



Report of cases of Human Visceral Leishmaniasis in the Municipality of Coité do Noia - AL, from 2013 to 2019, Brazil

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ABSTRACT

Canine *Leishmaniasis visceral* is a common disease in countries of the Americas. In Brazil, its occurrence has been increasing in municipalities in the Brazilian Northeast due to the increase in the number of animals within the country, which may increase the number of animals infected by the protozoan *Leishmania*. The objective was to report the temporal trend and describe the distribution of incidence rates of *Leishmaniose visceral* in the municipality of Coité do Noia, state of Alagoas, from 2013 to 2019. An epidemiological survey was carried out in the State of Alagoas and in the municipality of Coité do Noia - AL, from 2013 to 2019. The data used were obtained from the website of the Department of Informatics of the Sistema Único de Saúde (DATASUS), selecting the *Leishmaniose Visceral* item, the information was compiled from the number of cases notified in the region of Alagoas in Brazil. From 2013 to 2019, 15 cases of *Leishmaniose Visceral* were confirmed, with 2 deaths. There was a predominance of cases in women with 12 cases, and 4 for men. The study showed a higher occurrence for the municipality of Coite do Noia between 2018 and 2019 with prevalence for women.

RESUMO

A *Leishmaniose visceral* canina é uma doença comum em países das Américas. No Brasil, sua ocorrência vem crescendo em municípios do nordeste brasileiro devido ao aumento de animais dentro do próprio país, o que pode elevar o índice de animais infectados pelo protozoário *Leishmania*. O objetivo foi relatar a tendência temporal e descrever a distribuição das taxas de incidência da leishmaniose visceral no município de Coité do Noia, estado de Alagoas, no período de 2013 a 2019. Foi realizado um levantamento epidemiológico, Estado de Alagoas e no município de Coité do Noia - AL, no período de 2013 a 2019. Os dados utilizados foram obtidos no site do Departamento de Informática do Sistema Único de Saúde (DATASUS), selecionado o item *Leishmaniose Visceral*, as informações foram compiladas de quantidades de casos notificados da região de Alagoas no Brasil. No período de 2013 a 2019 foram confirmados 15 casos de *Leishmaniose visceral*, com 2 óbitos. Houve predomínio dos casos no sexo feminino com 12 casos, e 4 para masculino. O estudo demonstrou maior ocorrência para o município de Coite do Noia entre 2018 e 2019 com prevalência para mulheres.

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Introduction

Protozoans of the genus *Leishmania* ssp. are responsible for several *Leishmaniose*, diseases that are widely distributed throughout the world (Souza et al., 2012). *Leishmaniasis Visceral* (VL) is an endemic disease in about 83 countries, with an estimated incidence of 50,000 to 90,000 new cases annually, also known as kala-azar, it is a zoonotic disease of a severe chronic nature, which can be fatal for the human being if there is no adequate treatment (Almeida et al., 2020). Due to its conical and endemic character in various regions of the world, it is one of the seven world endemics of absolute priority by the Organização Mundial de Saúde (OMS) (Ebert et al., 2020).

In Brazil, this disease is caused by the etiological agent *Leishmania infantum*, whose main vector is the sand fly popularly called “straw mosquito” (*Lutzomyia longipalpis*) (Carmo et al., 2016). Its most common reservoir within the urban and rural environment is the domestic dog (*Canis familiaris*) (Carmo et al., 2016). In addition to being the host of the disease, the dog can also play the role of propagator, because if the animal infected with Canine *Leishmaniasis Visceral* (LVC) is bitten by a transmitting mosquito, this can transmit the protozoan to other individuals, including the human (Rocha et al., 2018). Because the disease is transmitted when the mosquito feeds and is contaminated from the blood of a dog infected with *Leishmania* (Zuben and Donalisio, 2016).

The LVH mainly affects poor populations, because although there are specific diagnostic and treatment methods, a large part of the population does not have access to these procedures, increasing mortality rates (Abrantes et al., 2018). In particular, the Northeast region, which is the most deprived and has more favorable environmental conditions for the proliferation of vectors (Rocha et al., 2018). Until the 1990, the Northeast region accounted for 90% of reported cases in Brazil (Cunha et al., 2020). To reduce the risk of transmission and the mortality rate, the Ministry of Health has established a *Leishmaniose Visceral* Surveillance and Control Program (PVC-LV), where activities are based on three strategies: early diagnosis and treatment of human patients, control of vectors through environmental management and use of insecticides, and control of the canine reservoir through the identification and slaughter of infected dogs (Trindade et al., 2019).

