

DOENÇA DE HANSEN NO BRASIL: MONITORIZAÇÃO DAS INCAPACIDADES

HANSEN'S DISEASE IN BRAZIL: MONITORING OF DISABILITIES

LA LEPROA EN BRASIL: MONITOREO DE LAS DISCAPACIDADES

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RESUMO

Introdução: A doença de Hansen é uma patologia infectocontagiosa, curável, causada pelo *Mycobacteria Leprae*, com predileção pelo sistema nervoso periférico.

Objetivos: Determinar as formas clínicas e a classificação operacional dos portadores de doença de Hansen; Identificar o grau de incapacidade dos pacientes diagnosticados com doença de Hansen;

Métodos: Estudo transversal, com abordagem quantitativa de natureza descritiva, realizado com 104 pacientes diagnosticados com doença de Hansen. A maioria era do sexo masculino 63 (60,6%) com uma média de idades de 37 anos, 49% eram de cor parda e 34,6% detinham o ensino fundamental completo. Os dados foram retirados de: Sistema de Informação de Notificação de Agravos Notificáveis – SINAN em 2014; - Ficha de Avaliação Neurológica Simplificada para avaliação do Grau de Incapacidades, (Brasil, 2010, p.35), extraída do Manual de Prevenção de Incapacidades (Brasil, 2008, p. 112-113).

Resultados: A classificação operacional dos portadores de doença de Hansen revelou que 47,1% eram paucibacilares e 52,9% multibacilares e que 31,7% foram diagnosticados com a forma Dimorfa e 25,9% Tuberculóide. O Grau de Incapacidade Física (GIF) no diagnóstico foi o seguinte: Grau 0 - 73 (70,20%); Grau I - 17 (16,35%) e 9 (8,65%) possuíam deformidades instaladas de Grau II. Os *odds ratios* indicam de forma significativa que o risco das mulheres com doença de Hansen não apresentarem incapacidades físicas no *momento do diagnóstico*, é cerca de 4 vezes superior ao dos homens (OR= 3,868; IC 95%= 1,316-11,368).

Conclusões: A ocorrência de incapacidades originadas pela doença de Hansen sobretudo nos homens é ainda um problema de saúde pública no Brasil, pelo que a busca ativa de casos na comunidade, o exame dos contatos domiciliares, o acompanhamento dos pacientes pelas unidades de saúde, as campanhas educativas e investigações com alunos nas escolas são exemplos de políticas que devem ser implementadas para que se consiga erradicar a endemia e reduzir as suas sequelas.

Palavras-chave: Doença de Hansen; Lepra, Doença Granulomatosa Crônica, Incapacidade Física.

ABSTRACT

Introduction: Hansen's disease is an infecto-contagious, chronic and curable disease, caused by the *Mycobacterium Leprae* with a preference for the peripheral nervous system.

Objectives: To determine the clinical forms and the operational classification of patients suffering from Hansen's disease; to identify the disability grade of patients diagnosed with Hansen's disease.

Methods: Cross-sectional study with a quantitative approach of a descriptive nature performed on 104 patients diagnosed with Hansen's disease. Most were male, 63 (60.6%), with an average age of 37 years, 49% had *parda* complexion and 34.6% had an elementary education level.

Data was collected from the: Notifiable Diseases Information System – SINAN in 2014; Simplified Neurologic Assessment Form for assessing the Grade of Disability (Brasil, 2010, p.35), taken from the Guide for Prevention of Disabilities (Brasil, 2008, p. 112-113).

Results: The operational classification of patients suffering from Hansen's disease revealed that 47.1% were paucibacillary while 52.9% were multibacillary and that 31.7% were diagnosed with the Borderline form and 25.9% with the Tuberculoid form. The Physical Disability Grade (PDG) at the time of diagnosis was the following: Grade 0 – 73 (70.20%); Grade 1 - 17 (16.35%); and 9 patients (8.65%) had developed Grade 2 disabilities. The odds ratios significantly indicate that for women with Hansen's disease the risk of not having physical disabilities at the *time of diagnosis* is about 4 times higher than it is for men (OR= 3.868; CI 95%= 1.316-11.368).

Conclusions: The occurrence of disabilities resulting from Hansen's disease mostly in men is still a public health problem in Brazil. Therefore, active search for cases within the community, examining household contacts, monitoring of patients by the healthcare units, educational campaigns and research with students in schools are examples of policies which should be implemented in order to eradicate this endemic disease and reduce sequelae thereof.

Keywords: Hansen's disease, Chronic Granulomatous Disease, Physical Disability.

