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ORIGINAL ARTICLE

PHYSICAL AND FUNCTIONAL EVALUATION OF PATIENTS WITH LEPROSY

AVALIAÇÃO FÍSICA E FUNCIONAL DE PACIENTES COM HANSENÍASE

EVALUACIÓN FÍSICA Y FUNCIONAL DE LOS PACIENTES CON LEPRA

Pollyanna Brandão Bezerra[1], Mariana Carolina de Lima Silva[2], Maria do Carmo Ferreira de Andrade[3], Lícia Vasconcelos Carvalho da Silva[4]

ABSTRACT

Objective: recognizing the degree of functionality of individuals affected by Leprosy. ***Method:*** a descriptive study conducted with 30 patients in a countryside city of Pernambuco. About physical evaluation, muscle strength was measured using the Medical Research Council Scale, while sensitivity, trophism and the presence of deformities were evaluated by the Physical Evaluation Protocol for Leprosy Patients. Functional evaluation used the SALSA Scale (Screening Activity Limitation and Safety Awareness) and the Participation Scale. Data were analyzed using SPSS 13.0 software. The project was approved by the Research Ethics Committee, Protocol nº. 136/10 CEP/ASCES. ***Results:*** regarding the degree of disability, 66,7% of affected individuals had grade 1; regarding the participation, 70% have shown no significant restriction, and 43,3% of the individuals did not show limitations in daily activities. ***Conclusion:*** the assessed individuals have no great physical and functional limitation. ***Descriptors:*** Leprosy; Disability Evaluation; Social Participation.

RESUMO

Objetivo: conhecer o grau de funcionalidade de indivíduos acometidos por Hanseníase. ***Método***: estudo descritivo realizado com 30 pacientes, numa cidade do agreste de Pernambuco. Na avaliação física, a força muscular foi mensurada por meio da escala Medical Research Council, enquanto sensibilidade, trofismo e presença de deformidades foram avaliados por meio do Protocolo de Avaliação Física para Pacientes de Hanseníase. A avaliação funcional utilizou a Escala SALSA (Screening Activity Limitation and Safety Awareness) e a Escala de Participação. Os dados foram analisados no programa SPSS 13.0. O projeto foi aprovado pelo Comitê de Ética em Pesquisa, Protocolo nº. 136/10 CEP/ASCES. ***Resultados***: quanto ao grau de incapacidade, 66,7% dos indivíduos acometidos apresentaram grau 1; em relação à participação, 70% se mostraram sem restrição significativa, e 43,3% dos avaliados não apresentavam limitações nas atividades diárias. ***Conclusão***: os indivíduos avaliados não apresentam grande limitação física e funcional. ***Descritores***: Hanseníase; Avaliação da Deficiência; Participação Social.

RESUMEN

Objetivo: conocer el grado de funcionalidad de las personas afectadas por la lepra. ***Método:*** este es un estudio descriptivo con 30 pacientes en una ciudad del interior de Pernambuco. En el examen físico, la fuerza muscular se midió mediante la escala del Medical Research Council, mientras sensibilidad, trofismo y presencia de deformidades fueron evaluados por el Protocolo de Evaluación Física para los Enfermos de Lepra. La valoración funcional utiliza la Escala SALSA (Limitación de la Actividad de Investigación y Conocimiento de la Seguridad) y la Escala de Participación. Los datos fueron analizados utilizando el software SPSS 13.0. El proyecto fue aprobado por el Comité de Ética en la Investigación, Protocolo nº. 136/10 CEP/ASCES. ***Resultados:*** el grado de discapacidad, el 66,7% de los individuos afectados tenían grado 1; sobre la participación, el 70% ha mostrado ninguna restricción significativa, y el 43,3% de los individuos no tienen limitaciones en las actividades diarias. ***Conclusión:*** las personas señaladas no tienen gran limitación física y funcional. ***Descriptores:*** Lepra; Evaluación de Discapacidad; La Participación Social.

