

UNDERSTANDING LEISHMANIASIS

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INTRODUCTION

Many parts of Africa, Asia, America, and the Mediterranean region are home to leishmaniasis, one of the most neglected tropical diseases in the world. Over time, it has come to be known as the "disease of the poor"(Torres-Guerrero et al., 2017). It is estimated that over 350 million people worldwide are at risk of developing the illness; approximately 12 million people are currently infected with 0.9 to 1.6 million new cases reported each year(Pan African Health Organization). Even though it is a neglected tropical disease, leishmaniasis has the highest morbidity and mortality rate among parasitic infections, only exceeded by filariasis and malaria. Factors such as poverty, stigma, and the physical deformities associated with the disease have made it difficult to address the associated complexities which further complicate the disease burden as it is more difficult to diagnose, control or treat(Bern et al., 2008). Its neglect has also contributed to its lack of funding for study throughout the years. Therefore, it has become important to emphasize the disease's seriousness as a significant health concern, emphasizing how critical it is to give it top priority when it comes to funding, research, and medical interventions.

WHAT IS LEISHMANIASIS?

Leishmaniasis is a group of vector-borne illnesses caused by parasitic protozoa of the genus *Leishmania*, of which there are approximately 53 species known. 31 species are known parasites of mammals, and of these, the intracellular protozoan parasites of over 20 different *Leishmania* species are the causative agents of this tropical and subtropical vector-borne illness (Alemayehu and Alemayehu, 2017). The parasite is transmitted to humans through the bite of infected female phlebotomine sandflies during a blood meal.

Leishmaniasis may be classified based on the site of infection or by geographical occurrence; the New World and Old World leishmaniasis. The Old World leishmaniasis occurs in regions such as Asia, some parts of Africa, Central Europe, and the Middle East while the New World leishmaniasis occurs in Central America, South America, and some parts of Mexico (Cleveland Clinic, 2022). Based on their site of infection, these diseases are classified into three in humans; cutaneous, mucocutaneous, or visceral, also known as kala-azar or black fever in Hindi (Craig, 2023). The most common, cutaneous leishmaniasis causes ulcers around the skin and exposed parts of the body; Mucocutaneous leishmaniasis consists of the relentless destruction of the mucous membranes of the nose, mouth, and throat and lastly, visceral leishmaniasis which affects certain internal organs is mainly characterized by hepatosplenomegaly and can be potentially lethal when left untreated (World Health Organization, 2023).

Leishmaniasis is curable and individuals may not develop disease after infection, however, immunosuppression poses a significant risk factor for developing a severe illness, higher relapse and mortality rate, and more challenging diagnostic and treatment outcomes (World Health Organization, 2023).

EPIDEMIOLOGY

It has been observed that due to its mode of transmission, leishmaniasis is more commonly found in remote areas with poor housing conditions and limited or no access to modern medical facilities (Georgiadou et al., 2015) The parasites that cause leishmaniasis are found in 98 countries worldwide(de Vries et al., 2015). It is estimated that approximately 20 distinct types of Leishmania parasites carry the disease and that approximately 30 different species of the host phlebotomine sandflies spread the infection. These flies are mostly active at night, from twilight to dawn (CDC, 2020). The female sand flies of the genus *Lutzomyia* are responsible for the species' spread in some regions of America (New World), while those of the genus *Phlebotomus* cause its spread throughout the rest of the world (Old World) (Georgiadou et al., 2015).

Impoverished populations such as South America, Africa, Asia, and the Mediterranean region are primarily affected by the disease. It is often linked to substandard living conditions, compromised immune systems, population displacement, undernourishment, and limited resource accessibility. 89% of all disease cases worldwide are concentrated in four countries: Kenya, Brazil, Sudan, and India. Over 90% of cases of visceral leishmaniasis occur in six countries worldwide: Bangladesh, Brazil, Ethiopia, India, South Sudan, and Sudan. In contrast, cutaneous leishmaniasis is largely endemic in America, the Mediterranean Basin, and Western Asia (Georgiadou et al., 2015).