RESUMEN

Introducción: La enfermedad de Hansen es una patología infectocontagiosa, crónica y curable, causada por el *Mycobacteria Leprae*, con predilección por el sistema nervioso periférico.

Objetivos: Determinar las formas clínicas y la clasificación operativa de los portadores de lepra; Identificar el grado de incapacidad de los pacientes diagnosticados con enfermedad de Hansen.

Métodos: Estudio transversal, con abordaje cuantitativo de naturaleza descriptiva, realizado con 104 pacientes diagnosticados con enfermedad de Hansen. La mayoría era del sexo masculino 63 (60,6%) con una media de edades de 37 años, el 49% eran de color pardo y el 34,6% tenía la enseñanza fundamental completa. Los datos fueron retirados de: Sistema de Información de

Notificación de Agravios Notificables – SINAN en 2014; - Ficha de Evaluación Neurológica Simplificada para la evaluación del Grado de Incapacidades, (Brasil, 2010, p.35), extraída del Manual de Prevención de Incapacidades (Brasil, 2008, p. 112-113).

Resultados: La clasificación operativa de los portadores de enfermedad de Hansen, reveló que el 47,1% eran paucibacilares y el 52,9% multi-cilares y que el 31,7% fue diagnosticado con la forma Dimorfa y el 25,9% Tuberculosis. El Grado de Incapacidad Física (GIF) en el diagnóstico fue el siguiente: Grado 0 - 73 (70,20%); Grado I - 17 (16,35%) y 9 (8,65%) poseía deformidades instaladas de Grado II. Los odds ratios indican de forma significativa que el riesgo de que las mujeres con enfermedad de Hansen no presenten incapacidades físicas en el momento del diagnóstico, es aproximadamente 4 veces superior al de los hombres (OR = 3,868; IC 95% = 1,316-11,368).

Conclusiones: La ocurrencia de incapacidades originadas por enfermedad de Hansen sobre todo en los hombres es todavía un problema de salud pública en Brasil, por lo que la búsqueda activa de casos en la comunidad, el examen de los contactos domiciliarios, el acompañamiento de los pacientes por las unidades de salud, las campañas educativas e investigaciones con alumnos en las escuelas son ejemplos de políticas que deben ser implementadas para que se pueda erradicar la endemia y reducir sus secuelas.

Palabras clave: Enfermedad de Hansen, Enfermedad Granulomatosa Crónica, Incapacidad Física.

INTRODUCTION

Hansen's disease is an infecto-contagious, curable disease which develops slowly, implicating the skin and with a preference for the peripheral nervous system. It is caused by the aetiologic agent *Mycobacterium leprae*, which was discovered in 1873 by Armauer Hansen, and it is characterized by affecting the skin and the peripheral nerves, which is why neurologic damage is one of the sequelae that may occur (Morhan, 2015). The bacillus' multiplication is slow, with an average duration of 11 to 16 days (Brasil 2002 apud Reis, 2015, p. 23). Hansen's disease is transmitted from a person carrying the bacillus who is not undergoing treatment to another vulnerable and susceptible person. Some studies indicate that the *Mycobacterium leprae* has high infectivity and low pathogenicity, i.e. it infects many people, yet very few have the capacity of actually falling ill, thus (Penna, 2009, p.44 apud Mesquita, Soares, Rafael, Azevedo, Melo, Vasconcelos, Félix, André, Abdon, 2014, p.248); (Brasil, 2014, p.345). The main means the patient suffering from Hansen's disease has of eliminating the bacillus, which is also the most probable portal of entry of the bacillus in the body likely to be infected, is the respiratory tract, particularly the upper respiratory tract. In order for contamination to happen there has to be direct contact with the untreated ill patient. The disease's outbreak in the person infected by the bacillus and its different clinical manifestations depend on multiple factors, such as the host-parasite affinity. This may happen after an incubation period which varies between 2 to 7 years (Brasil, 2014, p. 345).

The identification of individuals at risk of developing Hansen's disease and early diagnosis thereof is crucial for the effective control of the illness. Inbreeding, contact with patients suffering from Hansen's disease and the patient's bacillary load due to prolonged exposure to the *Mycobacterium leprae* are the most significant determining factors for contracting the disease (Sales, Ponce de Leon, Düppre, Hacker, Nery, Sarno, et al. 2011, apud Carvalho, 2013, p.24). The contacts of multibacillary patients constitute the population with the greater risk of contracting the disease, in that their risk is 8 to 10 times higher, while the household contacts of paucibacillary patients is 2 to 4 times higher when compared to that of healthy individuals who have not been exposed to the *Mycobacterium leprae* (Noordeen, 1994, p.278-83 apud Carvalho, 2013, p.24).

