

Disease Fact Sheet: Onchocerciasis

Onchocerciasis or river blindness is a parasitic disease with an insect vector that breeds in water. It is the world's second leading infectious cause of blindness. Controlling insect breeding sites in rivers is one of the pillars of prevention.

The disease and its cause

Onchocerciasis or river blindness is a parasitic disease caused by *Onchocerca volvulus*, a thin parasitic worm that can live for up to 14 years in the human body. The disease is transmitted from one person to another through the bite of a blackfly (*Simulium*).

The blackfly lays its eggs in the water of fast-flowing rivers, which mature into adult blackflies in 8 to 12 days. The female blackfly typically seeks a bloodmeal after mating and, upon biting a person who is infected with onchocerciasis, may ingest worm larvae, which can then be passed on to the next person bitten by the blackfly. Eventually, the transmitted worm larvae develop into adult worms and settle into fibrous nodules in the human body close to the surface of the skin or near the joints.

Effect on people

Each adult female worm (*macrofilaria*), which can be more than ½ metre in length, produces millions of microscopic young worms (*microfilariae*). The *microfilariae* migrate through the skin and, upon death, cause intense itching and depigmentation of the skin ("leopard skin"), lymphadenitis resulting in hanging groins and elephantiasis of the genitals, serious visual impairment, and blindness when they reach the eye

Symptoms of the disease in a person usually begin to show 1-3 years after infection.

Distribution

Onchocerciasis is found in 36 countries in Africa as well as in Guatemala, southern Mexico, some areas of Venezuela, small areas in Brazil, Colombia and Ecuador, and in the Arabian peninsula.

Scope of the Problem

Onchocerciasis is the world's second leading infectious cause of blindness. A total of 18 million people are affected worldwide. Of those affected outside the area in West Africa covered by the Onchocerciasis Control Programme, over 6.5 million suffer from severe itching or dermatitis and 270 000 are blind.

Interventions

There are two main actions undertaken against onchocerciasis control: spraying of breeding sites in water of the blackflies with larvicides, and the treatment of patients with a drug (ivermectin) that kills the young worms.

The Onchocerciasis Control Programme in West Africa (OCP)

The Onchocerciasis Control Programme in West Africa (OCP), jointly sponsored by WHO, the World Bank, the United Nations Development Programme and the UN Food and Agriculture Organization, and supported by a coalition of 20 donor countries and agencies, was launched in 1974 and currently covers a total population of about 30 million people in 11 countries.

OCP has been working to control onchocerciasis by interrupting the parasite transmission cycle. The blackfly larvae are destroyed by the application of larvicides through aerial spraying of breeding sites in fast-flowing rivers so that they do not develop into blackflies capable of transmitting the parasite. Since 1987, the use of ivermectin in combination with aerial larviciding has had a remarkable impact on the transmission of the disease and greatly reduced the effect on humans.

When the programme was launched 27 years ago, at the beginning of the programme, 1 million people in West Africa suffered from onchocerciasis, 100 000 of these had serious eye problems (including 35 000 who were blind). It is expected that by the end of the year 2002, when the programme is scheduled to come to an end, onchocerciasis will be eliminated as a public health problem and as an obstacle to socioeconomic development in this area.

Other Control Programmes

With the African Programme for Onchocerciasis Control (APOC) launched in December 1995, control efforts are ongoing in 19 other African countries outside the 11 countries of OCP. APOC intervention is based mainly on treatment with ivermectin entirely planned and managed by the communities themselves. The objective of the programme is primarily to establish within a 12 to 15-year period an effective and self-sustainable drug distribution mechanism within the communities in the endemic areas.

In 1992, the Onchocerciasis Elimination Program in the Americas (OEPA) was launched in 6 countries. Ivermectin distribution has been the main intervention strategy and the programme is now in the process of preparing for certification of the elimination of onchocerciasis in those countries.

Prepared for World Water Day 2001. Reviewed by staff and experts from the cluster on Communicable Diseases (CDS) and the Water, Sanitation and Health Programme (WSH), World Health Organization (WHO).