According to the World Health Organization (2013), visceral leishmaniasis is most common in Iraq, Somalia, Sudan, Yemen, and Europe in the Eastern Mediterranean region. Brazil is the most endemic region in America, while Algeria is the most endemic country in Africa for cutaneous leishmaniasis. It is estimated that between 200,000 and 400,000 cases of visceral leishmaniasis occur annually worldwide.

CLINICAL MANIFESTATIONS

In some cases, the infection may be asymptomatic where the infected individuals do not show any physical symptoms of the disease, it could also be acute, sub-acute, or chronic (Mann et al., 2021). In the case of mucosal leishmaniasis, which is caused by *Leishmania braziliensis*, symptoms begin with the onset of cutaneous ulcers which later spread to the mucus membranes (Marie, 2022). It is characterized by the formation of ulcers around the mouth, nose, and throat and leads to deformities around these areas (Mann et al., 2021).

In infections due to cutaneous leishmaniasis, lesions, and ulcers are formed on the exposed parts of the body, mainly the skin, arms, face, and legs. Clinical manifestations are highly diverse and may vary based on the parasite and immune response of individuals affected (Afghan et al., 2011). In most cases, cutaneous leishmaniasis caused by *Leishmania mexicana* and *Leishmania major* resolves spontaneously and does not require treatment, but in some cases, treatment may be needed for complex infections (Mann et al., 2021).

Visceral leishmaniasis is the most severe form of leishmaniasis and warrants early, systematic therapy. It can proceed quickly in a matter of weeks or months and is characterized by

lymphadenopathy, hepatomegaly, splenomegaly, pallor, anemia, leukopenia, thrombocytopenia, fever, night sweats, weakness, anorexia, asthenia, cutaneous pigmentation, and weight loss. In the absence of treatment, the disease may progress to cause further complications such as hemorrhage and thrombocytopaenia and in some cases death (Torres-Guerrero et al., 2017)

RISK FACTORS

Risk factors associated with leishmaniasis may be socio-economic, environmental, climate, and malnutrition. Due to the environmental conditions that favor the breeding of the host sandflies, leishmaniasis is most common in poverty-stricken areas associated with poor management and sanitary conditions. The development of drug resistance, increased travel to endemic areas, changes in irrigation practices, deforestation, climate change, immunosuppression from HIV or organ transplants, increased travel to endemic regions are significant factors contributing to the emergence and spread of leishmaniasis (Oryan and Akbari, 2016). Areas that promote the growth of sand flies would inevitably lead to an increase in the cases of leishmaniasis in such areas.

TREATMENT AND PREVENTION

There is no currently available vaccine for the prevention of leishmaniasis. Preventive measures are those taken to protect individuals from the bite of sandflies as well controlling the environment that proliferates the breeding of the host sandflies. Phlebotomine sandflies can be controlled by a variety of methods, which include impregnated dog collars, insecticide-treated nets, residual spraying of homes and animal shelters, and applying repellents or insecticides to skin or materials. While residual pesticide spraying works well in urban areas where sandflies are abundant, it is no longer practical in most other circumstances (Maroli and Khoury, 2004). In some cases, infections resolve spontaneously, especially in non-immunocompromised individuals. However, the mucocutaneous lesions do not often heal naturally without adequate treatment.

CONCLUSION

Despite its often-overlooked status, leishmaniasis remains a significant global health concern, affecting thousands of individuals each year and resulting in fatalities. Its classification as a neglected tropical disease reflects the insufficient attention and funding it receives, which contrasts with its actual impact. The need to elevate the importance and funding for leishmaniasis research and treatment cannot be overstated due to the rising incidence and mortality rates associated with this disease. It has, therefore, become necessary to re-emphasize the need for a significant response to leishmaniasis, acknowledging its critical role in public health and the need for targeted interventions to combat its spread and impact.

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