The disease affects people of all ages and both genders. However, there is an increased incidence in men in comparison to women in most regions of the world (Brasil, 2014, p. 345). Children under fifteen years old get sick more often when the disease has a high-endemicity area (Brasil, 2010, p.10). Individual and socioeconomic determining factors such as nutritional condition, hygiene and housing conditions seem to influence transmission, which hinders the control of the endemic disease (Aquino et al, 2003 apud Sociedade Brasileira de Dermatologia, 2015).

A population's lack of basic healthcare, along with nutritional and hygiene deficiencies combined with low educational grades, precarious family income and migration processes are favourable to the disease's spreading (Silva Santos, Gonçalves, Nascimento & Cruz Neto, 2014, p. 133-141). Additionally to the risk of the *Mycobacterium leprae* infecting populations exposed to the bacillus being correlated to low education levels, precarious housing and socioeconomic conditions (Pönnighaus, Fine, Sterne, Bliss, Wilson, Malema, et al. 1994, p.10-23 and Sales, Ponce de Leon, Düppre, Hacker, Nery, Sarno, et al. 2011 apud Carvalho, 2013, p.1), the genetic factors which can influence the illness' process and favour the clinical development of Hansen's disease should also be taken into consideration (Alter, 2008, p. 123 apud Carvalho, 2013, p.1).

On the 44th World Health Assembly held in 1991 a resolution was adopted for the elimination of Hansen's disease by the year 2000. However, this goal was not met and was extended up to 2005 (WHO, 2005 apud Vale & Araújo, 2015, p.144), when it was also not met. It was then that the World Health Organization instituted the *Global Strategy for Further Reducing the Leprosy Burden and Sustaining Leprosy Control Activities: 2006-2010* and years later the *Enhanced Global Strategy for Further Reducing*

the Disease Burden Due to Leprosy: 2011-2015 which focuses on a more effective reduction of the disease's burden in all its endemic areas (WHO, 2010 apud Vale, 2015, p.114).

In 2014 Brazil had an active record of 15,738 cases of Hansen's disease, with the Northeast region being the most largely affected with 10,738 cases, and the South region being the least largely affected with 907 cases. Most cases were multibacillary, with 20,474 people in Brazil, out of which 8,422 were in the Northeast; 45.42% of cases were of the female gender (Brasil, 2015, p.12). Brazil has approximately 23.3% of the new annually diagnosed cases with Disability Grades 1 and 2 which generate consequences and limitations to the patients' jobs and social lives as well as psychological problems (Finez & Salotti, 2011 apud Pinheiro, Silva, Silva, Ataíde, Lima, & Simpson, 2014, p. 895-906).

In order to categorize Hansen's disease, we took into consideration the classification used by Brazil's Health Ministry based on the "6th International Congress of Leprosy", Madrid, 1953, widely used all around the world (Madrid Congress, 1953). This classification considers four clinical forms: Indeterminate leprosy (IL) (early stage of the disease); Tuberculoid leprosy (TL) (which affects cutaneous innervation and/or the destruction of the nerve plexus with a chance of spontaneous cure by immunocellular resistance to the bacillus); Virchowian leprosy (VL) which is difficult to diagnose during the early stage due to chronicity, extensive general involvement and because the parasitism of the skin, eyes, nerves, viscera and other organs is visibly asymptomatic; Dimorphic leprosy (DL), in which there is extensive and intense involvement of the skin, nerves and in rarer cases of other organs and in which ulcerations are more frequent. On the clinical practice we find chronic progression ulcers or trophic ulcers, largely common in advanced untreated Virchowian patients (Cunha, 2012, p.10; William, 2011, p.101-102).

The disease manifests itself through skin lesions and lesions in the peripheral nerves. These are caused by inflammatory processes of the peripheral nerves, i.e. neuritises, which are possibly due to the bacillus' action on the nerves and/or to the body's reaction to the bacillus or the result of both these situations. Its main symptoms are the following: pain and thickening of the peripheral nerves; either loss or decrease of sensation in nerve innervations, especially in the eyes, hands and feet; loss of muscle strength with innervation of the affected nerves, preferably in the eyelids and in the upper and lower limbs (Brasil, 2002 apud Lastórial, Milanez & Abreu, 2012, p.176).

