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Letters to the Editor

551.58 : 616

CLIMATE AND DISEASES

From the public health point of view, the impact of climate is two fold, first, the limitations imposed by the climatic factors themselves on human activities, health and comfort, and second, the extent to which climatic factors, more specifically rainfall and temperature, influence the epidemiology, geographical distribution and severity of diseases in man. Temperature, rainfall, wind and sunshine are the most important elements of climate. Climate is one of the factors which exerts its influence on the spread of many diseases.

Malaria is until recently endemic in India, the largest Malarial country in the world. It is recognized as a disease of world wide incidence and the cause of a higher sickness and death rate than any other disease. Temperature and humidity effect the development of the parasite in mosquito which form the source of infection in man. A mean daily temperature exceeding 15 deg. C is necessary for the development of the parasite. Mosquitoes avoid temperatures higher than 30 deg. C. High humidities are suitable for the transmission of Malaria and Malarial outbreaks follow the rainy season. Almost all over the country high rainfall favours the incidence of Malaria.

Climate seems to have little influence on the incidence of tuberculosis. It is believed that tuberculosis occurs more readily in moist climates than in cold dry ones. This is clearly shown in India, where desert regions show a low mortality from pulmonary tuberculosis, the reverse being the case in the southwest coast where the rainfall is excessive and prolonged.

Tetanus is also found to occur more in warm climates than in cold ones.

