Lymphatic filariasis treatment guidelines

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Is lymphatic filariasis curable.

1 Department of Detmatology and Venereology, TD Medical College Hospital, Alappuzha-688 011, India 2 Department of Medicine and Filariasis Chemotherapy Unit, TD Medical College Hospital, Alappuzha-688 011, India Correspondence Address: R K Shenoy Department of Medicine and Filariasis Chemotherapy Unit, TD Medical College Hospital, Alappuzha-688 011 India Introduction Lymphatic filariasis caused by the mosquito-borne, lymphatic-dwelling nematodes Wuchereria bancrofti and Brigia malayi is still a common tropical parasitic disease. Of the estimated 120 million people affected by this disease in the world, one-third live in India. W. bancrofti accounts for ~90% of the disease burden while B. malayi contributes the remaining ~10%. Next to psychiatric illness, this is the leading cause for permanent and long-term disability. Several recent advances have helped not only in better understanding of the pathogenesis of this disease, but also in the diagnosis, management and in planning effective strategies for its global prevention. The disease spectrum Some newer understanding in the clinical manifestations are mentioned below, which are relevant in the context of current trends in management. Asymptomatic microfilaraemia In an endemic area the largest group of affected individuals in the otherwise healthy young adults and children who in-spite of being clinically asymptomatic, harbour microfilaria in their peripheral blood. It is important to know that even at this stage of the disease abnormalities of the lymphatic vessels like dilatation appears to be irreversible even after treatment. Acute manifestations Acute Adeno-Lymphangitis (ADL). Attacks of fever and chills due to ADL are the commonest acute manifestations, which occur in the affected limbs or sometimes involve the genitalia. These episodes may be seen both in the early and late stages of the disease. The affected area is painful, tender, warm, red and swollen. The lymph nodes in the groin and axilla, are frequently inflamed. These acute ADL attacks recur many times a year in patients with filarial swelling, their incidence increasing with the degree of lymphedema. Secondary infections due to bacteria like streptococci are responsible for these acute episodes.[2] In the affected limbs, lesions which favour entry of these infecting agents can be frquently demonstrated, either in the form of fungal infection in the webs of the toes, minor injuries, eczema, insect bites or infections. These ADL attacks are responsible for the persistence and progression of the swelling leading on to elephantiasis not only of the limbs but also of the external genitalia and breasts.[3] Acute Filarial Lymphangitis: Acute manifestations directly caused by adult worms are usually rare. They are seen when the adult worms are destroyed in the lymphatics either spontaneously or by drugs like diethylcarbamazine. Small tender nodules form at the location of adult worm death either in the scrotum or along the lymphatics. Lymph nodes may become tender. Inflamed large lymphatics may stand out as long tender cords underneath the skin, usually along the sides of chest or the upper arm and axilla associated with restriction of movement of affected limb. Though transient oedema may occur sometimes, these episodes are not associated with fever, toxemia or evidence of secondary bacterial infections. They generally subside without any treatment. Chronic manifestations Lymphoedema and Elephantiasis: The commonest chronic manifestation of lymphatic filariasis is lymphoedema, which on progression leads on to elephantiasis. Even though lower limbs are commonly affected, upper limbs and male genitalia are frequently involved. In females, rarely the breasts and the external genitalia may also become elephantoid. Repeated ADL episodes responsible for the progression of lymphoedema continue to occur with greater frequency in higher grades of oedema. This is due to the fact that the presence of moisture in the web spaces of the closely apposed swollen toes promotes fungal infections damaging the skin, which in turn favour of infecting organisms. For this reason the frequency of ADL episodes is shown to increase in the rainy season, when people have to wade through water in the lanes.[4] In brugian filariasis the lymphoedema involves only the legs below the knee and upper limbs below the elbow. Acute ADL episodes are common in affected limbs like in bancroftian filariasis. But genito-urinary lesions are not seen. Genito-urinary lesions: Hydrocoele is common chronic manifestation of bancroftian filariasis in the males. Chylocoele, chyluria and chylous ascites rarely occur. Apart from the lymphoedema of the scrotum and penis, sometimes the skin of the scrotum may be covered with vesicles distended with lymph, that may leak presenting as ‘lymph scrotum’. Microscopic and rarely macroscopic haematuria is known to occur in people with asymptomatic microfilaraemia. Tropical pulmonary eosinophilia associated with high eosinophil counts in the blood is an occult manifestation of both W. bancrofti and B. malayi filariasis. Recent advances in diagnosis The recent developments in the diagnosis of lymphatic filariasis are given below, which have heralded changes in the management strategies. Membrane filtration method for microfilaria detection: Venous blood drawn at night and filtered through millepore membrane filters, enables easy detection of microfilaria and to quantify the load of infection. They are usually seen in the early stages of the disease before clinical manifestations develop. Once lyphoedema develops microfilaria are generally absent in the peripheral blood. The Quantitative Blood Count (QBC) methods also can be used to identify the microfilaria and to study their morphology in the blood drawn at night. Though this can be performed quickly, it is no more sensitive than examination of the conventional blood smear.