Capter 208

The importance of health education for the control of Visceral Leishmaniasis

https://doi.org/10.56238/devopinterscie-208

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ABSTRACT
This study aimed to highlight the importance of health education for the control of VL (Visceral Leishmaniasis). They used the platforms Google Scholar, Scientific Electronic Library Online (SciELO), Virtual Health Library (VHL), and studies distributed in the databases PubMed and Capes Journals with the keywords: Visceral Leishmaniasis, Health Education, Public Health and Vectors, in addition to free terms related to the objective, such as environmental education and sandflies. The inclusion criteria were language (Portuguese and English) and availability (full text). The bibliographic references contained in the works found were also used in this review, as well as the official publications of the Brazilian government, such as the Manual of Surveillance and Control of visceral leishmaniasis. It is concluded that a large part of the population does not know the vector, proliferation, and methods of control of VL, for this reason, implementing educational actions of health education is essential to increase the level of knowledge through information related to the disease, and thus also reduce other diseases of similar epidemiological characteristics.

Keywords: Visceral Leishmaniasis, Health Education, Public Health, and Vectors

1 INTRODUCTION

Visceral leishmaniasis (VL) is a cosmopolitan zoonosis that covers tropical and subtropical regions in our country. The disease initially occurring in rural and wild areas, has recently also been found in peri-urban and urban regions, with deforestation being one of the main causes of advancement in such areas (BRASIL, 2022a).

Most cases of VL, classified as a parasitic disease with the highest outbreak and mortality, occur in East Africa, India, and Latin American countries. Being considered by the World Health Organization (WHO) as the second most important protozoic, it is estimated that annually there are 50,000 to 90,000 new cases worldwide, however, only 45% reported (WHO, 2022).

In Brazil, in 2019, 2,529 new cases of VL were registered, being considered as autochthonous 24 Federative Units, in five Brazilian regions, with the highest number of cases in the Northeast. The case fatality rate was the highest in the last 10 years, with an increase in children under one year of age (BRASIL, 2022a), which is among the countries with more than 90% of the cases reported in 2020 (WHO, 2022).

This study aimed to review the main concepts and scenarios of VL to understand the importance of health education to share knowledge about VL control measures.

2 MATERIAL AND METHODS

In this work, we used the platforms Google Scholar, Scientific Electronic Library Online (SciELO), Virtual Health Library (VHL), studies distributed in the databases PubMed and Capes Journals with the keywords: Visceral Leishmaniasis, Health Education, Public Health and Vectors, in addition to free terms related to the objective, such as environmental education and sandflies. The inclusion criteria were language (Portuguese and English) and availability (full text). The bibliographic references contained in the works found were also used in this review, as well as the official publications of the Brazilian government, such as the Manual of Surveillance and Control of visceral leishmaniasis.

3 RESULTS AND DISCUSSION

3.1 IMPORTANCE AND ZOONOTIC ASPECT

3.2 ETIOLOGY

Visceral leishmaniasis (VL) has as its etiological agent the Leishmanias of the *donovani* complex, which comprise Leishmania (Leishmania) donovani, in Asia and Africa, Leishmania (Leishmania) infantum in Asia, Europe, and Africa and Leishmania (*Leishmania) chagasi* in *the* Americas (CFMV, 2020; LAISON et al., 1987).

3.3 EPIDEMIOLOGY

The dog consists of an important urban reservoir, due to its proximity to the home environment (BRAZIL, 2014). In Brazil, the main species related to the transmission of leishmaniasis is the sand fly *Lutzomia longipalpis*, however in Mato Grosso do Sul *Lutzomyia cruzi* was identified as a vector (BRASIL, 2014).

The larva of this ectoparasite develops in a humid environment, with low luminosity and in the presence of organic matter (REIS et al., 2019), and the thermal elevation provides an increase in vector density, which contributes to the spread of the aforementioned disease (WHO, 2019).

VL especially compromises environments of low economic level, associated as a risk factor for the disease, as well as climatic and environmental conditions (VALERO; URIARTE, 2020).