Neuritis frequently develops in an acute process which is followed by severe pain and oedema. Early on it does not show signs of functional damage to the nerve, yet it becomes chronic and begins to evidence this involvement with the loss of the perspiration function and occurrence of skin dryness. There is loss of sensation, numbness and loss of muscle strength, which causes paralysis in the areas innervated by the nerves in which the damage occurred. When neural damage happens and goes untreated, there is the possibility it may cause disabilities and deformities (Brasil, 2002 apud Lastórial, Milanez & Abreu, 2012, p. 176). This is why the problem with Hansen's disease is not solely related to its large number of cases, and why its high potential for resulting in disability should also be taken into consideration, seen as it may impact the patient's job and social life, as well as result in economic loss and psychological trauma. Disabilities have been blamed for the stigma and discrimination the patients endure (Budel, 2015, p. 942-946).

The disease's neural tropism represents a high potential for disability which, in the absence of intervention, generates deformities and disabilities, mainly in the eyes, hands and feet, further causing psychological alterations in the patient suffering from Hansen's disease and which result from the social stigma associated with the disease (Silva, 2015 pp. 223-229 apud Rodrigues Leandro, Antezana, Pinheiro, da Silva & Alves, 2015. p. 298). Nevertheless, physical disabilities can be either/both prevented or reduced when the people suffering from this illness are diagnosed and treated in time (Silva, 2014, p. 290-297 apud Rodrigues et al, 2015, p. 298).

An indicator of improvement in the integral attention granted to the person suffering from Hansen's disease is the assessment of the *Physical Disability Grade (PDG)*. The reduction target defined in Brazil was of 1.37 for 100 thousand inhabitants in 2008 to 1.19 inhabitants in 2015, the coefficient of new cases of the disease with PD Grade 2 (Brasil, 2010, p. 57).

The physical disability grade reveals the authenticity of the loss of sensation which protects the individuals from deformities resulting from neural involvement. Grade 2 refers to lesions *in the eyes* with any sign and/or symptom such as lagophthalmos and/or ectropion, trichiasis, central corneal opacity and even blindness; *in the hands*, where trophic lesions and/or lesions where trauma, claw hands, resorption and hand drop can be observed; *in the feet*, similarly to the hands, where trophic lesions and/or lesions where trauma, claw foot, resorption, foot drop and ankle contracture can be observed (Brasil, 2008, p.18-30).

The number of cases with Grade 2 Physical Disability detected in a population gives an idea of the under-notification which can occur as the result of several reasons. Changes in the rate of new cases with Grade 2 disability for every 100,000 inhabitants should reflect changes in the rate of detection of new cases (OMS, 2010).

Brazil's Health Ministry instituted a Protocol for Simplified Assessment of Neurologic Functions (SANF), which intends to perform a neurologic assessment in order to categorize the nerves' involvement. SANF verifies the nerve's condition through inspection, palpation, examining of sensation and assessment of motor strength in the eyes and in the upper and lower limbs. This assessment's frequency of application occurs during the treatment, at its beginning, middle and end, despite the fact that it can be applied more frequently (Nardi, Cruz, Pedro, Marciano & Pachoal, 2011, p. 1).

The clinical, epidemiologic and therapeutic information about the disease in Brazil is recorded in the Notifiable Diseases Information System (SINAN) with the purpose of systematically controlling treatment in order to characterize the disease's

manifestations in people with Hansen's disease. Moreover, it aims to be able to improve diagnosis, treatment, recovery and prevention of the disease (Rodrigues et al, 2015, p. 298).

There are several aspects related to this issue which justify this research study, such as: the importance of assessing the disability grade of patients with Hansen's disease; the disruption disability causes; the need to face difficulties like late diagnosis, lack of knowledge about Hansen's disease by both health professionals and patients, support deficit, lack of records, failure in monitoring people who are in constant household contact with patients suffering from Hansen's disease, lack of medication often due to the systems' deficiency which includes bureaucratic processes, public bidding, logistics and others.

Thus, according to the World Health Organization's pact aiming to eradicate Hansen's disease, the research carried out is up-to-date and based on the following research questions: *What is the physical disability grade at the time of diagnosis and at the date of discharge in people with Hansen's disease? Which are the most prevailing clinical forms and operational classification of Hansen's disease? Which are the characteristics of the sample regarding sociodemographic aspects (age, gender, race, and education level)?*

The objectives set were the following: to identify the Physical Disability Grade; to determine the clinical forms and the operational classification of people suffering from Hansen's disease; to characterize the participants as for sociodemographic aspects (age, gender, race, and education level).

1 - METHODS

1.1 - Type of study

This is a cross-sectional, descriptive-exploratory study performed on 104 people diagnosed with Hansen's disease and notified in the *Notifiable Diseases Information System (SINAN)* on the year 2012 and monitored on this research until 2014 in the municipality of Cabo de Santo Agostinho, city located in the metropolitan area of Recife – PE, Brazil. As exclusion criteria we considered patients who had not been notified and/or of whom there was no record in the information system during the period studied.