[5] Ultrasonography: Recently, ultrasono-graphy using a 7.5 or 10 MHz probe has helped to locate and visualise the movements of living adult filarial worms of W. bancrofti in the scrotal lymphatics of asymptomatic males with microfilaraemia. The constant thrasing movement of the adult worms in their ‘nests’ in the scrotal lymphatics is described as the ‘filaria dance sign’.[6] The lymphatic vessels lodging the parasite are dilated and this dilation is not seen to revert to normal even after the worms are killed by administration of diethylcarbamazine. Ultrasound has been used to study the effect of drugs on the adult worms and to retrieve them surgically from the dilated scrotal lymphatics. Ultrasonography is not useful in patients with filarial lymphoedema because living adult worms are generally not present at this stage of the disease. Similarly ultrasonography has not helped in locating the adult worms of B. malayi in the scrotal lymphatics since they do not involve the genitalia.[7] Lymphoscintigraphy: The structure and function of the lymphatics of the involved limb can be assessed by lymphoscintigraphy. After injecting radiolabelled albumin or dextran in the web space of the toes, the structural changes are imaged using a gamma camera. Lymphatic dilatation, dermal back flow and obstruction can be directly demonstrated in the oedematous limbs by this method. Lymphoscintigraphy has shown that even in the early, clinically asymptomatic stage of the disease, there are lymphatic abnormalities in the affected limbs of people harboring microfilaria.[1] Immunochromatographic test (ICT): Highly sensitive and specific filarial antigen detection assays, both as card test and in ELISA based format are now available for the diagnosis of W. bancrofti infection. The card test has the advantage that it can be performed on blood sample drawn by finger prick at any time of the day. This test is positive in early stages of the disease when the adult worms are alive and becomes negative once they are dead.[8] At present no such test is available for B. malayi filariasis, where the detection of IgG4 antibodies is helpful. DNA probes using Polymerase Chain Reaction (PCR): These tests are of high specificity and sensitivity, which are available to detect parasite DNA in humans as well as vectors in both bancroftian and brugian filariasis.[5] Though this method is quick and easy to perform, the disadvantage is that it requires sophisticated equipment and is avilable only in very few centres. Treatment Drugs effective against the filarial parasite:Diethylcarbamazine (DEC): This drug is effective against both microfilaria and adult worms. DEC lowers the blood microfilaria levels markedly even in single annual doses of 6 mg/kg, and this effect is sustained even at the end of one year. Even though DEC kills the adult worms, this effect is seen in only 50% of patients. By ultrasonography it is shown that even single doses of DEC kills the adult worms when they are sensitive to the drug. When they are not sensitive even repeated doses do not have any effect on the adult parasite.[9] This drug does not act directly on the parasite but its action is mediated through the host immune system. The earlier recommended dose of this drug was 6 mg/kg given daily for 12 days. Recent studies have shown that single dose of DEC 6mg/kg is as effective as the above standard dose given for 12 days.[10] The sustained destruction of microfilaria by this drug even in annual single doses makes it a good tool to prevent the transmission of this disease. The adverse effects produced by the drug are seen mostly in patients who have microfilaria in their blood and are due to their rapid destruction which is characterized by fever, headache, myalgia, sore throat or cough lasting for 24 to 48 hours. They are usually mild and self-limiting requiring only symptomatic treatment. Direct adverse effects related to the drug are very rare. Recent trials have clearly shown that DEC has no action either in the treatment or prevention of the acute ADL attacks occurring in lymphoedema.[3],[4] DEC is the drug of choice in the treatment of Tropical Eosinophilia syndrome where it is to be given for longer periods of 3 to 4 weeks. Ivermectin: This drug acts directly on the microfilaria and in single doses of 200 to 400ugm/ kg keeps the blood microfilaria counts at very low levels even at the end of one year, like DEC. The adverse effects noticed in microfilaraemic patients are similar to those produced by DEC but are milder due to the slower clearance of the parasitaemia. Ivermectin has no proven action against the adult parasite or in tropical eosinophilia.