

Enhancing Leprosy Treatment Efficacy and Quality of Life: An In-Depth Analysis of Patient Care within the Public Health Network

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Abstract: *To analyze the treatment of leprosy if it is being supported by due special care to the quality of life of patients in the public health network, thus increasing survival. A survey of descriptive studies was carried out for the treatment of leprosy in Tocantins registered in SINAN, dating from January 1, 2015 to December 31, 2019 with total value rates according to the nature of care, legal nature and municipal and state management from 2015 to 2019. It was evident that the highest incidence was in the emergency, with 133, 970.69 cases. The elective character obtained 261.27 cases. The public company obtained the highest rate with 67, 654.72 cases. The Full State management presented 131, 835.26 cases and the Municipal Full Assistance obtained 2, 396.70 cases. The quality of life has not achieved a satisfactory result, as the disease has caused great damage to people's daily lives and interpersonal relationships, causing suffering that goes beyond pain and discomfort together with physical damage, with great impact. social and psychological and this damage is linked to the most severe forms of the disease, with deformities occurring.*

Keywords: Leprosy, Tocantins, SUS, Quality of life.

1. Introduction

Leprosy causes physical, social and economic disability and, therefore, represents a public health problem (RIBEIRO MDA, et al., 2018). Leprosy is an infectious, granulomatous and chronic disease caused by *Mycobacterium leprae*, characterized by an intracellular presentation with a specific tendency for skin cells and peripheral nerve cells to settle in the body of the infected person and may multiply. The reproduction period of the bacillus is very slow, lasting about 11 to 16 days (VELOSO DS, et al., 2018).

Symptoms are characterized by changes in sensitivity, tingling, decreased muscle strength, white spots on the skin, erythema that can lead to body deformities and damage to the peripheral nervous system. They can cause damage to the face, trunk, limbs and, in the most serious cases, organs and systems (BRASIL, 2012).

Although easy to identify, it still constitutes an important public health problem in Brazil, with Brazil being the second largest country in number of cases in the world. The country has reported approximately 95% of known cases and over 90% of newly diagnosed cases in the Americas. It is a disease that affects men, women and children who come into contact with bacterial individuals (BORGES DPL, et al., 2016).

According to Ordinance No.149, of February 3, 2016 (2016), the disease is determined by the incubation period of 2 to 5 years, presenting insidious evolution and affecting the individual's clinical condition. Early diagnosis of deficiency is crucial. Leprosy is clinically classified as: Indeterminate, Tuberculoid, Borderline and Virchowian according to the appearance, number and severity of the disease.

According to Finez MA, Salotti SR (2011), the Tuberculoid and Indeterminate classification are like paucibacillary, meaning few or no bacilli in the exams, while Virchowian and Dimorphous are classified as multibacillary, with many bacilli. Its incubation period is an average of two to five years. The clinical diagnosis is based on the patient's signs and symptoms. In more severe cases, other tests are needed to confirm the disease.

Patients with severe cellular immune response at an extreme to *M. leprae* limit the disease to a few clear lesions or nerve trunks (tuberculoid pole). At the other extreme (Virchowian pole), it is characterized by lack of specific cellular immunity, uncontrolled proliferation of bacilli and various lesions and extensive infiltration of skin and nerves. Several patients, who have the intermediate form of the disease, are immunologically unstable, resulting in a variety of effective cellular immunity and low bacillary load to high bacillary load and high antibody titer (MOURA RS, et al., 2015).

According to Sousa NP, et al. (2011), the specific treatment of patients with leprosy is carried out through polydrug therapy (MDT) standardized by the World Health Organization (WHO). MDT kills the bacillus and makes it unfeasible, preventing the development of the disease, avoiding functional alterations and performing a complete cure correctly.

The treatment of leprosy is done by MDT, being a directly observed treatment, for paucibacillary patients we use a supervised dose of Rifampicin at 600mg once a month, dapson 100mg, and clofazimine at 300mg supervised. And at home a dose of dapson 100mg and clofazimine 50mg per day, for 6 months. As for the treatment for multibacillary

patients, what changes is the time that extends to 12 months. It is available free of charge and exclusively in the Unified Health System - SUS.

