Health Protection Agency

Medication Guidelines for Lymphatic Filariasis

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Contents

Document History

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The Disease

Lymphatic filariasis (LF), is a parasitic infection caused by thread-like worms called filarial parasites. It is transmitted to humans through the bite of infected mosquitoes. In the lymphatic system, the larvae develop into adult parasites, which in turn, release microfilaria (mf) into the blood. LF affects the lymphatic system, causing repeated bouts of lymphangitis, lymphadenitis and over time. leading to severe swelling and deformity of the limbs, breasts, and genitals. It can also affect other organs such as kidneys and cause tropical eosinophilia syndrome.

Transmission

In the Maldivian setting, the most common vector is Culex spp which have peak biting at night. When an infected vector bites a human, larvae may be deposited on the skin. The larvae migrate through the bite into the body. Transmission of LF is not very efficient and can take months, with hundreds to thousands of bites from an infected vector for the infection to be transmitted. Once in the body, the larvae get deposited in the lymphatics where they grow into adult worms. Adult worms mate and female worms produce thousands of microfilariae (mf). These mf travel into the blood stream at night (during the peak biting times of the vector, this can be different in different regions). Adult worms remain fecund for about 5 years. When a vector bites an infected person with mf in the bloodstream, the mf are taken into the mosquito where it undergoes further maturation before it can cause infection.

Treatment Regimen

Early diagnosis and treatment are crucial to prevent the progression of LF and reduce the risk of disability. In addition, treatment prevents further transmission.

For treatment of individuals who are diagnosed on antigen/antibody tests or mf, a single course of a combination of 3 drugs (IDA) is recommended in the Maldivian setting, in line with WHO guidelines on alternative MDA regimens.

Dosage

For easy administration in the field, the following age-based dosing regimen is to be used.

Table 1

Age (years)	Ivermectin (3mg)	DEC (100mg)	Albendazole (400mg)	Total tablet
2 – 4	0	1	1	2
5 – 7	1	1	1	3
8 – 14	2	2	1	5
15 – 24	3	3	1	7
25 – 54	4	4	1	9
≥55	3	3	1	7

The same treatment regimen is to be used in the case of Mass Drug Administration (MDA). MDA is a strategy where the combined drugs are administered to everyone in the community (except in those whom it is contra- indicated) in areas where the level of LF infection is above a certain threshold. This is done once a year, for 4-6 years. This has been effective in limiting transmission and was the strategy used in Maldives to achieve elimination of LF.

LF and Co-infections

For any persons who are from areas co-endemic for loiasis or onchocerciasis, the regimens are different, due to severe reactions. DEC can cause severe complications in those who are co-infected with loiasis or onchocerciasis and Ivermectin can cause severe reactions in those who are co-infected with loiasis.

Co-endemic with loiasis: Treatment/MDA with Albendazole (400mg)

Co-endemic with Onchocerciasis: Treatment/MDA with Ivermectin (according to age chart) and Albendazole (400mg)

For list of areas with co-endemicity to LF and onchocerciasis and LF and loiasis, see Annex 2.

Effects of IDA

Studies have shown that the combined administration of the 3 drugs act on both microfilariae and the adult worm. They damage adult worms in the lymphatic vessels and reduce their reproductive capability. They also reduce the circulating mf in blood. Treatment therefore cures the infection and renders the patient non-infective.

Contraindications

The following should not receive treatment

1. Pregnant women
2. Children below 2 years for DEC and children below 5 years for Ivermectin: The recommended age for treatment with ivermectin. DEC can be given to children aged 2 years and above.
3. Precaution should be taken when administering drugs to children as they may have difficulty in swallowing tablets. Scored tablets can be crushed or broken into pieces for
4. Severe illness: Individuals who are severely ill- those unable to perform normal activities of daily living without help due to their illness, those who are currently hospitalized, those who have liver or renal failure (on dialysis) should not receive treatment.
5. Allergy or hypersensitivity: Individuals with known allergies or hypersensitivity to any of the recommended medications should not receive these drugs.

6. Breastfeeding: Breastfeeding women should not receive ivermectin during the 1st week after birth.
7. **Individuals from areas co-endemic with loiasis**: should not be given DEC or Ivermectin
8. Individuals from areas co-endemic with onchocerciasis: should not be given DEC.

