

PROFILE OF PERSONS WITH AND WITHOUT COMORBIDITIES, STRICKEN BY LEPROSY REACTIONS*

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ABSTRACT: This study aimed to identify clinical and epidemiological characteristics in patients with and without comorbidities from leprosy and leprosy reactions. It is quantitative, descriptive and correlational research, undertaken through 65 interviews in a specialized center in Rio Grande do Norte, Brazil, with data collected between October 2013 and March 2014. The men represented most of the group without comorbidities, while women and older adults represented the group with comorbidities. High frequencies in the two groups point to the Lepromatous form as the most common, and to some degree of disability. There was positive correlation between number of other drugs versus other comorbidities and negative correlation between number of people who live with the interviewee versus the number of comorbidities which the interviewee has. Late diagnosis was evidenced due to high frequencies of disabilities, as well as groups at risk for leprosy reactions and comorbidities, made up of women, older adults, people with low educational level, people who did not work and those who used a higher number of medications.

DESCRIPTORS: Leprosy; *Mycobacterium leprae*; Communicable diseases; Neglected diseases.

PERFIL DE PESSOAS COM E SEM COMORBIDADES ACOMETIDAS POR REAÇÕES HANSÊNICAS

RESUMO: Objetivou-se identificar características clínicas e epidemiológicas em pacientes com e sem comorbidades por hanseníase e reações hansênicas. Pesquisa quantitativa, descritiva e correlacional, realizada por 65 entrevistas em um centro de referência potiguar, com coleta de dados entre outubro de 2013 e março de 2014. Os homens representaram mais o grupo sem comorbidades, enquanto as mulheres e os idosos o grupo com comorbidades. Altas frequências nos dois grupos apontam para a forma Virchowiana como mais incidente e para algum grau de incapacidade. Houve correlação positiva entre quantidade de outros medicamentos versus outras comorbidades e negativa entre quantidade de pessoas que moram com o entrevistado versus número de comorbidades que este possui. Foram evidenciados diagnósticos tardios em virtude de altas frequências de incapacidades, bem como grupos de risco para reações hansênicas e comorbidades, composto por mulheres, idosos, pessoas com baixa escolaridade, que não trabalhavam e que utilizavam maior quantidade de medicamentos.

DESCRIPTORIOS: Hanseníase; *Mycobacterium leprae*; Doenças transmissíveis; Doenças negligenciadas.

PERFIL DE PERSONAS CON Y SIN COMORBILIDADES ACOMETIDAS POR REACCIONES DE LA ENFERMEDAD DE HANSEN

RESUMEN: Estudio cuyo propósito fue identificar características clínicas y epidemiológicas en pacientes con y sin comorbidades por enfermedad de Hansen y reacciones a esa enfermedad. Investigación cuantitativa, descriptiva y correlacional, realizada por 65 entrevistas en un centro de referencia. Los datos fueron obtenidos entre octubre de 2013 y marzo de 2014. Había más hombres en grupo sin comorbidades, en cuanto las mujeres y los ancianos representaron más el grupo con comorbidades. Altas frecuencias en los dos grupos apuntan para la forma Virchowiana como la con más incidencia y para algún grado de incapacidad. Hubo correlación positiva entre cantidad de otros medicamentos versus otras comorbidades y negativa entre cantidad de personas que viven con el entrevistado versus número de comorbidades que este presenta. Fueron evidenciados diagnósticos tardíos en función de altas frecuencias de incapacidades, así como grupos de riesgo para reacciones hansênicas y comorbidades, compuesto por mujeres, ancianos, personas con poca escolaridad, que no trabajaban y que utilizaban mayor cantidad de medicamentos.

DESCRIPTORIOS: Enfermedad de Hansen; *Mycobacterium leprae*; Enfermedades transmisibles; Enfermedades negligenciadas.

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INTRODUCTION

Leprosy is one of the oldest diseases to affect Man. References to it date back to 600 BC⁽¹⁾, and since ancient times it has been considered contagious and mutilating, bringing with it rejection, discrimination and exclusion of the ill person in society⁽²⁾.

It is an infectious-parasitic, chronic, granulomatous and slow-progressing disease, caused by *Mycobacterium leprae*, a bacillus which predominantly infects the cells of the skin and the peripheral nerves, causing lesions in these places⁽³⁾.

