

Review

Neglected Tropical Diseases

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Abstract

Neglected tropical diseases [1,2,3,4] (NTDs) comprising of a group of communicable diseases that occurs in 149 tropical and subtropical countries and affect more than one billion people. It is prevalent in areas with poor sanitation and disease transmitting vectors. They affect poorest of the poor and results in huge loss to the economy of the country.

Keywords: Neglected; Tropical; Lymphatic filariasis; Leishmaniasis; Trachoma.

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Description

Neglected tropical diseases (NTDs) comprising of a group of communicable diseases that occurs in 149 tropical and subtropical countries and affect more than one billion people. It is prevalent in areas with poor sanitation and disease transmitting vectors. They affect poorest of the poor and results in huge loss to the economy of the country. NTDs include:

Buruli ulcer, Chagas disease, Dengue and Chikungunya,, Dracunculiasis (guinea-worm disease),Echinococcosis Foodborne trematodiasis ,Human African trypanosomiasis (sleeping sickness), Leishmaniasis, Leprosy, Lymphatic filariasis, ,Onchocerciasis (river blindness), Rabies, Scabies and other, ectoparasites, Schistosomiasis, Soil transmitted, helminthiasis, Snakebite envenoming, Taeniasis/Cysticercosis, Trachoma ,Yaws (Endemic treponematoses). In this communication, we will discuss about Lymphatic filariasis, Leprosy, Leishmaniasis, Rabies, trachoma, Dengue and Chikungunya and Soil-transmitted diseases.

Trachoma [6] Trachoma, an eye infection affecting both eyes, is the world's leading cause of preventable blindness. According to the World Health Organization (WHO), trachoma is responsible for the visual impairment of 2.2 million people, of whom 1.2 million are irreversibly blind. Trachoma is caused by a bacterium called Chlamydia trachomatis. Antibiotics are

effective in treating early cases of trachoma. Early treatment can prevent long-term complications.

Malaria [7] is caused by the plasmodium parasite that is transmitted by the Anopheles mosquito. Malaria comprises of four types vivax, falciparum, P. malariae, P. ovale. It is a febrile disease. P. falciparum is the most severe species and often drug resistant. Clinically it manifest with fever, often with chill and rigor. As of now the incidence of Malaria has drastically come down (WHO).

Lymphatic filariasis [8, 9] is a disease caused by Wucheria bancrofti. Advances in the diagnosis and treatment, WHO included lymphatic filariasis as a NTD that can be controlled by preventive chemotherapy. The following drug regimens are recommended for use in annual MDA for at least 5 years with coverage of at least 65% of the total at-risk population: 1) 6 mg/kg of body weight diethyl carbamazine citrate (DEC) + 400 mg albendazole; or 150 µg/kg of body weight ivermectin + 400 mg albendazole (in areas that are also endemic for Onchocerciasis); 2) 400 mg albendazole preferably twice per year (in areas that are also endemic for Loa loa). An alternative and equally effective community-wide regimen in endemic regions is the use of common table salt or cooking salt fortified with DEC. DEC fortified salt has been used in only a few settings. As a consolidated approach, morbidity like swelling of legs, scrotum and ulcer should get priority should be taken care.

Leishmaniasis [10, 11, 12,13] is another NTD which is the cause of morbidity and mortality in many countries. Visceral leishmaniasis affects 147 million people with significant mortality. This disease is characterized by prolonged fever (>14 days), anaemia, loss of body weight, splenomegaly (malaria excluded) in a VL endemic area. There are 30 species of phlebotomine sand flies that are vectors of leishmaniasis, and *P. argentipes* is only one kind that is known in the Indian subcontinent. The parasite causing the disease is *Leishmania donovani*. The disease affects the poor people living in areas with poor sanitation, poor nutrition and mud plastered housing. Effective treatment includes Urea Stibamine (once used in India, but unfortunately the discoverer Dr. U.N. Brahmachari did not share the formula of the original compound and the drug was lost after his death), Miltefosine, Paromomycin, Amphotericin B and lipid amphotericin B. The best drug currently is lipid amphotericin B which is safe and a single dose is >95% effective. The dose of the drug is 5 mg x 3 days or 3 mg x 5 days. Stibogluconate has been in use for long time and as the first line drug, but the drug is cardio toxic. In north Bihar in India, the parasite is resistant to stibogluconate in about 60% of VL cases. Vector control [14, 15] is of paramount importance and DDT and Pyrethroids are available. There is no effective vaccine against the disease.

Dengue [5, 16, 17] and Chikungunya is arthropod borne diseases. The disease is caused by a virus (four sero types) and transmitted by a vector known as *Aedes aegypti*, while chikungunya is transmitted by a vector known as *Aedes albopictus*. The vector breeds in clean water and are day time biters. The diseases are characterized by fever, joint pains, bodyache and sometimes haemorrhagic manifestations. Usually there is drop of platelet counts. Dengue fever is also known as “break bone disease” as the patients experience severe bone pain. Fluid and electrolyte balance is the corner stone of treatment. Platelet infusion, though commonly given, is controversial.

Leprosy (Hansen's disease) is a NTD which carries lots of stigma. The patients become untouchable and socially isolated. *Mycobacterium leprae*, the causative agent of the disease was discovered by Hansen in Norway. There are two varieties of leprosy-tuberculoid and lepromatous and this depends on the immunity of the patient. Tuberculoid leprosy affects the sensory nerves and claw hands are common. Great auricular nerves are prominent. Extensive sensory loss occurs so much so that they cannot feel and injury which slowly becomes a big scar. In lepromatous

leprosy the face becomes like that of a lion called “Leonine facies”. Treatment of leprosy is by using Dapsone, Rifampicin, INH and Clofazimine. Although, WHO has declared eradication of leprosy, but many cases are still seen worldwide.

Snakebite [18] occurs in many places while swimming in the ponds and walking through other marshy places. Since poor people live in such areas in the villages, so they are common victims. Death rate is quite high. About 5.4 million snake bites occur each year, resulting in 1.8 to 2.7 million cases of envenoming (poisoning from snake bites)

Scabies [17, 18] is caused by *Sarcoptes scabiei*. It affects people with unhygienic habits. This disease is highly infectious. They cause itching. Treatment is straight forward. Two applications of permethrin or gamma benzene hexachloride will cure. Simultaneously, the entire family members should be treated.

Soil transmitted helminthes [19] include *Ascaris lumbricoides*, *Trichuris trichiura*, Hookworm, *Ancylostoma duodenale*, *Necator americanus*, *Strongyloides stercoralis*. Hookworm causes anaemia; Specific Results of Intestinal Nematode Infections, Ascariasis, cognitive abilities, ages, years, blockage of intestine from worm mass, Trichuriasis, cognitive abilities, ages 5-14 years, dysentery, rectal prolapse.

Rabies [20] is a killer disease. Dog bite is the commonest cause of Rabies. It is caused by a virus. Rabies can be prevented by immunization and using human immunoglobulin. Immunization is done by vaccination on 0, 3, 5, 7, 14 and 30 days and 90 days (optional). Bites on the face should receive immunoglobulin in addition to vaccination within 48 hours of bite. Human diploid cell vaccine is perhaps the best anti-rabies vaccine.

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