ANÁLISIS DEL PERFIL EPIDEMIOLÓGICO DE LA LEpra
Rose Mary da Silva Araújo1, Cládis Maria Tavares2, Jovânia Marques de Oliveira e Silva3, Regina de Souza Alves4, Wanderlei Barbosa dos Santos5, Pryscilla Lopes dos Santos Rodrigues6

ABSTRACT
Objective: to analyze the epidemiological profile of leprosy. Method: quantitative, descriptive, retrospective study with 108 patients, attended at the health service of the municipality of Rio Largo. The data were obtained from the system of information of grievances and notifications (SINAN). These data were transferred, tabulated and analyzed from the official notification system of the Ministry of Health. The elements were grouped and, presented in figures form and then the results were discussed. Results: there were increases and decreases in the number of cases, totaling, in 2015 14 new cases recorded, with variations of the average annual detection rate, in the period from 2005 to 2015, of 12.98/100 thousand inhabitants. Conclusion: the municipality of Rio Largo presents a serious health problem related to leprosy, which shows vulnerability to the population, impacting directly on the quality of life. Descriptors: Leprosy; Epidemiological Profile; Nursing.

RESUMO

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RESUMO

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INTRODUCTION

Leprosy is an age-old morbidity, in which it was evidenced worldwide, in the middle of the 21st century, since data from the literature reported that about 250 thousand new cases were registered annually. This is a chronic infectious contagious disease, of great importance for public health, aiming at the incapacitating power of the individual, in which it can predominantly reach the economically active age range.1-2

Leprosy is caused by the bacillus *Mycobacterium leprae* and is characterized by a slow evolution, high infectivity and low pathogenicity, manifesting mainly from dermatoneurological signs and symptoms, affecting skin and peripheral nerves.3-4

In Brazil, the disease was reported on December 4, 1697, in a document destined for Portugal, in which he requested the construction of a lazaret in the Church of the Conception, in view of the increasing number of leprosy in the city of Rio de Janeiro, this time.5

In Brazil, the therapeutic measures began, in the middle of 1950, bringing hope to the individuals affected by the disease, regarding the family and social relationship, considering that these people represented a risk for the society. With that, the treatment made a social reintegration possible. However, it is possible to perceive, the prejudice towards people affected, even with the advances that have occurred in the diagnosis, control and treatment of the disease.6

The global leprosy statistic brings 206,107 (96%) of new cases were reported, in only 14 countries. Among these, India, Brazil, and Indonesia, can be mentioned and account for 80% of all reported cases.7

Predominantly there are leprosy in every part of the world. According to the WHO, against the large number of cases, stipulated a goal of elimination for one case per 10 thousand inhabitants by the year 2015, using polychemotherapy treatment (PCT), as well as strategies for obtaining goals.8

Brazil is considered the second country in the world in prevalence, in cases of leprosy, reaching an average of 47 thousand new cases per year, from 2009 to 2012, in which the North and Central-West regions are the most prevalent, followed Northeast, Southeast and South. This reproduces a great social inequality and the economy of the Brazilian population, directly impacting on their quality of life.9 Brazil is the first place in detection rate. In the Americas, it is responsible for more than 90% of cases recorded.10

The World Health Organization (WHO) has approved a comprehensive strategy to eliminate leprosy, and has undertaken this commitment, with the goal, until 2020, of reducing to zero the number of children diagnosed with leprosy and physical disabilities, with its prevalence being determined a case for one million.11

With regard to Alagoas in 2010, of the 102 municipalities of the State, in 43 no new cases were registered and of the four hyperendemic municipalities, were diagnosed less than five new cases. The capital, Maceió, it was considered to be highly endemic in view of the fact that 12.5 new cases/100 thousand inhabitants were observed. However, when compared to the general detection coefficient, according to the individual’s age, they may be lower than the Brazilian and of the Northeast region as a whole.12

