

Short Communication

Knowledge of Residents about Control Measures of Visceral Leishmaniasis

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Abstract

Visceral leishmaniasis (VL) is a disease of global epidemiological importance. In Brazil, this disease is caused by *Leishmania (Leishmania) infantum chagasi*, being transmitted to humans, wild and domestic animals by bites of sand flies vectors. We elaborated this systematic review with the objective of investigating residents' knowledge about control measures of visceral leishmaniasis. The databases Pubmed, Lilacs and SciELO were used in the search of the articles, with the following descriptors "Knowledge and Control and Visceral Leishmaniasis". A total of 174 articles were found, of which only four were selected. We found that the people interviewed are not aware of measures for the prevention and control of visceral leishmaniasis. Therefore, there is a need to implement educational campaigns aimed specifically at combating this disease.

ABBREVIATIONS

VL: Visceral Leishmaniasis; CVL: Canine Visceral Leishmaniasis

INTRODUCTION

Visceral leishmaniasis (VL) is an important disease of worldwide occurrence [1], which presents zoonotic potential [2]. Brazil is considered the seventh country with the highest concentration (90%) of new cases of human VL [3].

This disease is caused by a protozoan of the Kinetoplastida order, Trypanosomatidae family, *Leishmania* genus (Ross 1903), *Leishmania infantum chagasi* species [4,5] synonymy *Leishmania (Leishmania) infantum*, which is transmitted to humans, wild animals (foxes, marsupials, possums, bush dogs as well as rodents) and domestic dogs by sand flies (Diptera, Psychodidae: Phlebotominae) [6].

Visceral leishmaniasis especially affects children between one and ten years of age, however, it can also develop in adults [7]. This disease can lead to a sudden or gradual clinical picture, represented by elevated fever, anorexia, apathy, malaise, weight loss, diarrhea, skin paleness and abdominal distension due to hepatosplenomegaly [8].

Canine visceral leishmaniasis (CVL) is recognized by the World Organization for Animal Health as an important disease, which is present in four continents and is endemic in more than 70 countries, affecting almost 2.5 million dogs [9]. The domestic dog (*Canis familiaris*) is seen as the main reservoir of *L. infantum*

[10]. For this reason, it is the target of the control program in some countries, as in Brazil, where approximately 3,500 human cases of VL are reported each year [11].

For this reason, education and health campaigns need to be informative in order to clarify the ways of preventing and controlling the disease, promoting responsible animal ownership and the implementation of environmental management.

We elaborated this systematic review with the objective of investigating residents' knowledge about control measures of visceral leishmaniasis.

MATERIAL AND METHODS

In order to investigate residents' knowledge about control measures of visceral leishmaniasis, this systematic review was performed using the following databases: PubMed, Lilacs and SciELO. The search for articles was carried out between January and February of 2018, with the descriptors "Knowledge and Control and Visceral Leishmaniasis".

The criteria for inclusion of articles were: from 2014 and in English. The first step was based on the analysis of the title and abstract of the manuscripts with the intention of selecting those that met the selection criteria. After this step, the articles were analyzed in their entirety and were included those who approached residents' knowledge about visceral leishmaniasis.

Exclusion criteria were articles with paid access, as well as monographs, dissertations, theses and abstracts of congresses.

RESULTS AND DISCUSSION

A total of 174 articles were found, with the descriptors “knowledge AND control AND visceral leishmaniasis”, of which only four were selected for this systematic review. Figure 1 shows a flow chart that evidence the inclusion and exclusion criteria of the articles found.

In all articles selected was evaluated the knowledge of residents of a given region about visceral leishmaniasis. In the studies conducted in the states of Minas Gerais (MG), Brazil, the residents interviewed lived in neighborhoods with cases of human visceral leishmaniasis [12-14] and / or canine visceral leishmaniasis [14] and, in Rio Grande do Norte (RN), Brazil, the houses selected were from the riverside areas of the Mossoró River, with a risk of flooding after the post-rain period [15,16] with at least one domiciled dog [15].

In the two studies carried out in Mossoró, RN, Brazil, a total of 71 people [15] and 478 residents were interviewed [16], however, in the Metropolitan Region of Belo Horizonte, MG, 37 habitants were investigated [13], but in the city of Formiga, MG, 427 residents were interviewed about practices for the prevention and control of visceral leishmaniasis (Table 1) [14].

In the studies it was observed that the majority of respondents were women, with an adult age range and literate [13-16].

In general, the residents had doubts or did not know about control measures, prevention, transmission and clinical signs of human [13-16] or canine visceral leishmaniasis [15]. In another study was evidenced that residents have more knowledge about symptoms of canine visceral leishmaniasis (CVL) than

VL, however, they unaware of the cure of CVL, thus favoring the continuation the epidemiology chain of the disease [15].

In studies conducted in Formiga, MG, Brazil, 94.8% of the population researched resided in places with at least one peridomiciliary risk factor for the occurrence of visceral leishmaniasis, and 39.6% reported more than four factors. This association was expected by the researchers, because in the neighborhoods observed was registered a greater number of cases were recorded, and consequently, they presented greater vulnerability to the occurrence of the disease [14]. Numerous environmental and peridomiciliary factors may influence the presence of vector insects and VL, such as the presence of domestic animals, chicken coops [17,18] fruit trees [19], decomposition matter and others.

Therefore, sand flies females lay their eggs in a habitat rich in organic content, such as animal excreta, leaves and decaying fruit, which provide shelter, nutrition and moisture to the newly emerged larvae [20]. These insects feed on blood and usually tend to bite at night or in twilight, but may also bite the host during the day in forested areas [21].