Adverse Effects

LF treatment is generally safe. More than 400 million treatments have been administered annually, with few severe adverse events reported.

Most adverse effects after administration of IDA are mild and self-limiting and is usually due to the body's immune response to the killed parasites. Higher rates and severity of reactions are seen in those with higher parasite load. Some people may also have rare hypersensitivity reactions to one or more of the drugs.

Adverse effects are usually evident 24-48 hours after the administration of drugs. They usually subside within 48 hours without medical intervention.

Table 2

Medication	Common Symptoms	Uncommon Symptoms
Diethylcarbamazine (DEC)	headache, itching, tiredness, joint pain, swelling of face	rash, fever, dizziness, painful swellings of lymph nodes, nausea, vomiting
Ivermectin	diarrhea, itching, dizziness, nausea, headache, abdominal pain and joint pain transient low blood pressure, especially in individuals with high microfilarial loads.	*Allergic reactions: rash, chest tightness, and swelling in mouth, lips or tongue can occur
Albendazole	gastrointestinal symptoms: abdominal pain, nausea, vomiting, headache, dizziness, and fatigue	*Allergic reactions: hives, swelling in mouth, face and tongue, difficulty breathing may occur.

* Patients should be asked to report immediately to a health facility if such hypersensitivity reactions are seen.

Some local reactions such as swelling and tenderness in lymph nodes may also be observed. This is also due to inflammatory reactions to dying parasites. Symptomatic management can resolve these within a few days.

Operational errors can lead to adverse effects, and this can have detrimental effects of MDA programs.

Of particular importance is the choking hazard presented by tablets for younger children. Scored tablets should be broken into pieces or crushed before administering them to small children. Older children can chew albendazole tablets.

Medication should be administered in the right quantities. Contraindications should be checked before administration of drugs. Quality should also be checked before administration. Any medication errors (wrong medication, wrong dose)

Anxiety reactions can occur and have been seen to occur in clusters (e.g. vomiting in children) in community settings.

It is important to note that adverse effects can vary from person to person, and not all individuals will experience them. Most adverse effects are mild and self-limiting, and they resolve without any specific treatment. However, if any severe or persistent side effects occur, it is important to seek medical attention promptly.

Severe Adverse Events (SAEs) should be reported to HPA. SAEs include any hospitalization, death, anaphylactic reactions, convulsions or seizures, choking. In addition, clusters of reactions should also be reported.

Administration of Drugs

The drugs should be administered in the presence of a healthcare worker in a healthcare setting, or if given in the field, by a person trained for administration of the drugs.

Ideally, DEC should not be taken on an empty stomach.

Patient Counseling

Before administering treatment, patients should be counselled. It is important to provide accurate information about the disease, its treatment, and strategies for managing symptoms. Here are some key points to consider when counseling a filariasis patient:

1. **Explain the disease:** Provide a clear and simple explanation of what lymphatic filariasis is, how it is transmitted, and its impact on the body. Use non-technical language to ensure the patient understands the basic concepts.

2. **Discuss treatment:** Explain the recommended drug therapy for LF, including the specific medications used. Emphasize that treatment can help eliminate the infection and prevent further complications. Explain the treatment is safe.

3. **Explain adverse effects:** Explain that these drugs are generally safe. However, some people with infection can have mild symptoms 1-2 days after taking medications. This is the body's response to medication and shows that the medicine is working. The symptoms usually go away after a day or two. If very severe, or if it takes longer, consult a healthcare professional.

4. **Address symptoms and management:** For those who already have complications, explain that the treatment may not revert symptoms such as swelling in limbs. Explain strategies for managing these symptoms, including compression therapy, limb hygiene, physical therapy exercises. Surgical interventions can be helpful in some cases (e.g. hydrocele). Refer patient to National NTD Program at HPA for access to further care for existing symptoms/disabilities.

5. **Discuss prevention measures:** Re-infections can occur if the person is exposed to an environment where transmission is continuing. Educate the patient about preventive measures to reduce the risk of LF transmission, such as using bed nets and other measures to avoid mosquito bites. Emphasize the importance of community-wide efforts, such as mass drug administration and vector control, in preventing the spread of the disease.

Remember to use simple and understandable language, listen actively to the patient's concerns, and address any questions or doubts they may have. Show empathy and provide support throughout the counseling process to help the patient cope with the challenges posed by lymphatic filariasis.

