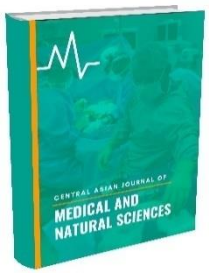
CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES



Volume: 02 Issue: 03 | May-June 2021 ISSN: 2660-4159

www. cajmns.centralasianstudies.org/index.php

Leishmania martiniquensis and Visceral Leishmaniasis in Humans

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Received 15th April 2021,
Accepted 26th April 2021,
Online 9h May 2021

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ABSTRACT: the article contains a literature review devoted to the history of the study of human leishmaniasis and one of the new pathogens — *leishmania martiniquensis*. it is shown that leishmaniasis caused by this microorganism proceeds in the form of cutaneous, including diffuse in hiv-infected patients, and visceral leishmaniasis. the most typical clinical examples are given.

Key words: leishmania martiniquensis, leishmaniasis cutaneous, visceral leishmaniasis, visceral leishmaniasis.

Introduction

There are 3 main types of leishmaniasis: visceral (also known as kala azar and is the most severe form of the disease), cutaneous (most common), and mucocutaneous.Leishmaniasis is caused by the protozoan parasite Leishmania, which is transmitted by the bite of infected mosquitoes.The disease affects the poorest people on the planet; morbidity is associated with malnutrition, population displacement, poor housing conditions, weakened immunity and lack of financial resources. Leishmaniasis is associated with anthropogenic impacts on the environment such as deforestation, dams, irrigation systems, and urbanization. An estimated 700,000 to 1 million new cases occur each year. The disease develops in only a small proportion of people infected with the Leishmania parasite. Leishmaniasis is a group of transmissible tozoic parasitic diseases caused by microorganisms of the genus Leishmania. Leishmaniasis is one of the most common diseases in tropical countries. According to the WHO, between 700,000 and 1 million new cases of leishmaniasis and 20,000 to 30,000 deaths are diagnosed annually [1]. The spectrum of causative agents of leishmaniasis is constantly replenished with new species. History of the study of leishmaniasis and one of the new pathogens – Leishmania martiniquensis - is of undoubted scientific and practical interest. The genus Leishmania probably developed during the mesozoya (252-66 million years BC) before the collapse of the Pangea supercontinent. Currently, three hypotheses for the geographical origin of various Leishmania species are being discussed. One of the theories assumes African origin, with subsequent migration to North and South America. Another is the migration from North and South America through the Bering Isthmus about 15 million years ago. The third considers the Palaearctic origin [2]. The first Leishmanias were found in mosquitoes contained in fossil amber: one in 100-million-year-old Burmese amber [3], the other in 20-30 million Dominican amber from about. Haiti [4]

Main part

The causative agent of leishmaniasis is the parasitic protozoa of the genus Leishmania, which has more than 20 species. It has been established that more than 90 species of mosquitoes can carry Leishmania parasites. There are 3 main forms of the disease:

Visceral leishmaniasis (VL), also known as kala azar, is fatal in 95% of cases if left untreated. It is characterized by irregular attacks of fever, weight loss, enlarged spleen and liver, and anemia. Most cases occur in Brazil, East Africa, and India. It is estimated that between 50,000 and 90,000 new cases of VL occur annually worldwide, but only 25-45% of these are notified to WHO. This form of leishmaniasis remains one of the parasitic infections with the highest epidemic potential and mortality. In 2018, more than 95% of new cases reported to WHO were reported in 10 countries: Brazil, China, Ethiopia, India, Iraq, Kenya, Nepal, Somalia, South Sudan and Sudan.

Cutaneous leishmaniasis (CL) is the most common form of leishmaniasis and is accompanied by skin lesions, mainly ulcers, on exposed areas of the body. Skin lesions can leave permanent scars and lead to disability or stigma. About 95% of CL cases occur in the Americas, the Mediterranean Basin, the Middle East and Central Asia. In 2018, more than 85% of new CL cases were reported in 10 countries: Afghanistan, Algeria, Bolivia, Brazil, Colombia, Iran (Islamic Republic of), Iraq, Pakistan, and the Syrian Arab Republic and Tunisia. It is estimated that between 600,000 and 1 million new cases of the disease occur annually worldwide.