In several countries, VL is endemic, and 90% of cases occur in Brazil, where transmission was predominantly in wild and rural environments, but important changes have been described in urban centers and observed in several Brazilian municipalities. This disease can be fatal in up to 90% of cases when not treated properly, due to its chronic importance (BRASIL, 2021b).

3.4 EVOLUTIONARY CYCLE

The sandflies *L. longipalpis* become infected by ingesting during blood repast, amastigote forms of the parasite, present in the cells of the phagocytic monocytic system found in the dermis of the infected host. In the digestive tract of the insect, they turn into promastigotes. Sequentially, the females of the sandflies inoculate these infective forms, in another host, where they are phagocytosed by macrophages, returning to the amastigote form, multiplying and causing disruption of the cell. In this way, hematogenous dissemination occurs in tissues such as the liver, spleen, lymph node, and bone marrow (LAINSON et al., 1987).

3.5 CLINICAL SIGNS

As symptomatology of VL in humans, high fever, weight loss, diarrhea, pallor, and abdominal distension can be noted (SILVEIRA et. al., 2016). In turn, in canine hosts, the disease can be asymptomatic (80% of cases in certain areas) as well as self-limiting and rarely pronounces as severe and lethal episodes (SOLANO-GALLEGO et al., 2011). Clinical signs in dogs include localized skin diseases, marked weight loss and generalized lymphadenomegaly, anemia, and alopecia (CONTRERAS et al., 2019).

3.6 CONTROL MEASURES

In the PVCLV (Program for Surveillance and Control of Visceral Leishmaniasis) control actions were proposed based on the reduction of the canine vector and infection, through health education, but the cost of this program is high, and the human and financial resources are insufficient since these are used for other diseases of the municipality, such as dengue (COSTA et al., 2018).

As control measures are, insecticide spraying, being indicated only in the period of VL outbreak or in municipalities with a large number of cases, use of musketeers, screens, repellents, environmental management, such as cleaning yards and land, proper disposal of organic waste, important to ensure the hygiene of animal shelters and keep them away from homes, because these can attract insects (BRAZIL, 2021a). It is essential to implement permanent education for health professionals since they demonstrate

doubts regarding VL (ALVES et al., 2019). It is also necessary to educate the population, being essential for the measurement of behavioral changes (WHO, 2022).

In the northwest region of the state of São Paulo, it is possible to find *DNA from Leishmania infantum* in *L. longipalpis*, which confirms the need for control measures to minimize VL cases (ALVES et al., 2017). It is important to highlight the great challenge of public organizations and especially the population in assuming behavioral changes to achieve an adequate result (LOPES et al., 2019). The population's knowledge about control measures for VL is superficial, therefore, environmental education seems to be fundamental for vector control (ALVES et al., 2018).

The need for population awareness about this zoonosis has already been proven, with the inclusion of information on the biological cycle of *Leishmania* spp. to prevent proliferation and consequently control the vectors, including the use of multidisciplinary strategies addressed by the health team and endemic diseases of the municipality (ALVES et al., 2018). Thus, it can be considered important to develop environmental educational actions to raise the level of knowledge of the population about the disease in question (BORGES et al., 2020).

3.7 HEALTH EDUCATION

The implementation of educational actions with information about VL is essential since they contribute to changing habits to control measures of the referred disease (LOPES et al., 2019). Health professionals also need training on this subject, since most do not have the necessary knowledge (EL-MOUIHD et al., 2020).

The majority of the population is unaware of the vector that transmits VL and its form of proliferation, which contributes to the inefficiency concerning the control of the disease. With educational actions, it is possible to increase knowledge about transmission, in addition to the identification of human and canine symptoms and forms of prevention (CARVALHO et al., 2021a).

Only when there is knowledge can people promote improvements and use correct prophylactic measures, such as the use of mosquito nets and repellents, for example (KILLICK-KENDRICK, 2010). For the efficient control of the disease, health education is paramount, since with adequate information it is also possible to reduce other diseases with similar epidemiological characteristics (CARVALHO et al., 2021b).

4 FINAL CONSIDERATIONS

A large part of the population does not know the vector, proliferation and methods of control of VL. For this reason, implementing educational actions of health education is essential to increase the level of knowledge through information related to the disease, and thus also reduce other diseases of similar epidemiological characteristics.

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