

Editorial

Neglected Tropical Diseases

Tropical countries constitute a unique biological zone. They are endowed with abundant sunshine, rainfall, and are the home of some of the dense forests. Tropical countries also provide a unique opportunity for the existence of many diseases. The large poverty stricken population living in these areas supports the agents that cause these infections by their habits as well as economic and social inabilities. The governments in these areas have long ignored these tropical infections. Though preventive strategies and treatment options are available for these maladies in the developed parts of the world, they are not available for the people living in poorer areas of Africa, Asia, and Americas. Some of the diseases in this group are fatal. But the treatment has not changed much from colonial times as little research has taken place on this front. The available treatments are often toxic and the parasites are developing resistance to the known drugs. The World Health Organization (WHO) has listed 17 Tropical diseases with the above features and called them Neglected Tropical Diseases (NTDs).

Most of the NTDs listed are parasitic infestations, but some bacterial and viral infections have also been included in the list. The list includes protozoan infections such as Kala azar, Sleeping sickness and Chagas' disease; the soil transmitted nematodal infestations such as roundworm, hookworm, and whipworm; the tissue nematodal infections such as filariasis, dracunculiasis (guineaworm disease), and onchocerciasis (river blindness); food borne trematodal infections and schistosomiasis; cestodal infections such as taeniasis/ cysticercosis and echinococcosis. The bacterial and chlamydial infections include Buruli's ulcer (caused by *Mycobacterium ulcerans*) leprosy, yaws, and trachoma. The viral infections in the list are rabies and mosquito borne dengue/severe dengue. Diseases such as HIV, Tuberculosis and malaria are not included in the list as they attract considerable funding, research and National and International concern.

In India we have Kala azar the haemoflagellate protozoal infection which is in the list. Kala azar amply exemplifies the impact of an NTD on human health and development. The impoverished populations of eastern parts of India living in mud houses are the victims of the disease. The sand flies living in the crevices of the mud walls of the houses bite and transmit the disease. The disease cripples and kills the people. The pentavalent antimonials which are cheaper are highly toxic and the other effective and less toxic drugs are unaffordable by the suffering poor.

In addition to Kala azar in India a large number of people are infected with soil transmitted helminths like round worm, hook worm and whip worm. Lymphatic filariasis transmitted by mosquito bite affects many. These diseases produce long term disability, suffering and reinforce poverty. There is evidence that children infested with worms develop nutritional deficiencies, manifest cognitive developmental defects and have learning problems. Deworming and relieving them of the parasitic load by mass treatment programmes will not only improve their health but also address the nutritional and educational issues. Unfortunately there is no universal access to essential medicines such as albendazole or mebendazole which are administered as preventive chemotherapeutic agents in mass

drug administration campaigns. The hook worms have shown that they can develop resistance to these drugs and this may pose problems in future. The effectiveness of preventive chemotherapy for elimination of lymphatic filariasis by prolonged and targeted administration of Diethyl carbamazine citrate was first shown in China and has now been adapted by India. Though India has made impressive strides in the control of leprosy, new cases are still recorded. Control of dengue is complex and involves vector control measures. Vector control is attempted only during epidemics.

Reduction and eradication of NTDs from the world have been major concerns of the WHO and are included in the United Nation's Millennium Development goals. The action plan prepared for this purpose requires co-ordinated effort by the public and private sectors, international organizations, pharmaceutical companies and also political commitment. The much needed financial support in billions of dollars has been provided partially by US agencies for International development, Geneva global, and Bill and Melinda Gates foundation. Pharmaceutical companies have donated drugs such as ivermectin, and azithromycin in large quantities for control of onchocerciasis and trachoma respectively.

Among the NTDs, the eradication of guineaworm infestation has been a success story. Guineaworm or *Dracunculus medinensis* has been eradicated from most of the endemic areas of the world. The WHO has not received information on any new cases for a month in the entire world as on 15th March 2013. It is hoped that sustained efforts to eradicate the disease from its last bastion in the African countries of Chad, Ethiopia, Mali, and Southern Sudan will bear fruits in a short time.

As Dr. Margaret Chan, Director General of the WHO, puts it: Eradication and control of NTDs require passion and compassion as driving forces to direct public health efforts. Success in this area will bridge the gap in the standards of health between the bottom millions and others who are better off in the world. It is an effort towards attaining equity. Our ancestors thought of world as a family. The global community is now at the task of controlling and eliminating the NTDs, as the case may be. It is in line with the ancient motto often heard in India "Serve bhavantu niraamayah": Let everybody be free from disease and suffering.

References:

1. Hotez PJ, Molyneux DH, Fenwick A, Kumaresan J, Sachs E, Sachs JD et al. Control of Neglected Tropical Diseases. *N Engl J Med* 2007; 357:1018-27
2. Hotez PJ, Fenwick A, Savioli L, Molyneux DH. Rescuing the bottom billion through control of neglected tropical diseases. *Lancet* 2009; 373: 1570 - 75

Dr. S.R Prasad

Professor, Department of Microbiology,
Sri Devaraj Urs Medical College, Tamaka, Kolar
Email: subbaramaprasad@gmail.com
Mobile no: 9343611951