Mucocutaneous leishmaniasis leads to partial or complete destruction of the mucous membranes of the nose, mouth and larynx. More than 90% of cases of mucocutaneous leishmaniasis occur in Bolivia (Plurinational State of), Brazil, Ethiopia and Peru.

Diagnosis of visceral leishmaniasis is clinical, in combination with parasitological or serological tests (eg, rapid testing). Serologic testing is of little interest for the diagnosis of cutaneous and mucocutaneous leishmaniasis; in these cases, the diagnosis is made on the basis of the clinical picture and the results of the parasitological examination.

The choice of treatment for leishmaniasis depends on a number of factors, such as the clinical form, the presence of comorbidities, the type of parasite, and the geographic area. Leishmaniasis is treatable and can be completely cured, but the effectiveness of drugs depends on the state of the patient's immune system, and relapses are not excluded with weakened immunity. All patients with visceral leishmaniasis are indicated for an immediate full course of treatment. For detailed information on the management of different forms of leishmaniasis by geographic area, see WHO Technical Report Series No. 949 on Leishmaniasis Control.

Prevention and control

Prevention and control of leishmaniasis requires a combined approach, as transmission occurs within a complex biological system involving a human or reservoir animal (hosts), a parasite and its carrier (mosquito). The main measures for the prevention of leishmaniasis include:

Early diagnosis and prompt initiation of effective treatment help reduce the prevalence of the disease and prevent disability and death of patients. This makes it possible to reduce the intensity of transmission and monitor the spread and burden of the disease. Currently, there are highly effective and safe drugs for the treatment of leishmaniasis, especially its visceral form, although their use can be fraught with difficulties. Thanks to WHO's price-negotiation efforts and a WHO-brokered free drug program, access to medicines has been significantly increased.

Vector control helps reduce disease or interrupt transmission by reducing mosquito populations. For vector control, insecticide spraying, insecticide-treated nets, environmental engineering measures and personal protective equipment are used.

Effective surveillance is essential as it enables rapid monitoring of the situation and action during epidemics and in situations where there are high mortality rates among patients on treatment.

Controlling the population of animal reservoirs of infection requires a complex set of measures and therefore must be carried out taking into account local conditions.

Social mobilization and strengthening partnerships: Mobilizing and educating local populations and implementing effective behavior change interventions must always be localized. Working in partnership and collaboration with various stakeholders and programs to control other vector-borne diseases is critical.

However, the spectrum of causative agents of leishmaniasis is not limited to the above species. The world is accumulating more and more evidence of the existence of other species of Leishmania pathogenic for humans, some of which are mentioned above (. Venezuelensis,... lainsoni,. naffi, L. shawi, L. lindenbergi, L. waltoni) [2]. Let us dwell in more detail on the recently discovered new species of Leishmania - L. martiniquensis.

Conclusion

Thus, literature data indicate that. martiniquensis is a new causative agent of leishmaniasis found in the Old and New Worlds. The true prevalence of the pathogen is probably underestimated, since not everywhere molecular genetic identification methods are carried out properly. Of interest is the fact that. martiniquensis causes both cutaneous and visceral leishmaniasis. Cutaneous leishmaniasis in immunocompetent patients occurs with solitary leishmaniasis with possible spontaneous regression. Immunocompromised individuals (HIV-infected) develop diffuse cutaneous leishmaniasis, which becomes chronic. Visceral leishmaniasis is characterized by symptoms typical for this disease. The diagnosis is confirmed by the detection of skin punctures (with cutaneous leishmaniasis) or bone marrow (visceral leishmaniasis) characteristic protozoa with molecular genetic identification of the latter.

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