1.2 - Participants

A convenience sample was made up of 104 patients with 63 males (60.6%) with an average age of 37 years. The minimum age was 6 and the maximum age was 88 years. The more representative age group was that of 27 to 37 years old.

Other studies are marked by the predominance of the male gender (61%), the predominant age group varied between 32 and 38 years (25%) with 21% under 18 years old (Buna, Rocha, Alves, Granja, Sousa & Silva, 2015, p.115 –122; Mesquita, 2014, p.249).

A significant number of participants participants were *pardo*, 51 (49.04%), followed by white participants, 34 (24.04%), and then black participants, 15 (14.42%). In 12.5% of cases it was impossible to classify the race of the participants. A significant number of participants (49%) had a low education level. Incomplete elementary education was predominant in 34.6%, followed by complete secondary education with 17.3% and complete elementary education with 9.6%. Regarding the education level in relation to gender, elementary education was the most significant both in females (36.6%) and in males (33.4%).

Reports of other studies are in line with this research study where 62.7% had an incomplete elementary education level; 7.8% had a complete elementary education level; 5.9% had an incomplete secondary education level; 21.6% had a complete secondary education level; and only 2% had a college degree (Mesquita, 2014, p.249).

According to another study, the predominant education levels were incomplete elementary education and complete secondary education both with 9 (32%), followed by the unalphabetized which amounted to 3 (11%), and complete elementary education with 3 (11%), incomplete secondary education with 3 (11%) and higher education with 1 (3%) (Buna et al 2015, p. 115-122).

According to yet another study, the most significant occurrence was of secondary education with 75 (48.4%) cases reported (Araújo, Aquino, Goulart, Pereira, Figueiredo, Serra, Fonseca, & Caldas, 2014).

1.3 - Data Collection Instruments

Data collection was carried out using the patient's medical records and the following:

- Sociodemographic and Clinical Survey containing information on both sociodemographic (gender, age, education level, race) and clinical (clinical form, operational classification, physical disability assessment at the time of diagnosis and at the discharge date) aspects.
- Notifiable Diseases Information System (SINAN). This system is supplied by the notification and research of cases of diseases and increase thereof which are included in the national list of compulsory notification diseases (Portaria Nº 1.271, of 6 June 2014. Accessed at <http://dtr2004.saude.gov.br/sinanweb>)
- Simplified Neurologic Assessment Form (FANS) for assessing the Grade of Disability (Brasil, 2010, p.35), taken from the Guide for Prevention of Disabilities (Brasil, 2008, p. 112-113).

1.4 - Procedures

The Health Secretary of the Municipality of Cabo de Santo Agostinho-PE, Brazil, authorized the study and issued assent for data collection. In turn, the Head Official for Epidemiologic Surveillance corresponding to the disease increase studied provided the necessary information. For data processing, we analysed the Notification Forms and Data Records filed in the patients' records undergoing treatment at the Reference Unit for Hansen's disease – Herbert de Souza/CTA Healthcare Unit. Information was complemented through the Book of Record of Hansen's Disease Policy (Public Health Policies).

2 - RESULTS

The *operational classification* demonstrates that 47.1% of people were classified as paucibacillary against 52.9% who were multibacillary. Most (69.8%), composed of males, were multibacillary and 30.2% were paucibacillary; regarding the female gender, we obtained 73.2% paucibacillary and 26.8% multibacillary. (Table 1).

Table 1 – Operational classification regarding Gender

Operational Classification	Female		Male		Total		Chi-square	
	n	%	n	%	n	%	χ^2	p
Multibacillary	11	22.8	44	69.8	55	52.9	18.44	0.000
Paucibacillary	40	73.2	19	30.2	49	47.1		
Total	51	100.00	63	100.00	104	100.00		

An assessment of the probability of the operational classification varying according to gender was carried out. The odds ratios indicate that in the female gender the manifestation of the paucibacillary form is prevalent in relation to men and further indicate the reverse in the multibacillary form for men with significant differences between the groups (OR= 0.158; CI 95%= 0.066-0.380). Mesquita (2014) found 35.3% multibacillary patients, 15.7% paucibacillary patients and 49.0% who didn't have that information on their records.

The most prevalent *clinical form* was Dimorphic Leprosy with 33 patients, 8 female and 25 male, followed by Tuberculoid Leprosy with 27 patients, 16 female and 11 male, then Indeterminate Leprosy which presented 20 patients, 10 female and 10 male, and subsequently Virchowian Leprosy with 5 patients, 1 female and 4 male. In verifying the total we get a quantitative of 85 cases, with the remaining (19) distributed under unclassified and unnotified in the system. The most significant incidence of multibacillary and dimorphic forms in the male gender shows the occurrence of late diagnosis for men in comparison to women – a reality demonstrated by several studies.

