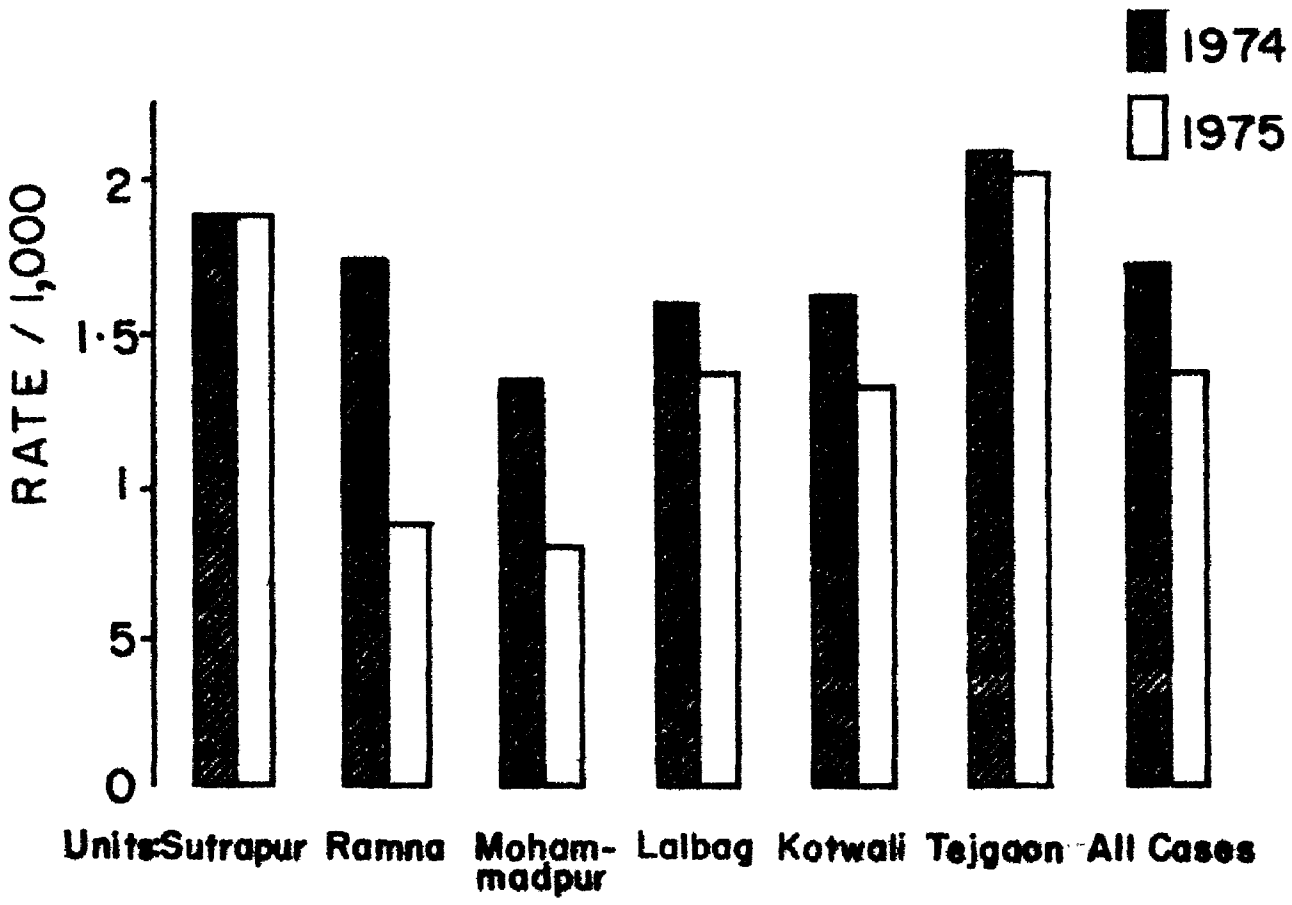
FIG.2. GEOGRAPHICAL DISTRIBUTION OF HOSPITALISED CHOLERA CASES IN DACCA CITY DURING 1974 AND 1975 BY ADMINISTRATIVE UNITS



in this study. But why is this so? This study gives some explanation for such epidemics. When rural people come to the city with their traditional habits of defecation and water use, they do not understand the value of sanitation and water quality. These people take refugee in the cheapest rental areas of cities where sanitation and water supply are non-existent. Although they may bring a few jars of drinking water from a distance, they use the nearest water from ponds, tanks, canals or rivers for washing and bathing and these activities can be more important than drinking, for the transmission of cholera (9,14). These open sources can be infected from open latrines, defecation of children on the banks, the washing of soiled cloths, and from dirty surface water, especially after rain. The question arises then, why do not all people who use open sources of water get cholera? The first reason is that, it is not likely that bacteria would remain viable and infective in water indefinitely; second, it is unlikely that the concentration of bacteria would be adequate to achieve infective doses in users of infected water and third, it has been shown that in endemic countries there is a rise of vibriocidal titres with the increase in age and this has a protective effect (16). To explain cholera in camp A we had to examine the exact nature of the water supply, latrine conditions, the sewerage disposal systems and hygienic condition of the camp A. These were far from ideal. Many young children were defecating outside the latrines. They touched the unprotected taps, their own water containers, and food. The people who worked in the city, where the epidemic was present, took their mid-day meal often outside homes and thus could have been exposed to contaminated food and drink (17). In addition, they often brought vegetables, fish, fruits and prepared food from city areas. These created an opportunity for the introduction of cholera into their families and to the camp, in spite of having protected water and sanitation facilities.

However, the imperfect sanitation and water supply facilities reduced the cholera rates by 62% in the camp A as compared to camps B and C. The demolition of the camps and latrines and the curtailment of the use of surface water significantly reduced the rates in the following year especially in the two zones where these camps were located. Although we do not consider that the camps were solely responsible for cholera, but they were acting as nuclei for the spread of cholera in their vicinity.

The 4th grade Government employees living in the government quarters with provision of sanitary latrines and piped water supply experienced cholera frequently. Whereas the upper grade employees, living in government quarters with provision of sanitary latrines and piped water supply, never contracted cholera. Similarly the people living in the top class residential areas of Dacca never contracted cholera in the midst of most severe epidemics of cholera. The main difference between the upper and lower groups were in the practices of personal and food hygiene. Azurin found that the combined effect of water supply and sanitation, in reducing cholera, is up to 76% (18). This shows that in addition to provision of water and latrine there are one or more components which influence the rate of cholera in developing countries.

Therefore, epidemic cholera cannot be adequately prevented in the congested urban setting of a developing country by the provision of clean water or sanitation, or both while keeping other routes open. We conclude that (1) the users of closed latrines and piped water have a significantly lower evidence of cholera than do the users of open latrines and open water sources; and (2) for achieving the proper impact of sanitation on diarrhoeal disease, especially cholera, health education is an important determinant.

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