[11] Ivermectin is the drug of choice for the treatment of onchocerciasis because of its safety and efficacy, when compared to DEC. It is also the drug of choice for prevention of filariasis in African countries endemic for Onchocerca and Loa loa, where DEC cannot be used due to possible severe adverse reactions. Ivermectin is effective against human ectoparasites like head and body lice, scabies var hominis and also many intestinal helminths. This drug is not licensed for human use in India. Albendazole: This anthelmintic drug is shown to destroy the adult filarial worms when given in doses of 400mg twice daily for two weeks. The death of the adult worm induces severe scrotal reactions in bancroftian filariasis since this is the common site where they are lodged.[12] Albendazole has no direct action against the microfilaria and does not immediately lower the microfilaria counts. But when given in single dose of 400 mg in combination with DEC or ivermectin, the destruction of microfilaria by these drugs becomes more pronounced. Albendazole combined with DEC or invermectin is recommended in the global filariasis elimination programme. The strategy that appears most suitable for elimination of filariasis in India is the administration of single annual dose of albendazole 400mg along with DEC 6 mg/kg body weight. This not only will prevent transmission of filariasis in the community by reducing the microfilaria levels, but also has the added benefit of clearing the intestinal helminths.[13] Treatment and prevention of acute ADL attacks The most distressing aspect of lymphatic filariasis is the acute attacks of ADL, which prevent the patient from attending his daily activities. This results in considerable economic loss and deterioration of quality of life of the affected population. So prompt treatment and prevention of ADL are of paramount importance. Bed rest and symptomatic treatment with simple drugs like paracetamol are enough in mild cases. Any local precipitating factor like injury and bacterial or fungal infection should be treated with local antibiotic or antifungal agents. Moderate or severe attacks of ADL should be treated with oral or parenteral administration of antibiotics depending on the general condition of the patient. Since they result from secondary bacterial infections, systemic antibiotics like penicillin, ampicillin or cotrimoxazole may be given in adequate doses till the infection subsides. Bacteriological examination of swabs from the entry lesions may help in selecting the proper antibiotic in severe cases. Many recent studies have shown that with proper ‘local care’ of the affected limb these ADL attacks can be prevented even in case of severe lymphoedema. This ‘foot-care programme’ involves the following. 1. Washing of the affected area, especially the webs of the toes and deep folds of skin, with soap and water twice a day or at least once before going to bed and wiping dry with a clean cloth to avoid moisture. 2. Clipping the nails at intervals and keeping them clean. 3. Preventing or promptly treating any local injuries or infections using antibiotic ointments. 4. Applying antifungal ointment like Whitfield’s (being the cheapest) to the webs of the toes and sides of the feet daily. 5. Regular use of properly fitting foot wear. 6. Raising the affected limb at night to reduce the swelling. In patients with late stages of oedema satisfactory local care of the limb is not possible due to deep folds of skin or warty excrescences. To prevent repeated ADLs in such patients, long term antibiotic therapy using oral penicillin or long acting parenteral benzathine penicillin is indicated.[3] Prevention and treatment of lymphoedema and elephantiasis Where the adult parasite is sensitive to DEC, early treatment with this drug in a patient having microfilaria in his blood, may destroy the adult worms and logically prevent the later development of lymphoedema. Equally important is the prevention of ADL attacks in these patients with underlying dysfunction since the occurrence of lymphoedema and its progression are due to these repeated infections. Once lymphoedema is established there is no cure as such and the following treatment modalities offer relief and may prevent further progression of the swelling: 1. Using elastocrepe bandage or tailor made stockings while ambulant. 2. Keeping the limb elevated at night or while resting, after removing the bandage. 3. Regular exercising of the affected limb. 4. Regular light massage of the limb to stimulate the lymphatics and to promote flow of lymph towards larger patent vessels. 5. Intermittent pneumatic compression of the affected limb using single or multicell jackets. 6. Heat therapy either using wet heat or hot oven. 7. Surgical procedures: There are various surgical options like lymph nodo-venous shunts, omentoplasty, excisional surgery and skin grafting. Even after surgery the care of the limb should be continued for life, to prevent recurrence of the swelling. 8. Prolonged treatment with oral or topical coumarin or flavonoids is said to be beneficial in reducing the lymphoedema, by stimulating the macrophages to remove excess proteins from oedema fluid. Rarely coumarin is reported to produce idiosyncratic hepatitis. Control and prevention of filariasis Prevenion of this disease is very important because once lymphoedema develops only symptomatic treatment can be offered and permanent cure is not possible. The following methods are of helpful in the global elimination of filariasis. 