In Mossoró, RN, Brazil, it was evidenced that people who did not know how the transmission of VL occurred would have twice the risk of having a positive dog for this disease [15]. The lack of awareness about the transmission of this disease and information about the vector insect emphasizes the importance of disseminating the knowledge about VL and the biological and ecological aspects of the vector, allowing the population to actively carry out the preventive measures [22].

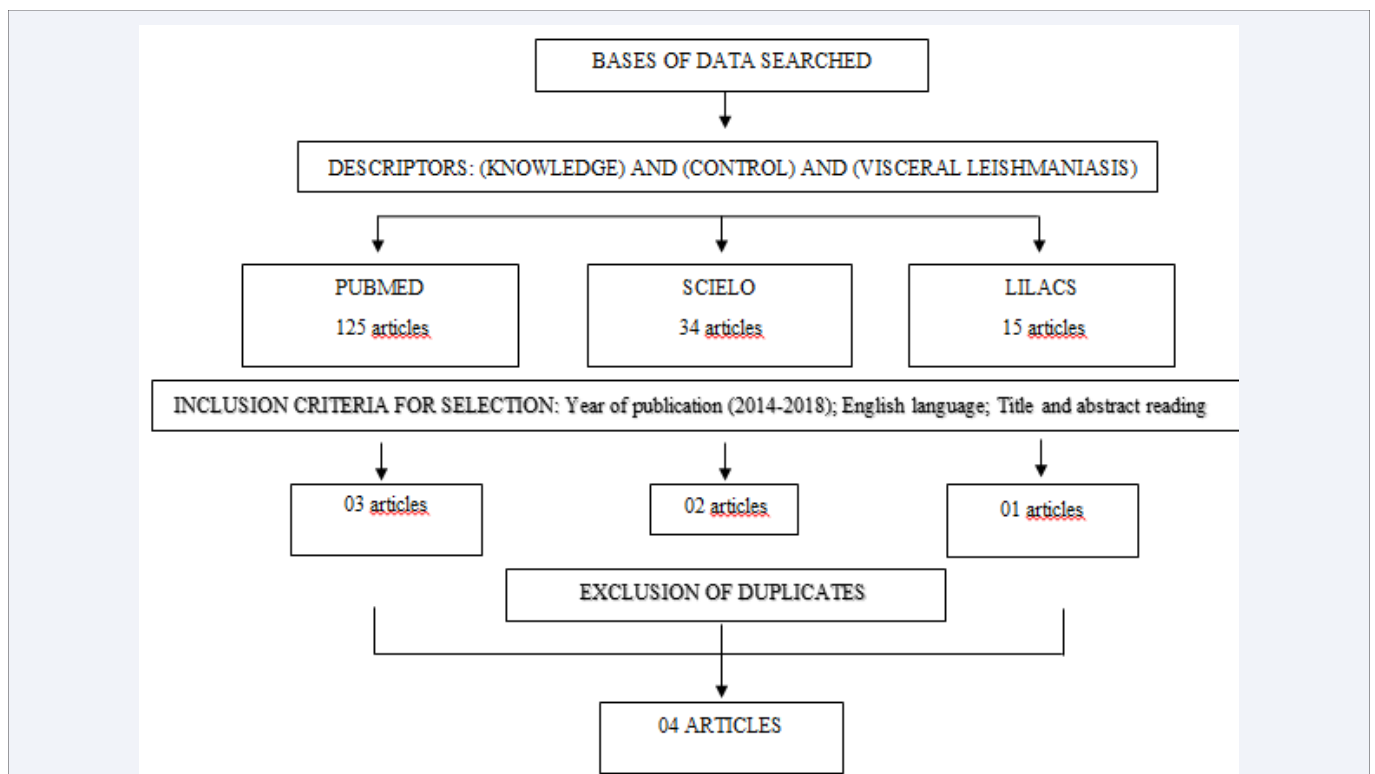


Figure 1 Criteria for inclusion and exclusion of articles.

Table 1: Characteristics presented in the four articles selected, number of interviewed individuals, sex, age and statistical analysis used.

ARTICLES	Nº OF INDIVIDUALS INTERVIEWED	Nº OF INTERVIEWED MEN	Nº OF INTERVIEWED WOMEN	AGE OF INTERVIEWERS	STATISTICAL ANALYSIS
AMORIM et al., 2015	478	82	396	18-70 years	Chi-square and/or Fisher exact test, using a <i>p</i> -value of <0.05
COSTA et al., 2014	71	15	56	18-54 years	Chi-square (χ^2) and Fisher's exact tests, using a significance level of <i>p</i> <0.05 was used
CARMO et al., 2016	37	05	32	22-85 years	Not shown
MENEZES et al., 2016	427	194	233	15-39 years ≥ 40 years	In the analysis, the odds ratios and the respective 95% confidence intervals (95% CI) for each independent variable were calculated.

The participation of the community in the project of prevention and control of leishmaniasis is of great importance for its knowledge about this disease that affects Brazil and several underdeveloped countries. In Ethiopia, rural residents and community leaders with low socioeconomic status were interviewed before and after a lecture about the main symptoms, forms of transmission and prevention measures of VL. At the end of the study, it was verified the assimilation of the information by the participants of this region on the importance of this disease [23].

With the active participation of the community, it is possible to reduce the conditions that facilitate the transmission of leishmaniasis in the region. In addition, the issue of disease can be worked from a health promotion perspective, where public policies favor personal and collective skills focused on improving the quality of life of the population [14].

Therefore, it is essential to work as a health agent with the residents, aiming at access to quality information, valuing the social and cultural aspects of this population and the elaboration of appropriate educational material.

CONCLUSION

We found that the people interviewed are not aware of measures for the prevention and control of visceral leishmaniasis. Therefore, there is a need to implement educational campaigns aimed specifically at combating this disease.

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