

Preventive Aspects of Tropical Diseases

By

Archna Banerjee

(3rd Year Student)

Carmichael Hospital for Tropical Diseases, Calcutta

Tropical medicine deals with the ailments prevalent in the underdeveloped countries and calls for an emphasis on preventive measures. It includes such diseases as malaria, kala-azar, dysentery, hookworm, cholera, small pox, plague, typhus, rat-bite fever, epidemic dropsy, dengue, tropical eosinophilia, leprosy, and nutritional disorders such as protein malnutrition, anaemia and so on. Most of these diseases are preventable and their

Preventive aspects of some of these diseases are briefly stated in this article.

Malaria

It is caused by malaria parasites which attack red blood corpuscles and are transmitted by the female *Anopheles* mosquito. It can be controlled by measures taken against this transmission by mosquitoes. The most effective method of killing them is by spraying houses and other mosquito shelters, with D.D.T. In places where this is not possible, malaria is suppressed by taking such chemotherapeutic drugs as paludrine, chloroquine or camoquine at regular intervals, while the use of mosquito nets is an important personal measure.

It is gratifying to note that as a result of the National Anti-malarial Campaign throughout the country, the incidence of this disease has been remarkably reduced.

Kala-azar

This condition is caused by infection with parasites called *Leishmania Donovanii*. The infection is conveyed from man to man by the bites of certain sandflies, and their destruction is the most important preventive measure. D.D.T. spraying



Immunisation is vital

control is intimately related to the economic development of tropical countries.

their destruction is the most important preventive measure. D.D.T. spraying

has proved very effective in the control of sandflies and the incidence of this disease has gone down along with that of malaria.

Bowel Infections

Next to malaria, dysenteries are most important. **Bacillary Dysentery** caused by dysentery bacilli, is no longer a serious problem from the curative point of view, but the treatment of **Amoebic dysentery** which is caused by infection with *E. histolytica* is not always satisfactory; it is apt to remain latent, relapse or to become chronic. The organisms are present in faeces of infected persons. It is evident, therefore, that if they live in conditions of bad sanitation, the infection is likely to spread through water and food supplies. Close supervision of water and food supplies, improvement of environmental sanitation and effective disposal of excreta, is essential. A person who is excreting these organisms and whose fingers become contaminated may, if he does not keep his hands clean, transfer the organism to the food he handles. Raw vegetables, e.g. salads, washed with polluted water may be a source of infection and so also the foodstuffs that are exposed to dust and flies. Utensils not properly cleaned may carry infection. Dysentery, **typhoid** and **cholera** are spread in the same manner.

Public Health Services, along with improvement in the standard of living, education and economy are important in prevention. For drinking water, the guiding rule is to boil it if there is any suspicion about its purity. Besides personal precautions, one should protect himself against typhoid and cholera by regular immunisation.

Infection with **hookworm** occurs from walking barefooted on infested soil. The control of hookworm disease depends on sanitation. In highly endemic areas mass treatment is carried out with the object of removing the infection from the community. Personal protection includes insistence on wearing shoes whenever possible.

OTHER DISEASES

Small-pox.

Individual protection against smallpox lies in vaccination which should be done in infancy and repeated every two or three years.

Filariasis can be prevented by protection from mosquitoes as well as by reducing the human reservoir carrying microfilaria in their blood, as far as possible, by treatment.

Plague is primarily a disease of rats caused by the *P. pestis* and is transmitted to man by the bite of an infected rat flea. One should get vaccinated and use aprons, masks, caps and gloves while attending patients. Fleas are killed by D.D.T. and measures are taken to destroy rats.

Rabies or Hydrophobia virus infection, is usually acquired through a bite from a rabid dog. This disease, once developed, is fatal. Prevention is, therefore, of vital importance. The bitten area should be immediately cauterised, and a course of prophylactic vaccine should be taken.