It is observed that as of 2009, there were no new cases of Hansen's disease in children under 15 years of age in Rio Largo, but in 2015, there were 3 cases, with a detection coefficient of 15.11 /100 thousand inhabitants (hyperendemicity). In the period from 2009 to 2014, 52 cases of leprosy were reported in this municipality.13

The surveillance of the communicators is one of the pillars for the control of leprosy. However, it is noticed that, of the intradomiciliary contacts of patients diagnosed with leprosy, few carried out the contact examination in the Health Unit. The average of contact exams in Brazil was of 76.63%, and Alagoas, 69.59%, in the year 2014. Thus, there is still a weakness in the surveillance and control of leprosy in the municipality of Rio Largo, which shows a low effectiveness in the application of the policy of health for the early diagnosis of this disease.14

OBJECTIVES

- To analyze the epidemiological profile of leprosy in a municipality in the metropolitan region of Alagoas;
- To collect epidemiological data on leprosy SMS-SINAN / TABWIMDAVEP / SESAU from the State and municipality of Rio Largo;
- To describe the monitoring indicators of the progress of leprosy elimination as a public health problem;
- To identify, from the epidemiological stratification, which are the most risky neighborhoods in Rio Largo.
A quantitative, descriptive-retrospective study conducted in the city of Rio Largo, located 27 km from the State capital, is the second most populous city in the Alagoas metropolitan region, with a territorial area of 299,110 km² and with a population of 75,645 inhabitants. Data were collected at the Municipal Health Department - MHD of the Municipality, located at Vereador Jarbas Januário street, N/N - Centro.\(^{15}\)

This municipality still shows a fragility in the surveillance and control of leprosy, demonstrating a low effectiveness in the application of the health policy focused on the early diagnosis of this disease.

The study population consisted of 108 cases attended by the leprosy program. Among them, there are cases of patients with less than 15 years of age diagnosed in the period from 2005 to 2015. The variables studied concern the indicators and parameters of the Ministry of Health, which assess annual leprosy detection rates.

The ethical standards set forth in Resolution 466/2012 were observed to maintain the anonymity of patients with the disease, and there was no need to submit to the ethics committee, since no patient was identified by name, address, telephone number or other personal information. The integrity, privacy and confidentiality of the information of the carriers, obtained from SINAN, were strictly respected. In view of this, the data used in the survey were released after the end of the signed authorization, through an official letter from the Municipal Secretary.

This study consisted of the cases reported from 2005 to 2015, with data from leprosy patients that were obtained through the system of information on injuries and SINAN notifications, which were collected through the computerized program, directed to epidemiological analysis, collected. In the year 2007, the epidemiological investigation and notification file was implemented in the municipality, and computerized by the SINAN information system, using software/SINAN and, thus, contributing to the analysis and evaluation, of the data needed for this research.

These data were transferred, tabulated and analyzed from the Ministry of Health’s official notification system, and the following variables were investigated: age; sex; race/color; schooling; health district; occupation; clinical form; operational classification; evaluation of incapacity degree; mode of entry; therapeutic scheme and type of discharge. Population data, for calculation of annual detection rates, were obtained from the Brazilian Institute of Geography and Statistics (IBGE).

The elements were grouped and presented in figure form and, then the results were discussed.

**RESULTS**

Epidemiological data from the SMS-SINAN/TABWIMDIVEP/SESAU, in the municipality of Rio Largo indicate that the prevalence of leprosy, in the year 2015 was equal to 14. In calculating the first indicator of progress in eliminating leprosy, the Annual prevalence of leprosy, in the year 2015 resulted, in 1.85/10 thousand inhabitants.

With this value, the prevalence of leprosy cases is considered to be of medium endemicity, according to the parameters of the Ministry of Health (MOH), since the indicators consider it hyperendemic when it has a value ≥20.0 per 10 thousand inhabitants, very high from 10.0 to 19.9 per 10 thousand inhabitants, high from 5.0 to 9.9 per 10 thousand inhabitants; average, from 1.0 to 4.9 per 10 thousand inhabitants and low if it is <1.0 per 10 thousand inhabitants.