There is no vaccine against LVH and measures to combat the disease are based on vector and reservoir control, environmental management and health education (Rocha et al., 2018). The treatment of LVH includes a specific treatment carried out with, mainly, pentavalent antimonials, such as meglutamine antimoniate. Other than that, additional support measures are needed (hydration, antipyretics, antimicrobials, blood therapy,

nutritional support), as well as laboratory tests and electrocardiograms, which must be performed during treatment (Cunha et al., 2020).

Therefore, the objective was to report the temporal trend and describe the distribution of incidence rates, exposing some nuances of their distribution such as sex, mortality and lethality of *Leishmaniose visceral* in the municipality of Coité do Noia, state of Alagoas, in the period from 2013 to 2019.

Material and methods

Research Location

Data collection was carried out in the municipality of Coité do Nóia - AL. Data were provided by the health department of the municipality of Coité do Nóia in 2019. Coité do Noia is a Brazilian municipality, located in the central region of Alagoas. Its population, according to IBGE estimates for 2018, was 10,744 inhabitants, while its geographic area is 88,759 km² (123.44 h/km²) with the following coordinates, 9° 37' 55" S 36° 34' 44".

Methodological Development

An epidemiological survey was carried out in the State of Alagoas and in the municipality of Coité de Nóia - AL, from 2013 to 2019. Secondary data obtained from the website of the Department of Informatics of the Unified Health System (DATASUS) (www2.datasus.gov.br), where the Health Information from the Data Tabulator of the Unified Health System (TABNET), Epidemiology and Morbidity were selected with the option "Diseases and Notifiable Diseases" selected and the item Visceral Leishmaniasis chosen, then they were Compiled information on the number of cases notified in the region of Alagoas in Brazil. In the municipality of Coité do Nóia, data were made available by the health department on the number of notified cases, number of deaths and number by gender from 2013 to 2019.

Data analysis

The data were tabulated in Microsoft Excel 2019 spreadsheets (Windows 10 Version) for analysis and creation of graphs. The research deals only with secondary data, in the public domain and with free access, dispensing with submission and approval by the Research Ethics Committee. However, it should be noted that the ethical precautions that prescribe Resolution 466/12 of the National Health Council were taken.

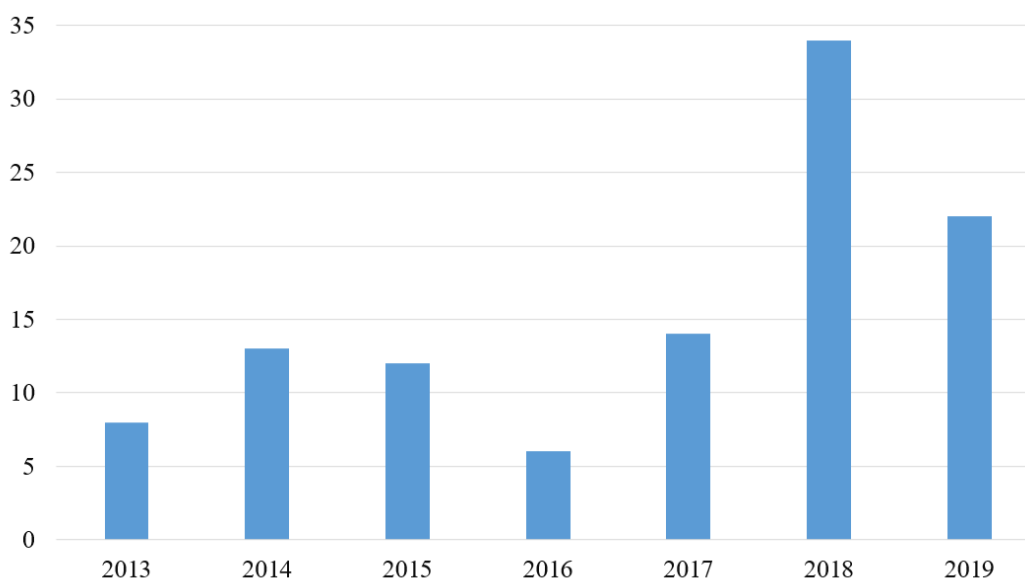
Results and discussion

The number of cases varied according to the years 2013 to 2019 (Figure 1). It is observed that in 2013 2 cases were registered, in 2015 records of two, in 2017 a case was obtained and