[1]Physiotherapist, Master's Student, Postgraduate Program in Children and Adolescents' Health, Federal University of Pernambuco/POSCA/UFPE. Recife (PE), Brazil. Email: polly_brandao@hotmail.com; [2]Physiotherapist, Faculty ASCES. Gravata (PE), Brazil. Email: marizinha_cl@hotmail.com; [3]Odontologist, Specialist Professor in Health Systems and Services, Public Health Specialist, Courses of Physiotherapy and Physical Education, Health Training Center Coordinator, Faculty ASCES. Caruaru (PE), Brazil. Email: docarmoandrade@hotmail.com; [4]Physiotherapist, Master Teacher, Department of Physiotherapy, Faculty ASCES, Doctoral Student, Postgraduate Program in Children and Adolescents' Health, Federal University of Pernambuco/POSCA/UFPE. Recife (PE), Brazil. Email: liciavcarvalho@gmail.com

INTRODUCTION

Leprosy is considered a serious public health problem in Brazil, which showed 33.955 cases reported in 2011, corresponding to the second country in the world in number of individuals with leprosy.[1,2] Featured is the northeastern Brazil, which is among the regions with the highest coefficients of cases of the disease, Pernambuco is the third state in pathology detection rate in the Northeast.[3,4] According to the Ministry of Health, in 2011 Pernambuco had a prevalence rate of leprosy 2.7 cases per 10.000 inhabitants.[5]

Leprosy has a high degree disabling when it is not diagnosed and treated properly. With the evolution of untreated disease, disability and deformities can lead to reduced performance in work activities, restrictions in social and psychological damage in patients.[6,7] In this sense, and considering the chronicity of the disease, the physical and functional assessments need to be performed regularly for early detection of possible diseases.

The use of instruments for evaluation of physical limitations, the functional performance of these patients in specific activities and restrictions in participation in life situations gives an understanding of the impact of the disease on the individual's health, facilitating the establishment of more complex and effective therapeutic measures as well as the prevention of disabilities.[8]

This study aims to evaluating the level of functionality of individuals affected by leprosy.

METHOD

This is a descriptive study of individuals affected by leprosy in the countryside region of Pernambuco, treated at a referral center in the city of Caruaru during the period from February to May 2011.

Initially, the study was intended to evaluate 62 patients who were regular consultations on that drive, but only 30 of them attended the reference center for the set period and participated in the survey.

To participate in the study, the volunteers had to be or have been affected by leprosy, regardless of age, sex, number of visits, time of diagnosis, abuse or pain, presence or absence of physical disabilities and severity of disability. Volunteers who participated signed a free and informed consent, according to Resolution 466/12 of the NHC.

Patients who had a not yet confirmed diagnosis of leprosy and leprosy patients who presented sequelae of other disabling neurological diseases were excluded.

Patients underwent a single assessment with an average duration of 50 minutes, held by both researchers in the very center of reference.

In assessing the sensitivity of the hands and feet used a set of Extensiometer Semmes-Weinstein (ES-W) of six monofilaments of the mark smile and markers pens (green, blue, violet, red and black) in accordance with the legend of the monofilament. Muscle strength was measured by the Scale Medical Research Council (MRC)[9]. While the trophism and the presence of deformities were evaluated through inspection and palpation, as the physical assessment protocol for leprosy patients suggested by the Ministry of Health.[10]

For the functional evaluation it was used the SALSA Scale (Screening Activity Limitation and Safety Awareness), which aims to assess the degree of functionality measuring limitation of activity and risk awareness by means of 20 questions, and has Portuguese version of Brazil already validated. The scores range from 0 to 80, where lower scores indicate little difficulty in performing activities of daily living, while higher scores indicate increasing levels of activity limitation. The cutoff point to indicate activity limitation had scores greater than or equal to 25. Regarding the risk level of consciousness of the results are between 0 and 11, where higher scores indicate a growing awareness of risk in certain activities.[11-2]

The Participation Scale, to measure the social participation of people affected by leprosy, peripheral neuropathy and diabetes. This instrument also has validated version for Brazil, and contains 18 questions with a total score that can range from 0 to 90, where higher scores indicate greater restriction .[13] Both scales are based on the International Classification of Functioning (ICF) and are applied in different socio-cultural settings.

Data were explored through statistical program SPSS® version 13.0, exposed as frequency degrees of functioning and disability and organized in tables.

The research project was approved by the Research Ethics Committee of Caruaruense Association of Higher Education (Nº. 136/10 CEP/ASCES).

RESULTS

There were evaluated 30 patients with leprosy in the period from February to May 2011, of which 21 were male (70%) and 09

female (30%), with a minimum age of 22 and maximum of 73 years old. It was observed that the predominant age range was between 36 and 50 years old (43,2%), then the ranges between 22 and 35 years old (29,8%), 51 and 65 (19,9%), and over 65 (6,6%).

Regarding the diagnosis, 23 patients (76,7%) had only leprosy, 02 (6,7%) had diabetes in addition to leprosy, 01 patient (3,3%) had associated hypertension, and 04 (13,3%) had another type of pathological condition in addition to leprosy, such as arthritis or gastritis.