Between 2005 and 2015, in which 108 new cases of leprosy were recorded, as shown in figure 1. During this period, there was a great variation in the number of new cases of leprosy. In 2005, the annual detection rate was 13.21/100 thousand inhabitants; in 2006, there were a record of five new leprosy cases, with an annual detection rate of 6.61/100 thousand inhabitants. In the following year, 2007, there was a peak in the number of cases with 16 registries, with an annual detection rate of 21.15/100 thousand inhabitants. In 2009, the number of registered cases returned to five new cases. From then until 2015, occurred increases and decrease of the number of cases, closing the year 2015 with 14 new cases registered.

The annual detection rate, in 2015, when 14 new leprosy cases were registered, was 18.51 / 100 thousand inhabitants, interpreted as having high endemicity, according to the parameters of the Ministry of Health (MS). With these variations, the average annual detection rate, in the period from 2005 to 2015 was 12.98 / 100 thousand inhabitants. Such parameters present as hyperendemic if the rate is> 40.0 / 100 thousand inhabitants, very high, if between 20.00 and 39.99 / 100 thousand inhabitants, high, if it is between

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**METHOD**

English/Portuguese

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10.00 and 19.99 / 100 thousand inhabitants, average if it is between 2.00 and 9.99 / 100 thousand inhabitants and low if it is <2.00 / 100 thousand inhabitants.

Of the 14 cases of leprosy detected, three were in the population from zero to 14 years old, in the year 2015. When calculating the Annual Detection Rate of leprosy in children under 15 years of age, a value of 15.1/100 thousand inhabitants. In this evaluation, the city of Rio Largo was classified as a hyperendemic city for the population from zero to 14 years old. The indicators presented as hyperendemic, with a value ≥10.00 per 100 thousand inhabitants; very high, with a value of 5.00 to 9.99 per 100 thousand inhabitants, high of 2.50 to 4.99 per 100 thousand inhabitants; average, of 0.50 to 2.49 per 100 thousand inhabitants and low if it is <0.50 per 100 thousand inhabitants.

The rate of new cases of leprosy observed in figure 2, with degree two of physical disability, from a number of 11 patients evaluated, between 2005 and 2015, was 18.55 / 100 thousand inhabitants. During the study period, it was observed that the year 2012 was responsible for the largest number of cases per year. Then, there was a decrease in numbers and, in 2015 the number of cases was zero. The indicator does not propose parameters, it only states that this number should be reduced every year, a fact that occurred during the period studied.

The evaluation of the degree of incapacity in the period studied shows that 23.3% of those diagnosed had physical disability of degree one, and in degree two, they reached the percentage of 12.2, a total of 35.5% of patients with neurological impairment. In addition to the high percentage of people with neurological impairment, there is a proportion of 16.6% of patients who did not have an assessment of the degree of disability at the time of diagnosis.

The MS does not have pre-established parameters for these values, but, in the studied period, a slight decrease in the numbers of already diagnosed patients with degree of impairment was observed. The predicted in the indicators of leprosy monitoring is that this number be reduced to each year. There are, also cases in which the degree of physical disability, is not or is not recorded when leprosy is diagnosed.
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When the degree of incapacity in cure was evaluated, the proportion of patients with leprosy with disability degree two among the patients who were evaluated, was 10.14%. Of all the patients who obtained the cure, 25.93% of the cases presented disability degree one and two, while 36.1% of the cases had or did not have an assessment of the degree of incapacity performed among those who obtained the cure of leprosy. In this case, the indicators show that the index of cured patients, with degree of disability two is: high when ≥10%; medium, 5 to 9.9% and low: <5%. As shown in figure 3, in the year 2015, the patients with a disability of zero were eight. The other two the other patients had a degree of incapacity one. The number of patients, of whom there is no record of the degree of incapacity, is four.