in 2018 and 2019 there was a constant increase totaling five cases in 2018 with two deaths and five cases in 2019 (Figure 2). The highest number of cases registered for Human Visceral Leishmaniasis in the years 2018 and 2019 in the municipality of Coite do Noia is related. The variation of cases in the municipality of Coite de Nóia from 2013 to 2019 is in accordance with the Health Surveillance Guide (2019), which states that the epidemiological situation in the period from 2013 to 2017 had varied case values (BRASIL, 2019). Comparing with studies from the 1980s and 1990s, the Northeast region accounted for 90% of Visceral Leishmaniasis cases (BARBOSA et al., 2013). When observing the number of cases by region, the Northeast has more reported cases, 10,635 (56.77%), with an average occurrence of 3.75 cases per 100,000 inhabitants, in the period studied (BRASIL, 2019). According to Cunha (2020) from 2013 to 2015, the Northeast region had the highest incidence of cases of LVH, Cunha (2020) carried out a study where a large misaligned expansion of cases was observed in neighborhoods and small farms with extensive areas of green forest, this was also similarly observed in rural areas, with social vulnerability, the presence of rubbish and poorly packed garbage, lack of basic sanitation in homes and the presence of stray dogs. What fits with the study location of this work. In the country, until the 1990s, the Northeast region accounted for 90% of cases of visceral leishmaniasis (Trindade et al., 2019). The relationships between the components of the transmission chain in the urban scenario seem to be much more complex and varied than in the rural one.

Figure 1.

Distribution of cases of Human Visceral Leishmaniasis reported in Alagoas from 2013 to 2019.

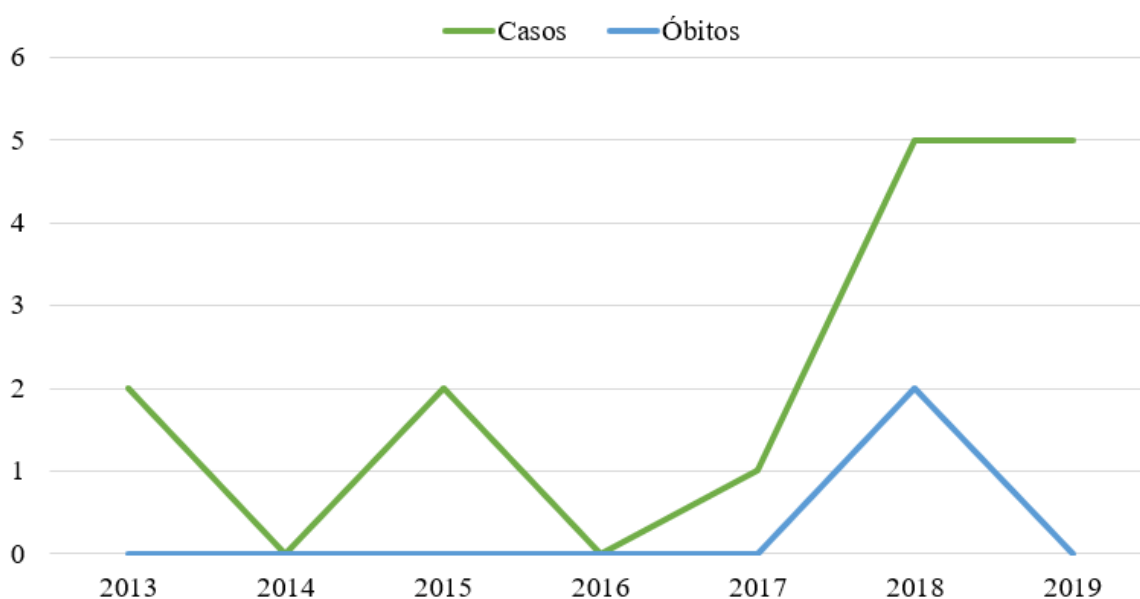


Two deaths were reported in 2018 from Human Visceral Leishmaniasis in the Municipality of Coité do Noia - AL (Figure 2). The cause of these deaths is directly related to the epidemiological context, directly linked to the effectiveness of preventive measures. The

control of LVH depends directly on the knowledge of the epidemiological and operational indicators, adapting to each type of outbreak, together with the evaluation of new strategies that allow to increase the resources and efforts in the programs of epidemiological surveillance of LVH, this will reduce the morbidity rates and lethality of the disease (BRASIL, 2019). Control strategies must be flexible and with different focuses according to the regions, also considering the territorial areas of the country, such as the characteristics of the variety of agents, reservoirs and vectors (Souza et al., 2018). Among the main factors that contribute to the increase in lethality are late diagnosis and the expansion of the epidemic, affecting groups of individuals with comorbidities (Almeida et al., 2020). Infectious complications and hemorrhages are recognized as the main risk factors for VL mortality (Almeida et al., 2020). In addition, there is little research on the effectiveness of the drugs of choice currently used in the treatment of the disease, and greater efforts are needed to improve care for critically ill patients and, thus, avoid deaths (Ebert et al., 2020).

