Leishmania Infection, Black Fever, Kala-azar

Leishmaniasis is a parasitic disease. It is spread by the bite of infected sand flies. There are several different forms of leishmaniasis. The most common forms are cutaneous leishmaniasis, which causes skin sores, and visceral leishmaniasis, which affects some of the internal organs of the body (for example, spleen, liver, and bone marrow). Leishmaniasis is spread by the bite of some types of *phlebotomine* (blood sucking) sand flies. Sand flies become infected by biting an infected animal or person. Since sand flies do not make noise when they fly, people may not realize they are present. Sand flies are very small and may be hard to see. They are only about one-third the size of typical mosquitoes. Sand flies usually are most active in twilight, evening, and night-time hours. Sand flies are less active during the hottest time of the day. However, they will bite if they are disturbed, such as when a person brushes up against the trunk of a tree where sand flies are resting. Rarely, leishmaniasis is spread from a pregnant woman to her baby. Leishmaniasis also can be spread by blood transfusions or by contaminated needles. **If not treated, visceral leishmaniasis can cause death.**

SIGNS AND SYMPTOMS OF CUTANEOUS LEISHMANIASIS

People who have cutaneous leishmaniasis have one or more sores on their skin. These develop within a few weeks (sometimes as long as months) from when they were bitten. If untreated, the sores can last from weeks to years. The sores can change in size and appearance over time. They often end up looking somewhat like a volcano, with a raised edge and central crater. Some sores are covered by a scab. The sores can be painless or painful. Some people have swollen glands near the sores (for example, under the arm if the sores are on the arm or hand).

SIGNS AND SYMPTOMS OF VISCERAL LEISHMANIASIS

People with visceral leishmaniasis usually become sick within several months of when they were bitten. People who have visceral leishmaniasis usually have fever, weight loss, and an enlarged spleen and liver. Some patients have swollen glands. Certain blood tests are abnormal. For example, patients usually have low blood counts, including a low red blood cell count (*anemia*), low white blood cell count, and low platelet count.

WHO IS AT RISK FOR LEISHMANIASIS?

People of all ages are at risk for leishmaniasis if they live or travel where leishmaniasis is found. Leishmaniasis usually is more common in rural than urban areas, but it is found in the outskirts of some cities. The risk for leishmaniasis is highest from dusk to dawn. This is when sand flies are the most active. All it takes to get infected is to be bitten by one infected sand fly. Adventure travelers, Peace Corps volunteers, missionaries, *ornithologists* (people who study birds), other people who do research outdoors at night, and soldiers are examples of people who may have an increased risk for leishmaniasis, especially cutaneous leishmaniasis.

CAN LEISHMANIASIS BE A SERIOUS DISEASE IF NOT TREATED?

Yes. The skin sores of cutaneous leishmaniasis will heal on their own, but this can take months or even years. The sores can leave ugly scars. If not treated, infection that started in the skin could spread to the nose or mouth and cause sores there (*mucosal leishmaniasis*). This can happen with some of the types of the parasite found in Central and South America. Mucosal leishmaniasis might not be noticed until years after the original skin sores healed. The best way to prevent mucosal leishmaniasis is to treat the cutaneous infection before it spreads. If not treated, visceral leishmaniasis can cause death.

WHAT SHOULD I DO IF I THINK I MIGHT HAVE LEISHMANIASIS?

See your caregiver if you have traveled to an area where leishmaniasis is found and you have developed skin sores that are not healing. Tell your caregiver where you have traveled and that you might be at risk for leishmaniasis. It is very rare for travelers to get visceral leishmaniasis.

HOW WILL MY CAREGIVER KNOW IF I HAVE LEISHMANIASIS?

The first step is to find out if you have traveled to a part of the world where leishmaniasis is found. Your

caregiver will ask you about any signs or symptoms of leishmaniasis you may have, such as skin sores that have not healed. If you have skin sores, your caregiver will likely want to take some samples directly from the sores. These samples can be examined for the parasite under a microscope, in cultures, and through other means. A blood test for detecting *antibody* (immune response) to the parasite can be helpful, particularly for cases of visceral leishmaniasis. However, tests to look for the parasite itself should also be done. CDC staff can help with the laboratory testing. Diagnosing leishmaniasis can be difficult. Sometimes the laboratory tests are negative even if a person has leishmaniasis.

TREATMENT

Your caregiver can talk with CDC staff about whether your case of leishmaniasis should be treated. Most people who have cutaneous leishmaniasis do not need to be hospitalized during their treatment.

PREVENTION

The best way for travelers to prevent leishmaniasis is by protecting themselves from sand fly bites. Vaccines and drugs for preventing infection are not yet available. Although sand flies are primarily nighttime biters, infection can be acquired during the daytime if resting sand flies are disturbed. Sand fly activity in an area can easily be underestimated because sand flies are noiseless fliers and rare bites might not be noticed. To decrease the risk of being bitten, travelers should:

- Stay in well-screened or air-conditioned areas as much as possible.
- Avoid outdoor activities, especially from dusk to dawn, when sand flies are the most active.
- Wear long-sleeved shirts, long pants, and socks when outside. Tuck your shirt into your pants.
- Apply insect repellent on uncovered skin and under the ends of sleeves and pant legs. Follow the instructions on the label of the repellent. The most effective repellants are those that contain the chemical DEET (N,N-diethylmetatoluamide). The concentration of DEET varies among repellents. Repellents with DEET concentrations of 30-35% are quite effective. The effect should last about 4 hours. Lower concentrations should be used for children (no more than 10% DEET). Repellants with DEET should be used sparingly on children from 2 to 6 years old. Do not use at all on children less than 2 years old.
- Spray clothing with permethrin-containing insecticides. The insecticide should be reapplied after every five washings.
- Spray living and sleeping areas with an insecticide to kill insects.
- If you are not sleeping in an area that is well screened or air-conditioned, use a bed net and tuck it under your mattress. If possible, use a bed net that has been soaked in or sprayed with permethrin. The permethrin will be effective for several months if the bed net is not washed. Keep in mind that sand flies are much smaller than mosquitoes and can get through smaller holes. Fine-mesh netting (at least 18 holes to the inch) is needed for an effective barrier against sand flies. This is particularly important if the bed net has not been treated with permethrin. However, it may be uncomfortable to sleep under such a closely woven bed net when it is hot.

NOTE: Bed nets, repellants containing DEET, and permethrin should be purchased before traveling and can be found in hardware, camping, and military surplus stores.

IF I HAVE ALREADY HAD LEISHMANIASIS, COULD I GET IT AGAIN?

Yes. Some people have had cutaneous leishmaniasis more than once. Therefore, you should follow the preventive measures listed above whenever you are in an area where leishmaniasis is found.

This information is courtesy of the CDC, Division of Parasitic Diseases.

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