Annex 1: Anti-Filarial Medication Administration Details

#	Name	Passport No.	Nationality	Contact No.	Medication (medicine name, strength, no. of tabs)	Medication Administered Time and Date	Administered by (name, designation)	Patient Counselled	Health Facility	Adverse Events (AE)

Please note that the aforementioned information should be maintained at the health facility providing treatment. These can be entered onto the prescription itself or maintained as a spreadsheet.

Patients should also receive the Filaria Testing and Medication Card, with their test results and medication details entered. Ask patients to keep the card safe.

Annex 2: LF Endemic Countries

#	Country	LF	Oncho	Loa Loa
1	American Samoa	LF endemic		
2	Angola	LF endemic	Oncho endemic	Loa endemic
3	Bangladesh	LF endemic		
4	Benin	LF endemic	Oncho endemic	
5	Brazil	LF endemic		
6	Brunei Darussalam	LF endemic		
7	Burkina Faso	LF endemic	Oncho endemic	
8	Cambodia	LF endemic		
9	Cameroon	LF endemic	Oncho endemic	Loa endemic
10	Central African Republic	LF endemic	Oncho endemic	Loa endemic
11	Chad	LF endemic	Oncho endemic	Loa endemic
12	Comoros	LF endemic		
13	Cook Islands	LF endemic		
14	Côte d'Ivoire	LF endemic	Oncho endemic	
15	Democratic Republic of Congo	LF endemic	Oncho endemic	Loa endemic
16	Dominican Republic	LF endemic		
17	Egypt	LF endemic		
18	Equatorial Guinea	LF endemic	Oncho endemic	Loa endemic
19	Eritrea	LF endemic		
20	Ethiopia	LF endemic	Oncho endemic	
21	Federated States of Micronesia	LF endemic		
22	Fiji	LF endemic		
23	French Polynesia	LF endemic		
24	Gabon	LF endemic	Oncho endemic	Loa endemic
25	Ghana	LF endemic	Oncho endemic	
26	Guinea	LF endemic	Oncho endemic	
27	Guinea Bissau	LF endemic	Oncho endemic	
28	Guyana	LF endemic		

#	Country	LF	Oncho	Loa Loa
29	Haiti	LF endemic		
30	India	LF endemic		
31	Indonesia	LF endemic		
32	Kenya	LF endemic		
33	Kiribati	LF endemic		
34	Laos PDR	LF endemic		
35	Liberia	LF endemic	Oncho endemic	
36	Madagascar	LF endemic		
37	Malawi	LF endemic	Oncho endemic	
38	Malaysia	LF endemic		
39	Maldives	LF endemic		
40	Mali	LF endemic	Oncho endemic	
41	Marshall Islands	LF endemic		
42	Mozambique	LF endemic	Oncho endemic	
43	Myanmar	LF endemic		
44	Nepal	LF endemic		
45	New Caledonia	LF endemic		
46	Niger	LF endemic	Oncho endemic	
47	Nigeria	LF endemic	Oncho endemic	
48	Niue	LF endemic		
49	Palau	LF endemic		
50	Papua New Guinea	LF endemic		
51	Philippines	LF endemic		
52	Republic of Congo	LF endemic	Oncho endemic	Loa endemic
53	Samoa	LF endemic		
54	Sao Tome and Principe	LF endemic		
55	Senegal	LF endemic	Oncho endemic	
56	Sierra Leone	LF endemic	Oncho endemic	
57	South Sudan	LF endemic	Oncho endemic	

#	Country	LF	Oncho	Loa Loa
58	Sri Lanka	LF endemic		
59	Sudan	LF endemic	Oncho endemic	
60	Tanzania	LF endemic	Oncho endemic	
61	Thailand	LF endemic		
62	Timor-Leste	LF endemic		
63	Togo	LF endemic	Oncho endemic	
64	Tonga	LF endemic		
65	Tuvalu	LF endemic		
66	Uganda	LF endemic	Oncho endemic	
67	Vanuatu	LF endemic		
68	Vietnam	LF endemic		
69	Wallis & Futuna	LF endemic		
70	Yemen	LF endemic		
71	Zambia	LF endemic		
72	Zimbabwe	LF endemic		