The main causes of morbidity from leprosy are related to the deformities and physical disabilities. These forms of harm originate in the leprosy reactions or reactional states, which are caused by reactions of the immunological system of the person affected by leprosy to the bacillus which causes the disease. The reactions are classified as type I, also known as reversal reaction, and type II, also termed erythema nodosum leprosum⁽¹⁾.

The leprosy reactions constitute an important event in the progression of the leprosy, bearing in mind that there is no single specific treatment which can impede their occurrence, there are no treatment regimens which are efficacious for all cases, and that during the reactional episodes, worsening of the neurological lesions occurs, with a consequent increase in the physical disabilities⁽⁴⁾.

The prejudice and the reduction in quality of life are also worsened with the presence of the reactional states, which directly interfere in the physical, psychological, social and economic conditions of those who have the disease, who come to feel ashamed of themselves and to suffer unemployment, as well as facing problems in their marriages and difficulties in finding partners⁽⁵⁾.

Furthermore, the complications provoked by leprosy increase the need for care on a daily basis, whether as a result of its own specific characteristics, or through the disease's associations with other health issues⁽⁶⁾. Moreover, the leprosy reaction itself is indicated as being the most frequent reason for confirmed deaths from this pathology⁽⁷⁾.

In the light of what has been discussed above, it is understood that attending individuals in

reactional states must go beyond care directed purely towards the complaints, signs and symptoms brought by leprosy and/or by the reactional states, it being necessary to respond to the other health needs which the individuals present, as well as to their social, economic or psychological needs.

Faced with new social, political and cultural challenges, the exhaustion of the biomedical paradigm and the change in the epidemiological profile of the population which has taken place over recent decades, the need emerges for a change in the care practices, so as to conceptualize the individual as a subject, inserted in different contexts and directly influenced by his social determinants, that is, to understand him as a whole⁽⁸⁾. This study's objective was to identify the main clinical and epidemiological characteristics in patients with and without comorbidities, stricken by leprosy and leprosy reactions.

METHOD

In order to achieve the proposed objective, the researchers undertook a study with the cognitive approach and a descriptive, correlational and transversal character⁽⁹⁾. The sample, which resulted in 65 participants, was calculated in accordance with statistical formula. It included patients who undertook periodical monitoring for the treatment of leprosy reactions in the specialized clinical center chosen for the study, these being of any age or sex. The people with leprosy reactions who did not undertake treatment in the clinical center, as well as those considered cured, who only undertook treatment for illnesses resulting from leprosy were excluded from the study. After the sample was known, this was divided in two groups, the first made up of patients with leprosy and leprosy reactions (N = 37) and the second with leprosy, leprosy reactions, and comorbidities (N = 28).

The research scenario selected was a specialized clinical center for the treatment of leprosy in the city of Mossoró and the mesoregion of Oeste Potiguar. It is a multi-professional care unit staffed by persons from seven professions who undertake all the activities proposed by the Leprosy Control Program.

For the data collection, between October

2013 and March 2014, a semistructured interview and a physical examination were undertaken, held in that order, individually, in a place set aside for the purpose and through self-referral. The interview was made up of questions regarding clinical, social and epidemiological aspects and the physical examination was based on a guiding script, constructed based on instruments validated by the Ministry of Health (File "A" of the Primary Care System and the Medical Record for Monitoring Cases of Leprosy).

The data were tabulated and analyzed using the Statistical Package for the Social Sciences (SPSS) software, version 20. Descriptive statistics was used, returning frequencies, means and standard deviations, and subsequently the Chi-squared test and Spearman Correlation were used, considering for both the level of significance of 5% (0.05). The objective of the tests was to compare the results between the groups.

The ethical principles suggested for the case were taken into consideration, such as the approval of the project by the Research Ethics Committee under Opinion N. 356.765, respect for the Helsinki Declaration and National Health Council Resolution N. 466, of 12/12/12. Care measures were adopted such as the requesting of authorization of permission for research on the part of the institution, privacy in the collection and in the storage of the data, provision of general information on the research, and the voluntary condition of participation through the Terms of Free and Informed Consent, as well as respect for the general conditions of the human person.

RESULTS

The group formed of patients with comorbidity was characterized by persons with up to six of the pathologies, the existence of one of these being mentioned in the majority of cases (60.7%). In total, 36 different pathologies were cited, with diabetes mellitus, arterial hypertension and osteoporosis/osteopenia being equally the most frequent, cited six times (16.7%) each. Mental disorders were mentioned five times (13.9%). Anemia, kidney diseases, arthrosis and heart disease appeared twice each and five other pathologies were mentioned just once (2.8%).

