World Health Organization
Regional Office for the Eastern Mediterranean

Fact sheet

Lymphatic filariasis

Key facts

- Nearly 1.4 billion people in 73 countries worldwide are threatened by lymphatic filariasis, commonly known as elephantiasis.
- Over 120 million people are currently infected, with about 40 million disfigured and incapacitated by the disease.
- Lymphatic filariasis can result in an altered lymphatic system and the abnormal enlargement of body parts, causing pain and severe disability.
- Acute episodes of local inflammation involving the skin, lymph nodes and lymphatic vessels often accompany chronic lymphoedema.
- To interrupt transmission WHO recommends annual mass drug administration of single doses of two medicines to all eligible people in endemic areas.

The disease

Lymphatic filariasis, commonly known as elephantiasis, is a neglected tropical disease. Infection occurs when filarial parasites are transmitted to humans through mosquitoes. When a mosquito with infective stage larvae bites a person, the parasites are deposited on the person's skin from where they enter the body. The larvae then migrate to the lymphatic vessels where they develop into adult worms in the human lymphatic system.

Infection is usually acquired in childhood, but the painful and profoundly disfiguring visible manifestations of the disease occur later in life. Whereas acute episodes of the disease cause temporary disability, lymphatic filariasis leads to permanent disability.

Currently, more than 1.4 billion people in 73 countries are at risk. Approximately 65% of those infected live in the WHO South-East Asia Region, 30% in the African Region, and the remainder in other tropical areas.

Lymphatic filariasis afflicts over 25 million men with genital disease and over 15 million people with lymphoedema. Since the prevalence and intensity of infection are linked to poverty, its elimination can contribute to achieving the United Nations Millennium Development Goals.

Cause and transmission

Lymphatic filariasis is caused by infection with nematodes (roundworms) of the family Filariodidea. There are three types of these thread-like filarial worms:

- *Wuchereria bancrofti*, which is responsible for 90% of the cases
- *Brugia malayi*, which causes most of the remainder of the cases
- *B. timori*, which also causes the diseases.

Adult worms lodge in the lymphatic system and disrupt the immune system. The worms can live for 6–8 years and, during their life time, produce millions of microfilariae (small larvae) that circulate in the blood.

Lymphatic filariasis is transmitted by different types of mosquitoes for example by the Culex mosquito, widespread across urban and semi-urban areas and Anopheles mainly in rural areas.

Symptoms

Lymphatic filariasis infection involves asymptomatic, acute, and chronic conditions. The majority of infections are asymptomatic, showing no external signs of infection. These asymptomatic infections still cause damage to the lymphatic system and the kidneys as well as alter the body's immune system.

Acute episodes of local inflammation involving skin, lymph nodes and lymphatic vessels often accompany the chronic lymphoedema or elephantiasis. Some of these episodes are caused by the body's immune response to the parasite. However most are the result of bacterial skin infection where normal defences have been partially lost due to underlying lymphatic damage.

When lymphatic filariasis develops into chronic conditions, it leads to lymphoedema (tissue swelling) or elephantiasis (skin/tissue thickening) of limbs and hydrocele (fluid accumulation). Involvement of breasts and genital organs is common. Such body deformities lead to social stigma, as well as financial hardship from loss of income and increased medical expenses. The socioeconomic burdens of isolation and poverty are immense.

Treatment and prevention

The recommended regimen for treatment through mass drug administration (MDA) is a single dose of two medicines given together, albendazole (400 mg) plus either ivermectin (150–200 mcg/kg), in areas where onchocerciasis (river blindness) is also endemic, or diethylcarbamazine citrate (DEC) (6 mg/kg), in areas where onchocerciasis is not endemic. These medicines clear microfilariae from the bloodstream.

Mosquito control is another measure that can be used to suppress transmission. Measures such as insecticide-treated nets or indoor residual spraying may help protect populations in endemic regions from infection.

Patients with chronic disabilities like elephantiasis, lymphoedema or hydrocele are advised to maintain rigorous hygiene and take necessary precautions to prevent secondary infection and aggravation of the disease condition.

WHO's response

World Health Assembly Resolution 50.29 encourages Member States to eliminate lymphatic filariasis as a public health problem. In response, WHO launched its Global Programme to Eliminate Lymphatic Filariasis (GPELF) in 2000. The goal of the GPELF is to eliminate lymphatic filariasis as a public health problem by 2020.

The strategy is based on two key components:

- Interrupting transmission through annual large-scale treatment programmes, known as mass drug administration, implemented to cover the entire population at risk;
- Alleviating the suffering caused by lymphatic filariasis through morbidity management and disability prevention.

Mass drug administration

To achieve interruption of transmission, the disease is first mapped to know where to conduct mass drug administration (MDA). Then community-wide annual MDA of single doses of albendazole plus either diethylcarbamazine or ivermectin is implemented in endemic regions, treating the entire population at risk.

MDA should be continued for 4–6 years to fully interrupt transmission of infection. By 2012, 56 countries had started implementing MDA. Of the 56 countries that had implemented MDA, 13 countries have moved to the post-MDA surveillance phase.

From 2000 to 2012, more than 4.4 billion treatments were delivered to a targeted population of about 984 million individuals in 56 countries, considerably reducing transmission in many places.

Recent research data show that the transmission of lymphatic filariasis in at-risk populations has dropped by 43% since the beginning of the GPELF. The overall economic benefit of the programme during 2000–2007 is conservatively estimated at US$ 24 billion.

Morbidity management

Morbidity management and disability prevention are vital for public health improvement and should be fully integrated into the health system. The GPELF aims to provide access to a minimum package of care for every person with chronic manifestations of lymphatic filariasis in all areas where the disease is endemic, thus alleviating suffering and promoting improvement in their quality of life.

Clinical severity of lymphoedema and acute inflammatory episodes can be improved using simple measures of hygiene, skin care, exercise and elevation of affected limbs. Hydrocele (fluid accumulation) can be alleviated with surgery.

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