The proportion of cases of multibacillary leprosy, in paucibacillary leprosy cases in 2005, was 60%. The variation in this proportion was very high in the period studied, and in 2009 and 2014 this proportion reached as shown in figure 4. In 2015, the proportion of leprosy cases was 57.14%, a number that shows the great risk of development of complications and a threat to the establishment of correct treatment.
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Figure 4. Number of new cases of leprosy according to operational classification. Rio Largo (Al), Brazil, 2016.


When evaluating the number of leprosy patients, who were treated, or who abandoned leprosy treatment, 12 carriers were registered in 2015, of which: Five with paucibacillary leprosy, four of whom had leprosy cure and one abandoned leprosy treatment. Seven patients, on multibacillary leprosy treatment received cure of the disease and no patient, with this operational classification, abandoned the treatment.

When the proportion of cure and abandonment of leprosy treatment was evaluated, the cure rate of 91.67% was considered as good, in relation to the abandonment rate, of 8.33%. The MS parameters consider as good, the cure rate ≥ 90%; regular, if it is 75 to 89%; and precarious if it is <75%. The dropout rate is considered as good, if it is <10%; regular, if it is between 10 - 25%, and high, if it is> 25%.

With regard to the race / color of the population of this study, figure 5 presents the case numbers in the period studied, with a population of brown color, which represented 65.74% of the cases, with 71 registered cases. Twenty-two (20.37%) carriers are white, nine (8.33%) carriers are black, one (0.93%) is yellow. There were no cases detected in population of indigenous race/color, and five patients detected, had not registered their race/color. During the study period, it was observed that, in 2005, 2006 and 2008, the number of race/color bearers occurred in the same proportion as those of white race/color. In the other years recorded, the proportion of people of race/color was much higher than the proportion of race/white people or others diagnosed with leprosy.

Figure 5. Number of New Cases of leprosy, according to race/color. Rio Largo (Al), Brazil, 2016.


In relation to schooling, it is clear that the researched patients have low schooling. Prevalence of incomplete elementary schooling was (50.93%) and illiterate (11.11%).

The percentage of people with complete primary education was 2.78%, with a high school education of 8.33%. The others were...
classified as ignored or without information, with a rather high number of (26.85%).

When carrying out the epidemiological stratification of the districts of the city of Rio Largo, the Vila Marília and Alto de São Miguel neighborhoods were identified, as being responsible for the largest number of cases between 2007 and 2016, followed by the neighborhoods: Centro, Forenue, Mata de the Roll, Mayor Antônio Lins de Souza, Mutirão, Tabuleiro do Ponto, Cucau, Gustavo Paiva, Utinga Leão, Lourenço de Albuquerque, Baixa da Cacimba and Baixa da Cacimba.

It was possible to observe the persistence of detection of new cases of leprosy, for several consecutive years, in the Vila Maria and Forenue neighborhoods, which shows the greater risk of leprosy in the respective neighborhoods.

**DISCUSSION**

In the population of this study, there was a large predominance of brown / race people, which represented 65.74% of the cases, with 71 cases registered. Twenty two (20.37%) of whom were white and nine, (33%) carriers are of race/black color. No cases were recorded in people of indigenous population.

In relation to schooling, 62.04% of the population in this study has a very low level of schooling. Of those, 11.11% are illiterate and 50.93% have incomplete elementary education. It was also observed, the high proportion of cases in which the schooling of leprosy patients was not recorded (26.85%). A study carried out in the city of Maceió, from 2007 to 2012 had an inverse result to that of the population of the studied city. It points out that 58.81%, of the leprosy patients have complete elementary education; 37.99%, incomplete primary education and that only 3.18% of the carriers did not have the level of schooling recorded.16

