from the United States [1]. A European study identified 40 cases from 1975 to 1981, for an estimated rate of 2 cases per million travelers [2]. After a 100-year-long absence of cholera in the Americas, *Vibrio cholerae* biotype El Tor appeared in Peru in early 1991 [3]. In 1991 and 1992, > 700,000 cases of cholera were reported in the Americas, ranging from Peru to Mexico [4]. A major increase in the number of case reports was also noted in the United States, where 26 imported cases were reported in 1991, and 102 were reported in 1992 [4, 5].

The incidence of cholera, especially disease due to *V. cholerae* biotype El Tor, may be underestimated among westerners because the illness can be mild compared to that in patients who are infected with the classical biotype and may be mistaken for traveler’s diarrhea, a common illness in developing countries [6]. Culture techniques are usually not available for diagnosis, and they are often not useful because patients with suspected traveler’s diarrhea have taken antibiotics for self-medication. We determined the rate of cholera among the U.S. Embassy employees in Peru; patients were seen at a clinic where fecal specimens could be cultured at the time of illness.

From 1991 to 1993, U.S. Embassy employees were asked to submit a stool specimen when they presented to the Embassy Health Clinic with diarrhea. Specimens were plated on thiosulfate citrate bile salts sucrose (TCBS) agar before and after enrichment in alkaline peptone water. Typical colonies were identified biochemically and confirmed as *V. cholerae* O1 by use of O group antisera. An employee census was obtained from the Personnel Office of the U.S. Embassy in Lima. Cholera case rates for Peru were obtained from the Office of General Epidemiology, Ministry of Health, Lima. The number of foreign tourists was obtained from the National Institute of Statistics and Information in Lima [5].

From 1991 to 1993, *V. cholerae* O1 was isolated from 8 (1.3%) of 620 patients submitting stool specimens, with a peak isolation rate of 2.2% in 1992. All cholera cases were in adults (five men and three women) who were infected in the summer months (November to April). Five cases occurred in U.S. citizens, and three occurred in Peruvian employees. The illness was characterized as moderate to severe diarrhea that responded to oral rehydration and treatment with doxycycline. None of the patients required hospitalization or intravenous hydration. Three of the five Americans attributed their illness to ingestion of poorly prepared food while at the beach near Lima.

An average of 317 U.S. citizens and 427 Peruvians were employed at the U.S. Embassy during the study. The incidence of cholera was 2.5 cases per 1,000 employees in 1991, 6.6 cases per 1,000 in 1992, and 1.4 per 1,000 in 1993 (average annual incidence, 3.6 per 1,000). The incidence was higher among U.S. citizens (5.3 per 1,000) than among Peruvian employees (2.3 per 1,000).

An incidence of cholera of 5.3 cases per 1,000 per year or 44 cases per 100,000 per month among U.S. citizens living in Lima is unexpectedly high in comparison to that described in reports on travelers returning to the United States or Europe (Table 1). *V. cholerae* is likely transmitted to travelers and expatriates through contaminated food [8]. The expatriate Americans in Lima reported that eating poorly prepared food was the most likely source of their infection. Diarrhea rates are generally lower among expatriates than among tourists because the expatriates eat fewer meals in restaurants. However, because expatriates are exposed to disease for longer periods, we estimate that the risk of cholera for travelers and expatriates is comparable. In the cases involving U.S. Embassy personnel, the patients presented with a rather severe form of traveler’s diarrhea, without distinguishing features such as severe dehydration requiring intravenous hydration or hospitalization.

Cholera was not distinguished as a separate disease from traveler’s diarrhea. If the cholera rates observed for expatriates were similar to those for tourists, there could have been 308 cholera cases (including 71 North Americans and 89 Europeans) among the 700,000 foreign tourists who visited Peru from 1991 to 1993. Few of these cases were actually detected in the tourists’ home countries because most of them recovered before returning home, or cultures were not performed [8, 9].

Stool samples from returning travelers with diarrhea are rarely cultured, and it is even more rare that media such as TCBS are used to isolate *V. cholerae*. When specific methods for isolating *V. cholerae* are used, as was in the case for Japanese travelers with diarrhea who were returning from Thailand or Indonesia, cholera rates ranged from 3 per 100,000 for those returning from Thailand to 13 per 100,000 for those returning from Indonesia, principally Bali [9]. These rates suggest that cholera may be underreported in Westerners traveling to Asia as well as to Latin America.
The rates of clinically defined cholera among Peruvians living in Lima ranged from 18 cases per 1,000 persons in 1992 to 3 cases per 1,000 persons in 1993. We found similar rates of culture-proven cholera among foreigners living in Peru. Several new oral cholera vaccines have been developed. One vaccine, the oral whole cell plus cholera toxin B subunit (WC/rBS) (SBL Vaccin, Stockholm), was recently shown to be efficacious in Latin America [10]. When safe, effective cholera vaccines are more widely available, they will be useful in protecting travelers and expatriates entering areas where cholera is endemic.

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References

Emergence of Mycobacterium kansasii as the Leading Mycobacterial Pathogen Isolated Over a 20-Year Period at a Midwestern Veterans Affairs Hospital

In the mid-1980s there was a resurgence of tuberculosis in the United States. However, no more than two cases of tuberculosis per year were diagnosed at the Omaha Veterans Affairs Medical Center in the previous 4 years. We suspected that there was a different pattern of mycobacterial disease at our facility. Consequently, we reviewed our logs of mycobacterial culture specimens collected from patients between 1 January 1971 and 31 December 1990 to identify the first known isolates of any mycobacterial species.

Records were available for 89% of 478 patients whose initial culture was positive for mycobacteria. The annual rate at which initial cultures yielded mycobacterial isolates generally declined over the 20-year period. In the four successive 5-year periods from 1971 to 1990, the number of Mycobacterium tuberculosis isolates declined from 108 to 38, 13, and 16. The number of Mycobacterium kansasii isolates that corresponded to the successive 5-year periods (67, 34, 30, and 54) resulted in a total exceeding that for M. tuberculosis isolates. Because of a pseudopandemic resulting from a contaminated oxygen humidifier jar in a bronchoscopy room, the number of Mycobacterium gordonae isolates increased from 5 in the first 5 years and 2 in the next 5 years to 14 and 13 in the successive 5-year periods, respectively.

A slight increase in the number of cases of Mycobacterium fortuitum infection during the second decade (5 isolates, 1971-