The *Grade Zero of Physical Disability (PDG)* (absence of disabilities related to Hansen's disease) assessed in 99 participants at the time of diagnosis was of 73 (73.3%); 17 (16.35%) had alterations of protective sensation – G1 PD and 9 (8.65%) had developed deformities – Grade 2 PD, i.e. 26 (26.7%) had alterations which caused some degree of disability. As for the PDG in relation to gender (40 women and 59 men), the results show that 35 (87.5%) cases referring to the female gender had a disability assessment of G0 PD, 3 (7.31%) G1 PD, and 2 (4.87%) G2 PD. Regarding the male gender, there were 38 (64.4%) with G0 PD, 14 (22.23%) with G1 PD, and 7 (11.11%) with G2 PD. There was no assessment of 3 (4.76%) males and of 1 (2.46%) female. An assessment of ignored /blank was given to only 1 patient (1.59%) of the male gender.

By the time they were cured, patients who presented G0 PD amounted to 63 cases (60.57%); G1 PD were 6 cases (5.8%) and G2 PD to 2 cases (1.9%); 3 were not assessed (2.9%) and 30 (28.8%) were not in the system, allowing for the assumption that a considerable amount of patients does not get notified for the exam at the time they are discharged.

The previous analyses were followed by the assessment of the probability for the physical disability grade varying with respect to gender. The odds ratios significantly indicate that the risk for women suffering from Hansen's disease not having physical disabilities *at the time of diagnosis* is about 4 times higher to that of men (OR= 3.868; CI 95%= 1.316-11.368). However, *at the time of cure*, despite the odds ratio value indicating that the probability of a correlation is higher than 1 (OR= 1.250; CI 95%= 0.275-5., 692), this is not statistically significant (Fischer p= 1.00), leaving the option of whether or not these findings should be considered clinically relevant open. (Table 2).

Table 2 – Physical Dis/ability regarding Gender

At the time of Diagnosis	Gender		Male		Chi-square χ^2	p
	Female	Male	n	%		
Dis/Ability						
Without any Physical Disability – Grade 0	35	87.5	38	64.4	6.565	0.010
With Physical Disability – Grades 1 and 2	5	12.5	21	35.6		
Total (99)	40	100.00	59	100.00		
At the time of Cure						Fischer
Without any Physical Disability – Grade 0	27	90.0	36	87.8		
Affected with Physical Disability – Grades 1 and 2	3	10.0	5	12.2		1.00
Total (71)	30	100.00	41	100.00		

The *clinical form* with the highest grade of physical disability was *Dimorphic Leprosy* with 4% of cases with Grade 2, with 6% of cases with Grade 1 and with 21% of patients with Grade 0. In the *Indeterminate* clinical form Grade 0 of Disability was of 17%, Grade 1 of 2% and Grade 2 of 1%. Regarding the *Tuberculoid* form, 23% were Grade 0, 2% Grade 1 and 1% Grade 2. In the *Virchowian* form 3% were Grade 0 and 2% Grade 1, without any cases of Grade 2 reported. Five cases were not classified and there were 13 cases in the system without any information on the disability grade.

The study of the *Physical Disability Grade versus Operational Classification* demonstrated that the highest grade of disability was detected in the *multibacillary operational classification*, amounting to 8 cases with Grade 2, representing 8% of the people studied. With Grade 1 there were 13% of multibacillary cases. The analysis of all of the cases allowed for the realisation that 53% of the participants were classified as multibacillary and 42% were classified as paucibacillary, demonstrating that the disease's diagnosis happens far too late. Despite the late diagnosis, there is an assessment of the patients' disability grade at the time of diagnosis, at the time of treatment and at the time of discharge. However, and because at the time of diagnosis paucibacillary patients have already been identified as having Grade 1 disability, it is important to highlight the need for continued monitoring and the importance of health education for this population.

3 - DISCUSSION

The *operational classification of Hansen's disease* in this study revealed a more significant incidence of multibacillary cases (those with more than five skin lesions). This type of Hansen's disease patient has an increased risk of transmitting the disease to its close contacts, given that transmission occurs with intimate and prolonged contact with the diseased, untreated person. It is known that 90% of people have a natural defence against the bacillus of Hansen's disease and that this defence is genetically influenced (Minuto biomedicina, 2015). Among the multibacillary, the highest prevalence was in people of the male gender, as demonstrated in the study by Lima and Aguiar (2015, p.6) in which the epidemiologic behaviour of this occurrence was predominant in the male gender and in the age group of those who were economically active, because diagnosis is still very late despite the constant public policies attempting to eradicate this disease.