The annual prevalence rate of leprosy cases in the city of Rio Largo in 2015, was 1.85/ 10 thousand inhabitants, and thus, classified, as being of medium endemicity. This indicator is used to measure the magnitude of the disease. The city scenario of this study follows with a value above the national average of 1.54 / 10 thousand inhabitants in 2011, with the largest outbreaks being in the Midwest regions, 3.60/10 thousand, North 3.47/10 thousand and Northeast 2.46/ 10 thousand. Brazil is still among the endemic countries with a case coefficient.17

Among the population aged zero to 14 years, the city of Rio Largo (2005 to 2016) was evaluated as hyperendemic, with a detection rate of 15.1/100 thousand inhabitants, this parameter evaluates the strength of the recent transmission of the endemic and its tendency. A study carried out from 1990 to 2007 indicated that the mean value of the annual detection coefficient in the State of Alagoas was 2.74 / 100 thousand inhabitants, a value considered high by the parameters of MH.18

The degree of physical incapacity of the patients in the diagnosis and cure shows worrying results, since despite the reduction of the rate in the period studied, the evaluation of the degree of incapacity in the period, reveals that 23.3% presented physical disability of degree one, and for degree two it reached the percentage of 12.2, totaling 35.5% of patients with neurological impairment. Apart from this, the number of the patients without degree of incapacity evaluation is high. This parameter is considered as a quality indicator included in the World Health Organization (WHO) Enhanced Global Strategy and Operational Guidelines, which exposes the idea of underreporting and late diagnosis of cases. In this sense, WHO guides the commitment of health teams in the active search for cases, health education and contact surveys as strategies used in the timely detection of cases of leprosy.11

The decline in the degree of incapacity, identified in the period studied, contributes to the data presented in the State of Ceará, which identified an increase in the proportion of leprosy patients diagnosed with degree of disability zero, in the period from 1987 to 1996. They affirm that, these results represent an improvement in the health services provided, with the realization of early diagnosis, in a timely manner for the treatment and prevention of physical disabilities.19

The number of new leprosy cases recorded per year during the period evaluated were very variable. In 2006 and in 2009, five cases were registered each year, while in 2007 there were 16 cases. However, the number of detections each year increases each year. In relation to operational classification, multibacillary leprosy cases are larger (57.14%) than in paucibacillary leprosy cases. In most of the years studied, including the last one, 2015, this indicator evaluates the cases in risk of developing complications and for the correct resupply of Polychemotherapy.20

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CONCLUSION

It is necessary that health education for the population, active search, individualized and direct assistance, and the examination of contacts of leprosy patients be carried out in a constant way, in order to reduce or eliminate the cases in the municipality.

The city of Rio Largo has a prevalence of average endemicity in the population in general and an annual detection rate that indicates high endemicity, which may be a reflection of campaigns and improvement in health actions aimed at the detection of new cases. The population from zero to 14 years old, is hyperendemic because it presents a high detection rate, which reflects the endemicity in the adult population, with a failure in its early detection, that generates contamination of their intradomiciliary contacts.

There is still a failure in the evaluation of physical disabilities, in which this evaluation should be performed both in diagnosis and in cure, in addition, in the evaluated patients, the number of patients diagnosed with a degree of disability is still high. Although it has decreased over the years studied, it indicates a failure in the early detection of the dermatological symptomatic, which ends up being diagnosed after a long period with the disease leading to neurological impairment of the leprosy patient.

Multibacillary leprosy predominates in the cases detected. This means that there are greater risks for the patients with the disease. On the other hand, the male population was more prone to the development of leprosy. The districts of the city of Rio Largo, where there are higher risks of being diagnosed with leprosy, Vila Marília, Alto de São Miguel, Forene, Centrod and Mata do Rolo, where the prevalence of leprosy cases prevailed during the years studied.

It is also necessary, for investments in the training and updating of the professionals for the early capture of the patients of the disease, knowing that the early capture of the dermatological symptomatic is a great step for the treatment and the minimization of the degree of incapacity of leprosy in its carriers, in addition to the decrease in transmissibility.

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