MDT is a decisive distinction for the multidisciplinary care of patients, thus improving the connection between patients and primary health care professionals, improving adherence to treatment, allowing early diagnosis and intervention of response states and optimizing continuous work to prevent physical disabilities (OKTARIA S, et al., 2016).

Deformity and physical disability are the main exacerbations of leprosy, and the percentage of patients with physical disability is an indicator of the impact of the disease. Like other countries, Brazil has also implemented outpatient treatment policies, exercises, and disease control guidelines. Through the National Plan for the Elimination of Leprosy, state and municipal governments have promoted actions such as the formal implementation of multidrug therapy, diagnosis and treatment of all new cases expected. In addition, early diagnosis aims to diagnose 90% of new cases before the appearance of body deformities (RIBEIRO MDA, et al., 2018).

Tocantins is the state with the highest rate of leprosy in Brazil. In 2016, the state of Tocantins, located in the North of the country, ranked first among Brazilian states with new cases. The fact that the state of Tocantins has the highest rate of detection of new cases in Brazil indicates early exposure to *Mycobacterium leprae*, recent and spontaneous transmission of the undiagnosed bacteria, justifying this research (MONTEIRO LL, et al., 2021).

According to Silveira MGB, et al. (2014), individuals affected by the disease suffer a psychological shock after receiving the diagnosis, with the patient not accepting the disease. In addition to experiencing prejudice and discrimination caused by the stigma of the disease due to lack of information. Psychological reactions can be generated such as: social withdrawal, shame, fear of death, that is, self - sabotage, changes that generate changes in the quality of life of these patients.

Given the above, the guiding question of this research arose: is the treatment of leprosy being supported by due special care for the quality of life of patients in the public health network, thus increasing survival?

This research aimed to describe the profile of leprosy in the State of Tocantins, from 2015 to 2019, taking into account the total value according to the legal nature, state and municipal administrations, in addition to the elective and urgent character.

2. Methods

The State of Tocantins is located in the North region of Brazil, with a territory of 277, 621km², divided into 139 cities. In 2020, the estimated population was 1, 590.248

million people, an increase of 18.4% since 2000. The state is divided into eight health regions based on city, population and population density to provide minimum actions and services for each region (MONTEIRO LL, et al., 2015).

The research is descriptive, whose main feature is the description of the behavior of a given population or phenomenon, or even establishing the relationship between variables (GIL AC, 2009), enabling the identification of similarities and differences between various elements of a State.

A survey was carried out of descriptive studies for the treatment of leprosy in Tocantins registered in the Notifiable Diseases Information System (SINAN), dating from January 1, 2015 to December 31, 2019 with rates of total value according to the nature of care, legal nature and municipal and state management from 2015 to 2019 based on records from SINAN and the Brazilian Institute of Geography and Statistics (IBGE).

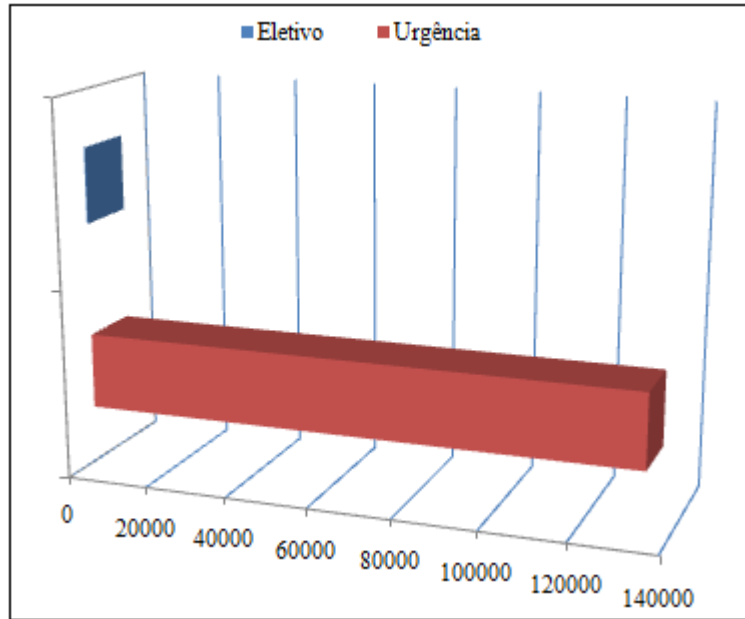
Data processing and analysis were performed by frequency measurements observed with the TabNet program. From the SINAN records, a data collection and analysis of the results in years was carried out, considering the State of Tocantins in the period from 2015 to 2019.