1. Mass chemotherapy 2. Vector control 3. Preventing man-vector contact 1. Mass chemotherapy brings down the microfilaremia to very low levels in the treated population so that transmission of the parasite in the community by the biting mosquito is reduced. There are very effective methods available now for this purpose. a. Annual sigle doses of DEC 6mg/kg. b. Annual single doses of ivermectin 200 or 400ugm/ kg. c. Annual single doses of combination of the above two drugs. d. Annul single doses of combination of albendazole 400mg with either invermectin 200ugm/kg or DEC 6mg is recommended for the global elimination programme. e. DEC medicated salt (0.2%) to replace normal cooking salt. All these methods are useful for sustained lowering of the microfilaria levels in the population thereby reducing the chances of transmission of the disease. Their use should be continued for many years in the population , due to the long fecundic life of the adult worm. 2. Vector control measures using conventional insecticide sprays, biocides like Bacillus sphaericus, polystyrene beads etc reduce the breeding of the mosquitoes and thus help in preventing transmission of this disease, when combined with chemotherpy. Care should be taken to prevent breeding sites for culex mosquitoes by avoiding stagnation of water. Deweeding aquatic vegetation and promoting fish farming are methods for personal protection. 3. Preventing man-vector contact using insect repellant creams, insecticide impregnated bed nets and curtains etc are supplementary methods for personal protection. Future perspectives The recent availability of drugs to prevent transmission of the disease and simple, low cost treatment modalities which offer relief to person with evident disease, herald a brighter future in tackling this potentially eradicable disease. Mass administration of single annual doses of albendazole 400 mg along with DEC 6 mg/kg body weight is the recommended strategy to prevent transmission of filariasis for India. This has the added benefit of clearing the intestinal helminths in the community.

Lymphatic filariasis affects about 120 million people worldwide. Short-term travelers to areas where it is endemic are at low risk for this infection. People who visit endemic areas for extended periods of time, and especially those who are in areas or situations in which they are intensely exposed to infected mosquitoes, can become infected. A parasite is an organism that lives on or in a host and gets its food from or at the expense of its host. Parasites can cause disease in humans. Some parasitic diseases are easily treated and some are not. The burden of these diseases often rests on communities in the tropics and subtropics, but parasitic infections also affect people in developed countries. Number of countries supplied with lymphatic filariasis treatment and volume supplied (as of April 2022) Eisai is promoting initiatives for improving access to medicines to contribute to people in developing and emerging countries. ... SNS Community Guidelines; Accessibility; Neglected tropical diseases (NTDs) are a diverse group of tropical infections that are common in low-income populations in developing regions of Africa, Asia, and the Americas. They are caused by a variety of pathogens, such as viruses, bacteria, protozoa and parasitic worms ().These diseases are contrasted with the "big three" infectious diseases (HIV/AIDS, tuberculosis, and ... What is lymphoedema? Lymphoedema (American spelling ‘lymphedema’) is a swelling of part or parts of the body that occurs when the lymphatic system is not working properly. Lymphoedema can be localised to a small area, or diffuse over a large area such as one or both upper or lower limbs.. To understand how lymphoedema occurs we need to know a bit about what the ... 12/8/2022 · Number of countries supplied with lymphatic filariasis treatment and volume supplied (as of July 2022) Eisai is promoting initiatives for improving access to medicines to contribute to people in developing and emerging countries. ... 21/3/2022 · Lymphedema can benefit people who have a buildup of lymphatic fluid due to:. cancer and cancer treatments that involve the removal of lymph nodes; filariasis, which is infestation of the lymph ... 21/7/2022 · Most cases are secondary to nematode infection (filariasis), malignancy, or cancer-related treatment. Typically presents with painless unilateral limb swelling; pitting oedema is present in early disease, whereas non-pitting oedema is a sensitive but non-specific finding in advanced disease. 28/3/2018 · Manual lymphatic drainage - a specialised form of massage, designed to stimulate lymphatic drainage. Skin care to reduce the risk of the skin infection called cellulitis . The National Institute for Health and Care Excellence (NICE) has produced guidelines stating that there is strong enough evidence for liposuction to be recommended for some patients with chronic ... 30/11/2017 · How to get rid of roundworms in humans. Mebendazole is the usual medicine used for children aged over 1 year, and for adults who are not pregnant or breastfeeding. It comes as a tablet or drink. You take a dose twice a day for three days. (Note: mebendazole is recommended in UK guidelines for treatment from the age of 1 year.However, strictly speaking, it is not ...