The analysis of the results through comparison

of the groups with and without comorbidities suggests differentiated patterns, however, the Chi-squared test indicates significant differences only in terms of sex ($p = 0.046$) and age range ($p = 0.035$). In relation to sex, the sample is more representative of men without comorbidities (38.46%); on the contrary, women were the most frequent in the group with comorbidities (24.61%). (Table 1).

The ages varied between 13 and 79 years old ($M = 48.8$; $\sigma = 0.499$) and were categorized as adults and older adults (the WHO defines the older adult as a person aged sixty years old or over). As the age of 13 years old was presented by only one individual, this was included in the closest category, that of the adults. The adults without comorbidities represented nearly half of the sample (49.2%). The older adults (15.4%) were more present in the category with other comorbidities.

The majority of the people were from the urban zone of Mossoró (84.6%) and, of these, 46.2% did not mention having another pathology. When they were requested to state their color, smaller percentages were found in self-reference to being of mixed black and white descent, only 10.8%. It is worth emphasizing that people of European descent were most represented in the group without comorbidities (53.8%) and people of African descent in the group with comorbidities (21.5%).

Of the 24 occupations mentioned, being a housewife/househusband (13.8%) was the most mentioned, followed by retired (12.3%), maid (10.7%) and agricultural worker (9.2%). Only two people reported being unemployed. Eleven occupations appeared only once each. In order to facilitate the analysis, the occupations were grouped in two categories (working or not working). Most of the people who worked did not have comorbidities (44.6%) while the category made up of persons who did not work was made up at a higher frequency of persons with comorbidities (18.4%). When educational level was investigated, it is observed that the majority (83%) was illiterate or had not completed Junior High School. The family income of both groups was distributed more in the classification of up to one minimum salary.

Generally speaking, the majority of the people with and without comorbidities stated that they lived in their own house (80%), with piped water

(96.9%), a sewage network or septic tank (95.3%), had their garbage collected (93.8%), and had electricity (98.9%). The groups did not present major variation, at the maximum, two people in each group did not have these living conditions. Up to eight residents in each dwelling were mentioned, which had up to eight rooms.

The correlational analysis undertaken using the Spearman's Rho test points to a weak negative correlation ($\rho = -0.238$; $p = 0.056$), which is not significant, between the number of people who live with the interviewee and the number of comorbidities which this has. That is to say, the higher the number of people living

with the interviewee, the lower the number of comorbidities identified, with the opposite also being true.

Table 2 indicates that 70.8% of the patients were diagnosed with some disability in the clinical examination, degree I or II, with high frequencies in the groups with and without comorbidities. On investigating the clinical forms of leprosy, one can observe a predominance for the lepromatous and dimorphous (borderline) forms, with greater frequency for the lepromatous form in the group without comorbidities, which corresponded to 32.3% of the total. The Indeterminate form was not found. (Table 2).

Table 1 - Patients with leprosy reactions in groups with and without comorbidities, by sociodemographic variables. Mossoró-RN-Brazil, 2013-2014

Variables	Comorbidities					
	Present		Absent		Total	
	n	%	n	%	n	%
Sex						
Female	16	24,6%	12	18,5%	28	43,1%
Male	12	18,5%	25	38,5%	37	56,9%
Age range						
Adult	18	27,7%	32	49,2%	50	76,9%
Older adults	10	15,4%	5	7,7%	15	23,1%
Housing						
Rural Zone	3	4,6%	7	10,8%	10	15,4%
Urban Zone	25	38,5%	30	46,2%	55	84,6%
Cor						
White	14	21,5%	22	33,8%	36	55,4%
Black	14	21,5%	8	12,3%	22	33,8%
Mixed	0	0,0%	7	10,8%	7	10,8%
Occupation						
Does not work	12	18,5%	8	12,3%	20	30,8%
Works	16	24,6%	29	44,6%	45	69,2%
Education						
Illiterate/Junior High	24	36,9%	30	46,2%	54	83%
Senior High	4	6,2%	7	10,7%	11	16,9%

Questioned regarding the medication used for treatment of the reactional states, attention is called to a higher number using prednisone associated with thalidomide in the absence of use in isolation of thalidomide in persons with comorbidities. Regarding the use of other medications, the interviewees reported using up to eight. A significant positive correlation was found ($\rho = 0.257$; $p = 0.039$) between the number

of medications and of the other comorbidities, indicated by the Spearman's rank correlation coefficient. Although weak, it indicates that the higher the number of medications used by the patients, the higher the number of comorbidities presented by them.