For Monteiro LL, et al. (2015), Tocantins is the state with the highest rate of leprosy in Brazil, resulting in a late diagnosis and greater transmissibility to other individuals, being chosen for the study because it is the state with the highest number of new cases of the disease, with the need to unite quality of life together with the harmful effects of late diagnosis and treatment, which may lead to a worsening of this patient's quality of life.

3. Results

Data from the Ministry of Health show that around 52, 000 Brazilians were diagnosed with leprosy in 2003. This is a historical series of records since the early 1990s, when more than 28, 000 cases were recorded. Since then, the number of cases had been decreasing until 2017, which saw the first significant increase in 13 years. It increased even more in 2018, with 28, 000 new cases registered in Brazil (SBD, 2020).

In terms of the number of new cases of leprosy diagnosed each year, Brazil consistently ranks second in the world, second only to India. According to data from the World Health Organization (WHO), in 2017, there were 210, 671 new cases of the disease in 150 countries, which is equivalent to 2.8 cases per 100, 000 inhabitants. In the same year, 26, 875 new cases were detected in Brazil, 12.9 cases per 100, 000 people. However, there is heterogeneity in the numbers in the various regions of the country. The states of Mato Grosso, Tocantins, Maranhão, Pará and Piauí have the highest rates of the disease.

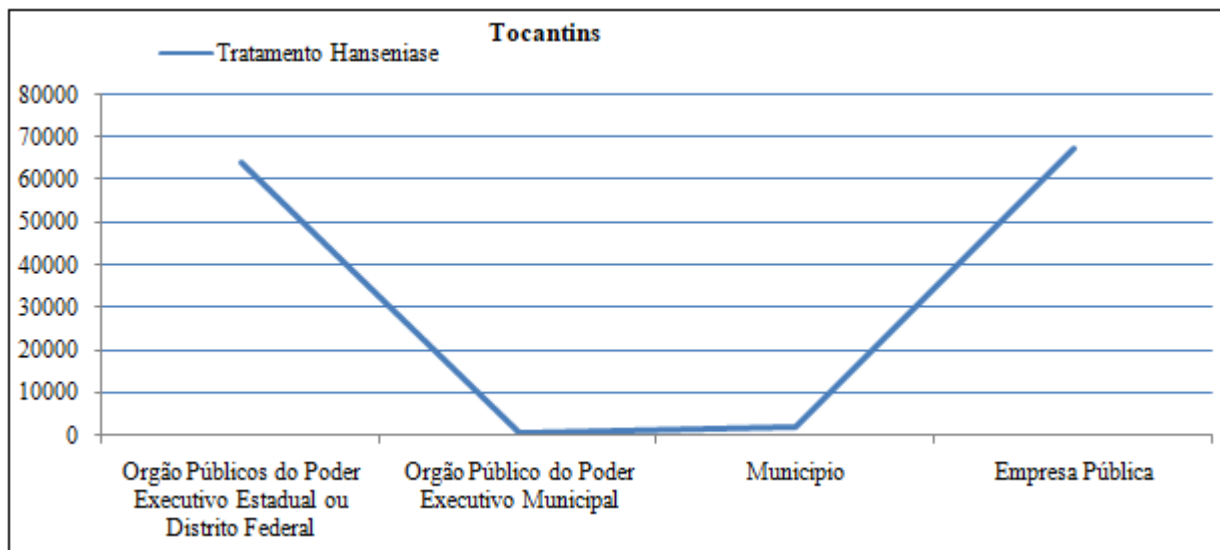


Graph 1: Total quantity by Character of care according to Federation Unit - Tocantins, for leprosy treatment from 2015 to 2019

Source: own author

Based on the data presented in Graph 1, total amount by Character of care according to Federation Unit - Tocantins, for leprosy treatment from 2015 to 2019, it is evident that the highest incidence was in the case of urgency, with 133,970.69 cases, this happens because of the lack of knowledge

about the disease, causing the cases to be late detected, in many cases only because of the sequelae they already have, evidencing the high rates in the nature of urgency. The elective character obtained 261.27 cases for leprosy treatment.