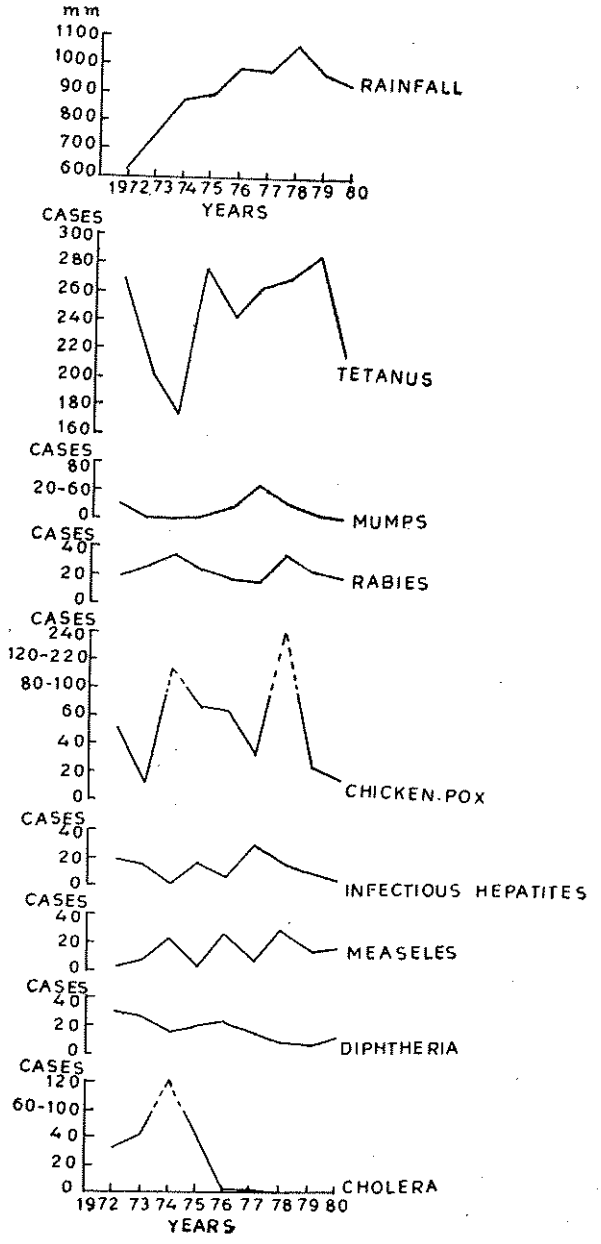

Fig. 1. Rainfall and communicable diseases in Visakhapatnam district

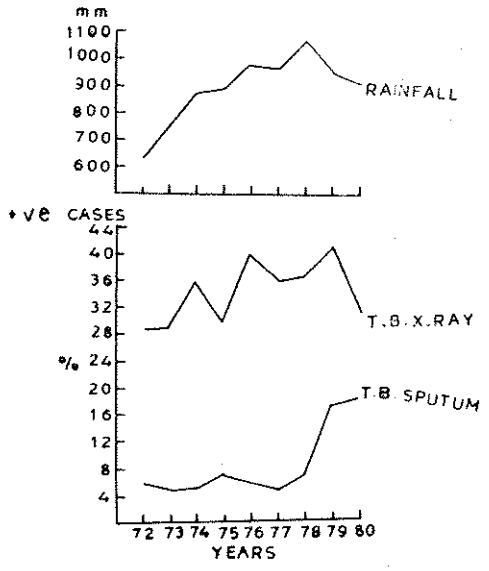

Fig. 2. Rainfall and tuberculosis in Visakhapatnam district

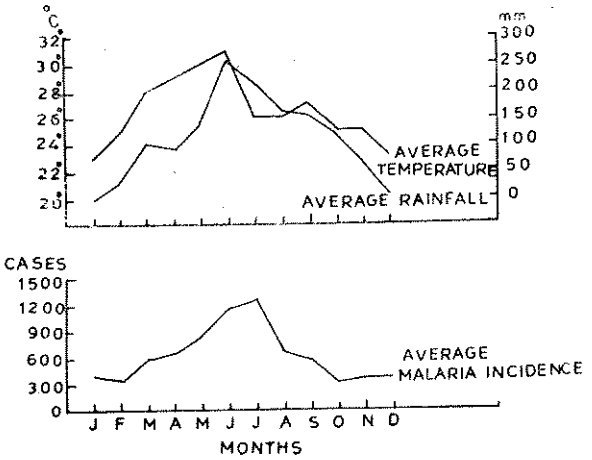

Fig. 3. Temperature, rainfall and malaria incidence in Visakhapatnam district

The influence of Cholera is associated with various factors in direct and indirect ways. Temperature, humidity, rainfall and possibly other factors interact in a complex manner that is not yet completely understood. The rainfall acts indirectly on the incidence of Cholera, through drinking water. Rainfall may influence Cholera incidence in various ways, depending apparently upon the preceding circumstances and the duration of the fall.

Measles occurs in spring season. Infectious diseases such as Infectious Hepatites, Chicken pox, Mumps, Rabies etc., occur chiefly in winter and spring which are much more widespread among the population than those that have their maximum frequency in summer and autumn (Sivaramakrishnaiah 1962).

2. Visakhapatnam district situated in the Coromandel coast in the east of peninsular India has been taken for a case study of the diseases. The statistical data were collected from the District Malaria Office, T.B. & I.D. Hospital at Visakhapatnam for the years 1972 to 1980.

A graph showing rainfall and incidence of various communicable diseases is shown in Fig. 1. It is observed that with the exception of diptheria and Cholera the general trend of incidence of the diseases and rainfall is similar and increases. On the other hand the trend for diptheria and cholera is decreasing. Occasional heavy downpours during a dry period will be likely to wash down infected material into the sources of the water supply. More continuous rain, however, will dilute the infected material and finally carry it away. Cases of incidence of T.B. also show rising trend as shown by T.B. sputum and T.B. X-ray examination curve as seen in Fig. 2. Malaria incidence (average) shows a close correlation to rainfall as shown in Fig. 3, because rainfall favours the growth of the mosquito.

3. The studies presented although meagre are only to indicate the influence of climate on communicable diseases.

4. The authors are thankful to Sri K. Krishna Brahmam, District Malaria Officer, Dr. Koteswara Rao, T.B. Officer and Dr. A. Chakrapani Rao, Superintendent, T.B. & I.D. Hospital, Visakhaptnam for providing the data.

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A. R. SUBRAMANIAM
T. SESHAMANI
Dept. of Meteorology & Oceanography,
Andhra University, Waltair
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