The difference in prevalence regarding gender might be explained by the fact that men are not in the habit of caring for their own health or of adopting simple behaviours like observing their own body, which might facilitate early diagnosis and avert unwanted sequelae, thus improving their quality of life.

A study carried out in Santa Catarina, Brazil, demonstrated that the clinical form with the highest prevalence in the male gender was *Virchowian leprosy* with 39.1% of cases. Among the female gender it was likewise verified that the *Indeterminate* and *Dimorphic* forms were more frequent, representing 28.5% each, and within the multibacillary, 55.6% represented the *Virchowian* form and 29.6% the *Dimorphic* form". (Lima & Aguiar, 2015, p. 6).

The most prevalent *clinical form* was the *Dimorphic* with 33 cases, followed by the *Tuberculoid* with 27 cases. 18 cases were not classified as to clinical form, yet the operational classification revealed a prevalence of multibacillary cases. There was only one case of *Indeterminate* or *Tuberculoid* and the remaining 17 cases were distributed under either *Dimorphic* or *Virchowian*, which demonstrates the disease's endemicity in the municipality, especially of the presence of *Virchowian* cases which have a high bacillus load.

In a study on the prevalence of the clinical forms of Hansen's disease in the city of Anápolis-GO, the notifications carried out supported the ascertaining of a higher prevalence of *Dimorphic Leprosy* with 367 cases (69.91%), followed by *Virchowian*

Leprosy with 96 cases (18.29%), Indeterminate Leprosy with 27 cases (5.14%) and Tuberculoid Leprosy with 9 cases (1.71%) (Lima, Martins, Honorato, Lopes, Moura, Nogueira, Gonçalves, 2012, p. 55-67).

According to another study, there was also a predominance of the Dimorphic clinical form in the diagnosed cases operationally classified as multibacillary, corresponding to 57.1% of the total of new cases. The year 2009 is worthy of note, seen as it had the largest number of detections, corresponding to 33% of the total of diagnosed cases in that period. Emphasis should also be given to 2010, marked by a larger proportion of dimorphic cases when compared to the other years under study. It is important to stress that within the paucibacillary cases the Indeterminate clinical form was predominant, corresponding to 22% of the total number of cases (Ribeiro, Fabri, Amaral, Machado & Lana, 2014, p.728-35).

The clinical presentation of Hansen's disease in the study by Mesquita (2014) revealed that 11 patients (21.6%) had the Tuberculoid form; 10 (19.6%) had the Dimorphic form; and 9 (17.6%) had the Virchowian form. That information was not available for 21 patients (41.2%).

The *prevalence* of the patients' *Physical Disability Grade* assessed at the time of diagnosis was of 73 cases (70.20%) with *PDG 0*, which supports the possibility of there being less physical damage when the prevention of physical disabilities is guaranteed by a qualified professional at the beginning, middle and end of treatment. In 30 cases within the municipality there were no records in the assessment's information system at the time of cure. Conversely, there was a prevalence of physical disability with *PDG 0* in 63 cases (60.57%) at the time of cure.

In the study by Alves, the Disability Grade prior to treatment was 0 (PDG 0) in 35% of patients, PDG 1 in 34% of patients and PDG 2 in 26% of patients. In 5% of cases no data for assessment was found (Alves et al, 2010, p. 460-461).

In a research study involving 11 municipalities of Paraná, it was observed that a part of the population was in its working age, out of which 79.8% had some degree of disability. The sequelae were more frequent in the lower limbs, with the occurrence of claw feet, dryness of the skin, fissures, plantar lesions, etc. (Sobrinho, Mathias, Gomes & Lincoln, 2007, p. 1125-1130).

According to another study, Sobrinho, Silva de Freitas, Gomes, Alves; Lincoln and Barbosa (2007), 20.2% of cases were of Grade 0 disability; 41.4% were of Grade 1 disability, followed by 38.4% with Grade 2 disability, which demonstrates that most participants were already developing disabilities at the beginning of the treatment.

In the analysis of the epidemiologic profile of Hansen's disease in a study carried out in Maricá, it was ascertained that 157 (85.8%) out of 183 registered patients were examined and 51 (27.9%) had either Grade 1 or 2 of Physical Disability (PDG). There were no cases with PDG 2 during the years 2000 to 2002, 2007 and 2008; and the proportion of cases of Hansen's disease with PDG 2 at the time of diagnosis was considered average (5 to 9.9%) for the period between 2004 to 2006, while for the period between 2009 and 2013 it was high (equal to or higher than 10%). In that study, 157 (85.8%) patients were graded for their PDG for all the years under study, and it was reported that all of them presented either Grade 1 or 2 of PD (de Oliveira, Leão & Britto, 2014, p. 819).