Graph 2: Total amount by Legal Nature by Federation Unit - Tocantins, for leprosy treatment from 2015 to 2019

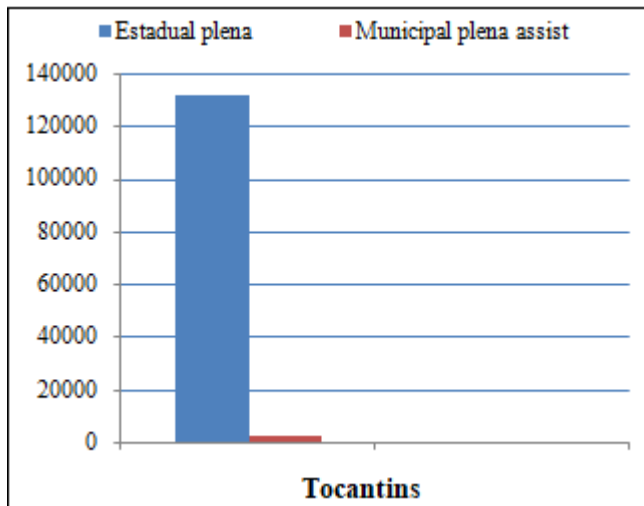
Source: own author

It can be seen in Graph 2, the total amount by Legal Nature by Federation Unit - Tocantins, for leprosy treatment from 2015 to 2019, the public company obtained the highest rate with 67,654.72 cases, followed by the Public Body of the State Executive Branch or of the Federal District, with 64,180.54 cases.

The public company has the purpose of offering free medical - hospital care, outpatient care and diagnostic and therapeutic support to the population, providing health care services in an integral way and exclusively inserted in the

scope of the SUS, thus, having the highest index for the treatment of leprosy.

The Public Body of the Municipal Executive Power obtained only 490.54 cases and the Municipality presented 1,906.16 cases for leprosy treatment. According to the Special Secretariat for Communication (2021), the treatment of leprosy is carried out in the health service of the municipal network in a simple and effective way, free of charge and with no need for hospitalization, but the diagnosis needs to be as early as possible to minimize the risk of sequelae.



Graph 3: Total amount per Management by Federation Unit - Tocantins, for leprosy treatment from 2015 to 2019

Source: own author

According to Graph 3, total amount by Management by Federation Unit - Tocantins, for leprosy treatment from 2015 to 2019, Full State management presented 131, 835.26 cases and Municipal Full Assistance obtained 2, 396.70 cases for leprosy treatment.

According to the World Health Organization (WHO) definition, quality of life refers to an individual's perception of their status in the context of the values and culture in which they live. Knowledge about the quality of life of patients with leprosy is useful for understanding the lifestyle of these people (SILVEIRA MGB, et al., 2014).

For Duarte LMCPS, et al. (2014), the results show that, in general, the quality of life has not achieved a satisfactory result, as the disease has caused great damage to people's daily lives and interpersonal relationships, causing suffering that goes beyond pain and discomfort. being in conjunction with the physical impairment, with great social and psychological impact and this impairment is linked to the most severe forms of the disease, with deformities occurring. It was observed that leprosy is still neglected in people's lives, leaving its physical and emotional mark, either for a limited period during treatment or for a longer time, as in the case of physical sequelae.

4. Discussion

Leprosy is considered the oldest disease of humanity and has a cure, but it still represents a public health problem in Brazil. Neglected tropical disease is a chronic infectious disease that is mainly manifested by neurological symptoms such as skin lesions, numbness in the hands and feet, and decreased strength. In Brazil, treatment is free and offered by the Unified Health System (SUS). Patients can receive treatment at home and be regularly monitored in Basic Health Units (SBD, 2020).

Transmission usually occurs through direct contact with untreated infected individuals, with the elimination of bacilli through the upper respiratory tract. The bacillus can infect

both sexes and all ages, but the diagnosis occurs more frequently in adults (BORGES DPL, et al., 2016).