Tetanus is more common in the tropics than in temperate climates. A special form of the disease, **Tetanus Neonatorum** is peculiar to the tropics and results from sepsis in attending to the newly born child's umbilicus. Anti-tetanus serum should therefore be given to all soil infected wounds and injuries. Tetanus toxoid given to children has proved of great value as a preventive agent. It may be conveniently combined with diphtheria toxoid to protect them from both diphtheria and tetanus; both are prevalent diseases in India.

Leprosy is caused by infection with *leprosy bacillus*. In spite of the evil reputation for infectivity given to leprosy in the past, it is not readily infective. Close, intimate and prolonged contact, such as contact between a leprosy parent and a child is apt to result in transfer of the disease. Prevention is, therefore, largely a matter of breaking that sort of contact; it is a social as well as a medical problem that needs more attention.

Finally, it is important to note that

malnutrition is an important factor in the production of ill health. The principal causes are poverty and ignorance ; improvement of the economic status and education of the people is therefore imperative. Children especially during the weaning period, should have adequate proteins to prevent marasmus and kwashiorkor. The adults, specially the pregnant women and nursing mothers, should have a good mixed diet to prevent nutritional anæmia. Associated infections like tuberculosis, hookworm and dysentery should also be treated.

The preventive aspects of tropical diseases can be broadly studied under the following headings :—

(1) **Isolation of the patient :** When the patient is the primary source of any infection, it is important to isolate him from other members of the community. The period of isolation will depend upon the period of infectivity.

(2) **Adequate disinfection and proper disposal of infected material :** These are faeces, urine, pus, vomitus and sputum; if they are sources of infection, these should be rendered safe by disinfectants, and properly disposed of. Equally essential is the disinfection of bed clothes, personal linen of the patient, feeding utensils, bedpans, urinals, spittoons, enema can etc ; these should be soaked in carbolic lotion (1-20) for $\frac{1}{2}$ hour before being used again or being sent to laundry.

Nurses should use overalls to protect uniform and, if necessary, rubber gloves may be worn while giving enema and touching bedpan etc., or while dealing with soiled linen of infectious patients.

(3) **Measures against various insect vectors and animals carrying infection :** These are mosquitoes, sandflies, lice, ticks, fleas, etc. carrying infection from infected persons to healthy people. They may be killed by such insecticides as D.D.T., Gammexane and their habitat destroyed or controlled. Animal reservoirs need attention too.

(4) **Raising the body immunity against the disease in question by suitable inoculations :** The community, during an epidemic, should be protected against the disease by vaccination. Individual

prophylaxis is also very important; nurses coming in contact with the sick should submit to prophylactic inoculations and take special precautions for their own safety.

(5) **Chemoprophylaxis in suitable diseases :** Small doses of curative remedies may be administered to uninfected persons during an outbreak viz. of malaria (see above) or in order to prevent them from developing the illness, where no proper method of protecting them from infection can be ensured.

(6) Adequate diet is, of course, essential for maintenance of good and positive health.

We are rightly shifting the emphasis on tropical diseases from the curative to the preventive aspect. Nevertheless, medical and nursing care of the sick are very important. More effective treatment, better housing, higher nutritional standards, improved economic conditions are all required to play a part.

The old dictum "*prevention is better than cure*" is gaining more and more ground in medical studies and, in fact, preventive medicine has now grown to an enormous and distinguished branch of medical science. In no other branch of medical science can the knowledge of preventive medicine be applied as in the field of tropical diseases, many of which can be prevented or even be totally eradicated. Members of the nursing profession who come in direct contact with patients suffering from one or other tropical disease must possess an adequate knowledge in the subject. The appended table, including important diseases prevalent in this country, may be useful for ready reference. Nurses should also be conversant with their preventive aspects for the sake of their own safety as well as for prevention of dissemination of the disease to other members of the community through numerous invisible links.

Lastly, my thanks to Mrs. K. Chacko, Sister-in-charge, Carmichael Hospital for Tropical Diseases and to Dr. R.N. Chowdhury, Director, School of Tropical Medicine for their assistance and co-operation in the preparation of this article.