Figure 2.

Cases and deaths of Human Visceral Leishmaniasis reported from 2013 to 2019 in the Municipality of Coité do Noia - AL.

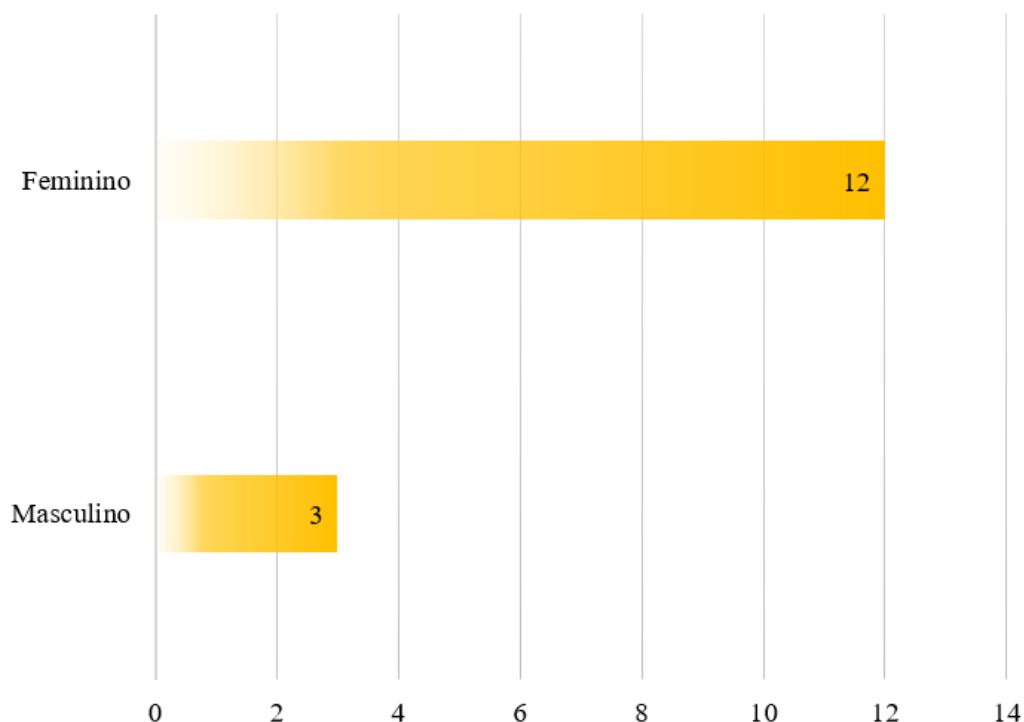


The female gender had the most confirmed cases, with twelve cases between the period from 2013 to 2019 in the municipality of Coité do Noia - AL (Figure 3). The female gender had the most confirmed cases, this is contradictory in other works, since in Brazil the gender with the most confirmed cases are men with 12,191 (65.07%) and women with 6,541 (34.91%) (Abrantes et al., 2015). The male gender is predominant in all regions of Brazil, as confirmed in studies such as Souza, et al. (2018), Barbosa (2013) and Góes (2012). The greater number of cases for women may be related to the prevalence of this gender is directly exposed to the vector, since women are directly linked to homework, although the male gender is due to

inattention to risk factors, preventive means and not seeking health units, unlike women who seek more services at health units (CunhA et al., 2020).

Figure 3.

Number of cases of Human Visceral Leishmaniasis according to gender (Female and Male) notified from 2013 to 2019 in the Municipality of Coité do Noia - AL.



Visceral Leishmaniasis is present in all Brazilian regions in urban and rural areas with an increasing number of cases (Zuben et al., 2016). The leishmaniasis surveillance and control program is based on case detection and disease treatment, combined with other health education measures and measures directed at the vector and reservoir, when indicated (Souza et al., 2018). Case investigation and risk stratification are strategies that support managers in directing these actions so that they are timelier and more efficient, however, the challenges to keep these activities sustainable over time still persist, due to the high costs resulting from the actions of surveillance, prevention and control (BRASIL, 2019).

Final considerations

It is concluded that there was an increase in the incidence of visceral leishmaniasis over the years studied with two confirmed deaths. The highest incidences were verified in the years 2018 and 2019 with a prevalence for women. The data denote the endemic nature of visceral leishmaniasis in the city, pointing to the need for actions that allow the reduction of the occurrence of the disease in the population, mainly in those residing in areas of greater risk. It is hoped that this work will contribute to a greater understanding of the current patterns of

disease involvement in order to devise better strategies in the management of the pathology and in the interventions of the competent bodies.

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