From the evaluated, the most recorded occupations were laborers (50%), involving occupations as a farmer, mechanic, craftsman, mason, carpenter and fisherman, followed by retirees (20%) and unemployed (16,6%).

The degree of disability of the patient was determined by comparing the degree of disability of the whole body and selecting the greatest of all, as directed by the Ministry of Health[10]. It was observed that 10 evaluated (33,3%) did not presented sensory or motor physical problems in the arms and legs. While 20 (66,7%) of them showed a decrease or loss of sensation in the hands and/or feet. And none of the examined patients had motor impairment (as trophic ulcers, traumatic injuries decrease or loss of sensation, claws, reabsorption, feet and/or drop-wrist) on the ends of the members. The largest percentage of this sensory impairment was observed in the feet (66,7%), while 10 patients (33,3%) have limitations in their hands.

In the inspection of hand, it was observed the presence of dryness, calluses, closed lesions (healed) and cracks, while the legs were observed besides, open lesions (Table 1).

Table 1. Inspection findings of hands and feet.

Location	Dryness		Calluses		Closed Lesions		Fissure		Open lesion		Bone resorption	
	n	%	n	%	n	%	n	%	n	%	n	%
Hands												
Right	-	-	4	13,3	1	3,3	1	3,3	-	-	-	-
Left	1	3,3	5	16,7	2	6,7	-	-	-	-	-	-
Both	3	10	2	6,7	2	6,7	1	3,3	-	-	-	-
Total	4	13,3	11	36,7	5	16,7	2	6,6	-	-	-	-
Feet												
Right	1	3,3	1	3,3	-	-	1	3,3	-	-	-	-
Left	1	3,3	-	-	1	3,3	-	-	2	6,7	-	-
Both	13	43,3	2	6,7	3	10	3	10	-	-	-	-
Total	15	49,9	3	10	4	13,3	4	13,3	2	6,7	-	-

In assessing the sensitivity of the hands and feet of patients, there was a greater sensory impairment in the ulnar nerve part (26,6%) and the sural nerve (46,6%).

Regarding the muscle strength in the arms and legs, most patients had normal strength in the tested muscles, the most frequent power losses in left limbs (Table 2 and 3).

Table 2. Distribution of patients (N) according to the strength of the muscles of the upper limbs using the Medical Research Council Scale (MRC).

Movement	Abductor 5th finger				Short abductor				Grip Extenders			
	D		E		D		E		D		E	
	n	%	n	%	n	%	n	%	n	%	n	%
None	-	-	-	-	-	-	-	-	-	-	1	3,3
Trace of	-	-	1	3,3	-	-	-	-	-	-	-	-
Severely removed	1	3,3	-	-	-	-	1	3,3	-	-	-	-
Without resistance	-	-	1	3,3	2	6,7	-	-	1	3,3	1	3,3
Against moderate resistance	3	10	6	20	2	6,7	10	33,3	4	13,3	7	23,3
Against total resistance	26	86,7	22	73,3	26	86,7	19	63,3	25	83,3	21	70

D – Right; E - Left

Table 3. Distribution of patients (N) according to the strength of the muscles of the lower limbs using the Medical Research Council Scale (MRC).

Movement	Tibialis anterior				Peroneal			
	D		E		D		E	
	n	%	n	%	n	%	n	%
None	2	6,7	-	-	2	6,7	-	-
Trace of	-	-	1	3,3	-	-	-	-
Severely removed	-	-	-	-	1	3,3	1	3,3
Without resistance	2	6,7	3	10	1	3,3	1	3,3
Against moderate resistance	3	10	5	16,7	4	13,3	7	23,3
Against total resistance	26	86,6	22	73,3	22	73,3	21	70

D – Right; E – Left

According to the Participation Scale, 21 (70%) of the patients showed up without significant restriction, 07 patients (23,3%) with mild restriction, 01 (3,3%) with moderate restriction and 01 patients (3,3%) with severe restrictions.

The score analysis of the SALSA Scale showed that 13 evaluated (43,3%) had no limitations in performing activities of daily living (ADLs), 11 of them (36,6%) showed mild limitation, 04 (13.3%) moderate limitation and only 2 (6,6%) severe limitation. Regarding risk awareness, 10 patients (33,3%) did not show this notion of security in relation to the activities practiced, 15 (50%) showed low perception of risk, and only 05 of them (16,7%) obtained scores equal to or greater than 6, indicating a high risk of awareness for certain activities.