Table 2 - Patients with leprosy and leprosy reactions in groups with and without comorbidities, by degree of current disability and clinical form. Mossoró-RN-Brazil, 2013-2014

Variables	Comorbidities					
	Present		Absent		Total	
	n	%	n	%	n	%
Disability						
Degree 0	9	13,8%	10	15,4%	19	29,2%
Degree I	10	15,4%	18	27,7%	28	43,1%
Degree II	9	13,8%	9	13,8%	18	27,7%
Clinical Form						
Tuberculoid	3	4,6%	3	4,6%	6	9,2%
Dimorphous	10	15,3%	11	16,9%	21	32,3%
Lepromatous	14	21,5%	21	32,3%	35	53,8%
Pure Neuritic	1	1,5%	2	3,1%	3	4,6%

DISCUSSION

Although leprosy affects both sexes, its predominance among men is also observed in other studies^(1,10-11). However, when the health indicators in men and women from Brazil are observed, it may be perceived that women have poorer general performance in factors such as diet, physical activity, body weight, high cholesterol, fasting glycemia and high blood pressure, for example⁽¹²⁾, a situation which contributes to the appearance of illness. This indicates that in spite of programs and campaigns suggested by the Brazilian Ministry of Health, and geared towards the monitoring of more frequent pathologies such as hypertension and diabetes, the promotion of health and prevention of health problems have not achieved a satisfactory result for the service users.

There are reports in the literature of long periods of incubation for leprosy, of up to ten years, which increases the possibility of a person falling ill in the adult and older adult phase. The incidence of cases in people below 15 years of age is more frequent in endemic regions, such as Mossoró, in particular in non-treated homes, which are focusses of illness, which expose children to the disease at an early age⁽¹⁾. Emphasis is placed on the need for care for older adults on the part of the health system, given that the majority of these present other pathologies in addition to leprosy. This is a public which is already considered to be more exposed to pathologies in general, especially if one considers the biological, psychological and social factors of their weakness⁽¹³⁾.

The results show that being of African descent is more associated with comorbidities. Indeed, one study undertaken in Brazil shows that the majority of deaths investigated resulting from complications of leprosy has the profile of people who are black or of mixed descent⁽⁷⁾.

It is important to emphasize the possible increase in social support which takes place in conjunction with the number of people who live with the interviewee, provoking a negative correlation with other comorbidities. This concept involves information of any origin, material assistance and protection offered by those who provide systematic contacts and positive effects⁽¹⁴⁾. Therefore, people who share social relationships may perceive themselves as cared for and loved, as well as belonging to a network made up of figures of social support. This condition is configured as protection which constantly protects the individual from risks caused by pathological crises⁽¹⁵⁾.

In general, sociodemographic characteristics found in this study converge with those of others undertaken in Brazil which indicate the poor socioeconomic and informational conditions as factors which help to maintain the high rates of leprosy⁽¹⁶⁻¹⁷⁾. The low educational level entails fewer opportunities for contact with coherent and reliable information on the illness and on better-paid work, which, together, can directly influence these peoples' unfavorable housing, hygiene and health conditions, promoting environmental conditions for infection by *M. leprae*.

High rates of disability in the groups with and

without comorbidities are a matter for concern. The percentage found in this study seems high (70.8%) in comparison with a study undertaken in Piau , also in the Northeast region of Brazil, which indicates that 20% of cases of leprosy result in some degree of disability⁽¹⁸⁾ and that the diagnoses may be occurring at a late stage. In addition to this, the high rates of disability and the greater frequency of people with comorbidities in the group which did not work seem to be explained.

The physical disabilities can cause harm ranging from social and economic problems to physical and psychological issues. The health and disability conditions, however, do not seem sufficient to explain the occupational performance of persons with neurological sequelae⁽¹⁹⁾. Often, the environmental and personal factors, such as motivation and poverty, can influence the process of seeking work.