According to Cavalcanti AAL, et al. (2012), *M. leprae* is a bacillus with high infectivity and low pathogenicity. After entering the organism, it will be located in the Schwann cells and in the skin. Its spread to other tissues may occur, but it is more observed in the most severe forms of the disease, when the infecting agent has low resistance to its multiplication. The lymph nodes allocate a large part of the bacilli, and regions such as the liver, eyes and testicles contain the microorganism.

The World Health Organization (WHO) established the goal of eliminating leprosy as a public health problem, that is, less than one case of leprosy per 10, 000 inhabitants, which was later proposed by the Ministry of Health. However, this target has been a challenge to be met in some regions because of its complexity. According to the regulations of the Ministry of Health, leprosy is considered a highly endemic disease in the State of Tocantins (WHO, 2012).

According to the State Department of Health of Tocantins (2013), the trend of leprosy indicators is uneven, as some municipalities and regions of the state of Tocantins have better coverage of health actions and services, while other cities have more difficulties in offering and provision of health services. Other factors may be narrow geographical borders, which facilitate the migration of people to Tocantins from neighboring cities and states considered endemic (Pará, Maranhão and Mato Grosso). It is noteworthy that important changes occurred in the epidemiological characteristics of the population of Tocantins, the youngest state in Brazil, and the population grew significantly due to the subsequent migratory wave (ALENCAR CHM, et al., 2012).

Treatment is the right of every citizen, no matter where or what the public health service is, under the supervision of the nursing team, all SUS services provide free medication. If the patient does not attend the monthly consultation scheduled for the supervised dose, the health service considers the patient to be in default. This lack means the continuity of disease transmission, the resistance of the bacillus to drugs and the delay in curing leprosy (BRASIL, 2008).

According to the Special Secretariat for Communication (2021), every year, in January, awareness actions are carried out on leprosy to represent the National Day of Combat and Prevention, remembered on the last Sunday of the month. Purple January is a national awareness campaign designed to inform the public that there is no reason to be afraid or ashamed of leprosy. The aim is to encourage the population to undergo skin examinations that can accelerate the diagnosis of the disease and consequently reduce sequelae through treatment.

According to Borenstein MS, et al. (2008), leprosy bears in its name the prejudice and discrimination of those who have it. This situation basically stems from the lack of information on the part of the population.

The initiative aims to improve disease control through the dissemination of specialized information and awareness of its severity and the need for early diagnosis and treatment, contributing to the reduction of prejudice against the disease (SBD, 2020).

The real situation of leprosy patients shows that we need more active treatment methods. This determines an important part of the leprosy patient's recovery process, as they will undergo a variety of neurological changes, bringing physical disability and deformity, causing problems for a life with more quality. Leprosy is a disease with a high probability of causing physical disability and deformity, leading to a decrease in work ability, restriction of social life and psychological problems (SOUSA, et al., 2011).

According to the Brazilian Society of Dermatology, (2020), this disease has affected humanity for hundreds of years without treatment, which has caused discrimination and isolation of many patients. However, there are currently very effective anti - leprosy antibiotics that can be treated and cured without leaving the patient's routine. The faster a patient can start proper treatment, the faster the disease stops being transmitted and the less likely they are to have a physical disability. Therefore, it is very important to raise awareness among the population and health professionals to quickly identify the highest number of early cases of the disease. Current treatment is completed between 6 to 12 months of medication.

For the total restoration of the health of patients with leprosy, it is necessary to adopt a multidisciplinary approach that seeks the physical, psychological and social recovery of these people, and to take effective preventive measures to reduce the impact of this disease on these people's lives (SOUSA NP, et al., 2011).

5. Conclusion

Leprosy remains an important public health problem in the State of Tocantins, and its dissemination is active and continues to erupt. Early diagnosis helps to prevent related physical disabilities, although it is simple, it is essential to have a multidisciplinary team to simplify adherence to treatment, which obviously reduces the physical, mental and social problems of these patients. The state leprosy control plan should focus on promoting sustainable control activities based on active surveillance through contact inspections, mass movements and other collective inspections. It is also essential to guide the population about the initial symptoms and the importance of seeking a health service at the first symptoms, even those where there is doubt about the diagnosis. In view of the results obtained, it appears that leprosy is perceived as a bad disease, which causes sadness, fear, shame and social discrimination. That's why it's always important to be passing the correct information to the population.

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