DISCUSSION

Studies show that leprosy has larger case detection rates in males, noticing a trend of the disease in this genre.[14-7] In a study[16] with 100 leprosy patients, 54% were male, corroborating to our findings. Although not yet in the literature have a definite justification for such dominance, it can be inferred that men have greater social contact, which is characterized by the greatest risk of exposure.

It can be seen in the results that the majority of patients suffering from leprosy lies in economically active ages between 36 and 50 years old (43,2%) and 20 and 35 (29,8%). Previous studies have shown[14-8] that higher proportion of leprosy patients is in the age groups similar to the findings of this research, which contributes to a socio-economic impact on the region, as this disease can contribute to absenteeism at work and social stigma.

The occupations most observed among leprosy patients were farm worker (40%) and domestic (21,8%). Similarly, in this study, the most common occupations in the evaluated were manual workers (50%), which shows that when you have an early diagnosis of leprosy, individuals remain economically active, avoiding a possible withdrawal of their activities.[15]

Importantly presented the results were that 33,3% of respondents had grade 0 and 66,7% grade 1 disability. These data differed significantly from other studies[19-22],that showed high rates of individuals classified as grade 0 (no disability). This can be explained by the difficulty of assessing the degree of disability for some health professionals. Also, it is observed that the studies that showed predominance of patients without disabilities used secondary data of patients with leprosy.

Regarding the inspection, it is noted that in the upper limbs as observed clinical sign was callous. While the lower limbs, the prevalent sign was dry. The dryness is the most observed clinical sign in the inspection, according to the results of this study in relation to toe. It is also realized that study[8] that the application of a manual for the prevention of physical and sensory disabilities containing basic guidelines and simple and illustrated information was assisting in the improvement of the signal, underscoring the importance of patient education about the care needed in this disease, aiming at prevention disabilities and improvement of existing symptoms.

Regarding the muscle strength of the upper limbs is noticed that the left hemisphere of the muscles was the most affected; and that among the evaluated muscles, the extensors of the wrist showed a higher deficit. It is believed that this result may be related to the dominance of the right member of the majority of the population, but the variable dominance has not been evaluated in this study. In the lower limbs, muscle involvement pattern was present in both hemibodies. Corroborating the study Mantovani and employees, where it was observed that the leprosy group showed decrease in isometric muscle strength dorsiflexor group ankle in the lower right and left limbs compared to the control group.

In assessing the sensitivity of the upper limbs, the ulnar nerve was the most affected, according to other studies.[8,24] This finding may be related to a higher prevalence of tuberculoid leprosy in patients, which affects more often the ulnar nerve. However, in the current study, the type of leprosy in the sample was not registered. Already in the lower limbs, the sural nerve was the most affected, disagreeing with the results of other research.[8,24]

Using the SALSA Scale it was noticed that most of the assessed was presented with no or slight limitations in performing activities of daily living (ADLs), also observed in other studies[17,25]This scale allows the evaluation of areas involving routine activities and require preserved neural functions, which usually is impaired in patients presenting disability grade 1 and 2.[17] This study, most of the evaluated performed without sensory problems or motor, and with a slight decrease or loss of sensation, justifying the findings obtained in the SALSA scale.

Risk awareness is another factor analyzed in the SALSA scale and concerns as the patient is aware of the security problems in their routine activities and can be seen as limited to carry out these security activities.[11] In this study, it was observed that much the assessed (50%) presented with low risk-awareness, ie, owned a small sense of security in relation to the activities that practice daily. This finding may be explained by the fact of the patients are showing no or only slight limitations in their ADLs and do not represent a risk factor for achieving these.

In Participation scale, it was found that the majority of subjects (70%) framed within the category without significant restriction, according to another study[25], in which about 90% of the participants were also presented without restriction. This scale aims to analyze the problems perceived in areas of life as learning and application of knowledge, communication and personal care, mobility, domestic life, interactions, interpersonal relationships and community.[12] Thus, the results show that even with the stigma associated with leprosy, those affected by this disease do not perceive themselves limited in their activities.

CONCLUSION

The data showed that the leprosy patients did not show great physical and functional limitation, what can be explained by the early diagnosis and treatment of the disease.

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Corresponding Address

Pollyanna Brandão Bezerra
Rua Antônio Falcão, 499 / Ap. 202
Bairro Boa Viagem
CEP 51020-240 — Recife (PE), Brazil