The percentage of cure in the cohorts is an indicator of results of the activities of spotting cases and measures the services' effectiveness in ensuring adherence to treatment until the discharge date. In 2008 that indicator's result was of 81.3% for the country, a figure that increased in 2009 to 82.1% (85% in PB cases and 80% in MB cases). The irregularity in treatment reduces the chances for Brazil to increase the percentage of cure in the cohorts of new cases of Hansen's disease. In this manner, in order to increase the percentage of cure in the cohorts, improvements in the distribution and actual application of medication, as well as the timely update of the Notification System regarding the patient's type and date of exit (OPAS, 2015) will be necessary.

Furthermore, it is also urgent to begin the assessment and record of disabilities, an essential procedure for the education and promotion of self-care and in order to prevent the development of physical disabilities after medication therapy. (Rodini, 2010, p.157-166).

CONCLUSIONS

Hansen's disease is an infecto-contagious curable. Thus, managing this illness should not be solely restricted to controlling the large number of cases, but conversely, it should also include the consideration of its high debilitating potential which generates economic losses and psychologic traumas and may influence the patient's job and social life.

This research allowed to assess patients of Hansen's disease diagnosed in the municipality of Cabo de Santo Agostinho, Recife, Brazil. It was further ascertained that this nosologic entity still presents a considerable amount of late diagnosed cases in the municipality, given that we found multibacillary cases with a high bacillus load which were prevalent during the period under study. Most patients were diagnosed with the dimorphic clinical form. However, the largest occurrence was of individuals without any deformities and Grade 0 of Physical Disability was prevalent, despite there being patients with confirmed disabilities. The chain of transmission and children's early exposure to high bacillus load increases the population's risk of falling ill. In this study, we also observed that there were children and adolescents diagnosed with the disease, which demonstrates endemicity in the municipality. This reality was verified in the State of Pernambuco, Brazil, where the coefficient of detection of new cases

in the population under the age of 15 classifies it as hyperendemic, placing it in the 6th position in coefficient and in the 3rd position in absolute number of cases, reflecting the existence of hidden endemicity in the state. Cases are distributed in most municipalities of the 12 Health Regions, with 40% concentrated in the 1st Health Region, where the municipality is located (Pernambuco, 2013). Accordingly, decisions concerning the measures that should be implemented should consider the epidemiologic singularities of the disease in relation to age group and geographical context. It is also worth stressing the fact that men are more affected by severe forms of the disease and present a higher grade of physical disability than women.

The Enhanced Global Strategy for Further Reducing the Disease Burden Due to Leprosy: 2011-2015, establishes concrete objectives for the fight against Hansen's disease, wherein it lists a series of strategies and guidelines for the managers regarding their role and highlights the urgency of an equitable and socially just access to health services. This is indeed a guidebook worth following, seen as it addresses issues like the importance of an effective reference system capable of integrating the remaining basic services and contributing to an effective backup system for the professionals who seek support. The active search of cases within the community, the correct examination of the contacts in the diagnosed cases, the systematic monitoring of patients in the healthcare units, as well as the use of health education strategies (OMS, 2010), are all examples of possible strategies.

Knowing that Hansen's disease develops causing disabilities and also leads to problems of psychological origin and lack of family support, prejudice and stigma in the social memory, exclusion from social life of the people suffering from this disease (Carvalho, 2013, p. 47-55), it is important to deepen scientific knowledge about the best way to control the disease nowadays. Carrying out the assessment is as important as its maintenance and the reinforcement of self-care in all the consults, seen as both clinical practice and evidence show that patients with severe lesions, even when cured of the illness are not cured from their disability. Other studies must be carried out so as to assess the influence of health policies in clarifying issues pertaining to the epidemiologic singularities of the disease in this region and in the specificity of the environmental context.

The data of the patients who are diagnosed, included the Notification Form, should be adequately filled in so as to supply the notification system (SINAN) which still shows some weaknesses because of lack or failure in information, whether because data are absent or due to nullity of procedures carried out by the several professionals, such as disability assessments which are often carried out by trained professionals but not kept in record. We further highlight the need to improve work processes, raising awareness among the professionals for the effective assessment of results in clinical practice and of the completion and delivery of the monthly Bulletins and Notification Forms in Epidemiologic Surveillance which should be improved seen as any delays in delivery hinders data update and the monitoring of patients. An adequate and reliable record will allow building safe indicators in the areas of clinical practice, epidemiology, and policy making with management and research potential in the future.

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