Regarding the use of medications for the leprosy reactions, it is known that the combined treatment with thalidomide and prednisone is indicated for cases in which the type 2 reactions are more intense and difficult to control. This type of reaction can also be termed Erythema Nodosum Leprosum and is mediated by humoral immunity⁽¹⁾. Thalidomide is the drug of choice for type 2 reactions, although it is not indicated for women of a fertile age due to its teratogenic effects. As the sample with comorbidities was represented largely by women, a lower amount of use of this drug in isolation is understood. Even so, the greater frequency of the combined use in the group may represent a major risk in situations of pregnancy⁽⁴⁾.

It is worth emphasizing that in spite of their important anti-inflammatory effect, the prolonged use of corticosteroids can provoke serious adverse effects, thus becoming a factor which complicates the patient's clinical condition; among the adverse effects, one can cite: metabolic changes such as glucose intolerance and the development or decompensation of diabetes, a rise in cholesterol and triglycerides and increase in intra-abdominal fat; endocrine changes, such as growth deficit, menstrual changes and pancreatitis; changes in the hydro-electrolyte balance of calcium, potassium and sodium; musculoskeletal changes such as osteoporosis, muscular weakness and loss of muscle mass; hematological changes

such as leukocytosis, reduction in eosinophils and lymphocytes, increase of platelets, and renal changes such as urolithiasis⁽²⁰⁾.

In addition to this, gastrointestinal changes may occur, such as esophagitis, predisposition to gastro-duodenal ulcers and abdominal distention; ophthalmological changes such as cataracts and glaucoma; changes in the nervous system, such as intracranial hypertension, mood disorders, psychoses, changes of personality, convulsions, dizziness, headache, irritability and insomnia: cardiovascular changes, such as systemic arterial hypertension and the triggering or worsening of congestive heart failure and immunological changes, contributing to the development of infections and parasitosis⁽²⁰⁾. As a result of these numerous adverse effects, the greater occurrence of comorbidities in the patients who make use of prednisone may be directly related to the prolonged use of this drug.

Although the patients use various other drugs, besides those for the conventional treatment of the leprosy reactions, one can perceive that the majority of them are directed towards the side effects of the treatment or implications of the leprosy and that little has been invested in care seeking to control the comorbidities. Therefore, although the patients have knowledge regarding the presence of other pathologies, the drug treatment appears to be insufficient, which reinforces the need for better monitoring and referral on the part of the professionals who work with persons with leprosy reactions and comorbidities.

CONCLUSION

In achieving the objective posed in the study, it was observed that one of the parts of the population historically situated on the edge of society and constantly the target of prejudice appeared to be affected by leprosy, leprosy reactions and comorbidities. This portion was made up in particular by women, older adults, persons with low income and low educational level, and with some degree of disability, in which they obtained high frequencies in the combination of the three risk factors for health. Emphasis is placed on the risk posed by the large number of drugs used among people with leprosy

reactions and comorbidities, these medications not yet being specific to the treatment of the comorbidities; emphasis is also placed on the benefit of the higher number of other inhabitants in the residence of the person with leprosy, related to a lower possibility that this has of presenting comorbidities.

The percentage of participants with comorbidities reflects the need for holistic monitoring of health geared not only to the monitoring of an illness, or medicalization of the symptoms, but to the search for specialized therapies aiming for diagnosis at an earlier stage, to improve the quality of life and to change the current profile of leprosy in Brazil. Furthermore, it is necessary to improve the work in education, supervision, sensitization and raising awareness so as to achieve diagnosis at an earlier stage, minimize disabilities and improve these people's quality of life.

This study's contributions lie in the fact that it calls attention to a disease which is overlooked and even forgotten through the low investment in control and detection actions, but which is endemic in many cities, as in that investigated in the present study. The search to identify the clinical and epidemiological characteristics in persons with leprosy and comorbidities becomes one more tool for combating the disease, taking into account the difficulty of identifying this profile, and favors the development of preventive measures which allow the reduction of the disabilities resulting from leprosy reactions.

It is known that the properties of diseases vary, depending not only on their intrinsic characteristics, but, above all, on the individual relationship of the host, environmental factors, and on the bacteria itself⁽¹⁾. It is recommended, therefore, that this issue should be investigated in greater depth in different localities, investigating other variables and with a broader sample, so as to better investigate this group of people who struggle in an exhausting and long-lasting battle, but who coexist with various symptoms and pathologies which threaten their physical, mental, economic and social health.

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