

DOI: <https://doi.org/10.36489/saudecoletiva.2021v11i67p6889-6898>

Lombalgia in tropical spastic paraparry / myelopathy associated with HTLV 1

Lombalgia en pacientes con paraaparesis / mielopatía tropical espástica asociada con HTLV 1

Lombalgia em portadores de paraparesia espástica tropical/mielopatia associada ao HTLV 1

ABSTRACT

Low back pain related to Tropical Spastic Paraparesis / Myelopathy associated with HTLV 1 (PET / MAH) becomes relevant because it is a frequent clinical symptom in these patients. Objectives were to assess low back pain and disabilities. METHODS: Fifteen PET / MAH patients were evaluated using three questionnaires: Visual Analog Scale (VAS), Katz Index and Roland-Morris Disability Questionnaire for low back pain. RESULTS: There was a prevalence of low back pain (93.30%), and this pain was localized (85.71%). The intensity of the pain was moderate (66.7%), the majority (60.0%) was independent, however (53.3%) of them has functional disability associated with low back pain. CONCLUSION: This study showed a high prevalence of low back pain, the higher the level of pain reported by patients, the greater the level of functional limitation presented by them because there is a direct relationship between both.

DESCRIPTORS: Low Back Pain. Paraparesis, Tropical Spastic. HTLV.

RESUMEN

La lumbalgia relacionada con la paraparesia Espástica tropical / Mielopatia asociada a HTLV 1 (PET / MAH) adquiere relevancia por ser un síntoma clínico frecuente en estos pacientes. Los objetivos fueron evaluar el dolor lumbar y las discapacidades. MÉTODOS: Quince pacientes con PET / MAH fueron evaluados mediante tres cuestionarios: Escala Visual Analógica (EVA), Índice de Katz y Cuestionario de Discapacidad de Roland-Morris para el dolor lumbar. RESULTADOS: Hubo una prevalencia de lumbalgia (93,30%), y este dolor fue localizado (85,71%). La intensidad del dolor fue moderada (66,7%), la mayoría (60,0%) fue independiente, sin embargo (53,3%) de ellos presenta discapacidad funcional asociada a lumbalgia. CONCLUSIÓN: Este estudio mostró una alta prevalencia de lumbalgia, cuanto mayor es el nivel de dolor reportado por los pacientes, mayor es el nivel de limitación funcional que presentan debido a que existe una relación directa entre ambos.

DESCRIPTORES: Dolor de la Región Lumbar. Paraparesia Espástica Tropical. HTLV.

RESUMO

A dor lombar relacionada à Paraparesia Espástica Tropical/Mielopatia associada ao HTLV 1 (PET/MAH) torna-se relevante por esta ser um sintoma clínico freqüente nesses pacientes. Objetivos foram avaliar a dor lombar e incapacidades. MÉTODOS: Foram avaliados 15 portadores de PET/MAH, através de três questionários: Escala Analógica Visual (EVA), Índice de Katz e Questionário Roland-Morris de Incapacidades para dor lombar. RESULTADOS: Houve prevalência de dor lombar (93,30%), sendo que esta dor apresentou-se de forma localizada (85,71%). A intensidade da dor era moderada (66,7%), a maioria (60,0%) era independente, entretanto (53,3%) destes tem incapacidade funcional associada à dor lombar. CONCLUSÃO: Este estudo mostrou alta prevalência de dor lombar, quanto maior o nível de dor referido pelos pacientes, maior será o nível de limitação funcional apresentados pelos mesmos por haver relação direta entre ambos.

DESCRITORES: Dor lombar. Paraparesia Espástica Tropical. HTLV.

RECEIVED ON: 01/31/2021 APPROVED ON: 03/01/2021

Bianca Caroline Silva da Cunha

Physiotherapist, Federal University of Pará, Faculty of Physiotherapy and Occupational Therapy, Pará, PA, Brazil, specialist in Attention to cardiovascular health, bachelor in physiotherapy.

ORCID: 0000-0002-8468-6016

Cristina Maria da Silva

Physiotherapist, Federal University of Pará, Faculty of Physiotherapy and Occupational Therapy, Pará, PA, Brazil, specialist in Family health, bachelor in physiotherapy.

ORCID: 0000-0001-6094-6365

Luzielma Macêdo Glória

Physiotherapist, Federal University of Pará, Faculty of Physiotherapy and Occupational Therapy, Pará, PA, Brazil, Master in Health in the Amazon, Bachelor of Physiotherapy.

ORCID: 0000-0001-5409-4354

Denise da Silva Pinto

Physiotherapist, Federal University of Pará, Faculty of Physiotherapy and Occupational Therapy, Pará, PA, Brazil, PhD in Tropical Diseases, Bachelor of Physiotherapy.

ORCID: 0000-0003-4940-8114

George Alberto da Silva Dias

Physiotherapist, State University of Pará, Pará, PA, Brazil, Faculty of Physiotherapy and Occupational Therapy, Pará, PA, Brazil, PhD in Tropical Diseases, Bachelor of Physiotherapy.

ORCID: 0000-0002-9807-6518

INTRODUCTION

Tropical Spastic Paraparesis is a Myelopathy that is related to Human T-Cell Lymphotropic Virus type 1 (HTLV 1). The clinical characteristics of this myelopathy are: paraparesis, spasticity, hyperreflexia of the lower limbs, sphincter disorders and varied sensory alterations.^{1,2} In Brazil, there are approximately 2,5 million people infected with the HTLV 1 virus, being considered an endemic, with an average seroprevalence of 0,45% among people who donate blood, reaching 1,8% in the northern region of the country.³

A clinical symptom associated with Tropical Spastic Paraparesis/ Myelopathy Associated with Human T-Cell Lymphotropic Virus type 1 (HAM/TSP) is low back pain, being a recurrent complaint and part of the diagnostic criteria of the World Health Organization (WHO) for this disease.^{3,4} The frequency of this symptom varies from 44% to 79% and is related to a longer duration of the disease, a low functional level and a high degree of disability. Low back pain is characterized by the location of the pain, which goes from the lower part of the back, between the last costal arch and the gluteal fold, with or without irradiation to the lower limbs.⁵ In this context, pain is an unpleasant and subjective sensory and emotional sensa-

tion, described or arising in terms of tissue or potential injury.⁶

The painful experience has characteristics that can be contrasting with multiple locations, different descriptions and different implications for those who have functional disability and impaired mobility.^{7,8} It is believed that chronic pain contributes to existing deficiencies, exacerbating limitations and decreasing mobility, consequently interfering with activities of daily living.^{8,9}

Although pain is a frequent and expressive symptom in patients with HAM/TSP, which leads to disability and biopsychosocial impact, there are few specific studies on the subject, with predominance of case reports as scientific evidence.¹⁰ In this context, the present study is relevant for seeking to investigate low back pain triggered by HAM/TSP, since this clinical symptom is frequent in these patients, with a prevalence ranging from 79% to 87%. Given the above, the study aimed to assess low back pain and disabilities related to the pain referred by HAM/TSP patients.

METHODS

The study is characterized by being quantitative, descriptive, cross-sectional, carried out with HAM/TSP patients attended at the Laboratory of

Studies in Functional Rehabilitation (LAERF - Laboratório de Estudos em Reabilitação Funcional) of the Federal University of Pará (UFPA). From June to October 2018.

This study was carried out in agreement with the precepts of the Declaration of Helsinki, Nuremberg Code of the National Health Council, with approval by the Research Ethics Committee of the Nucleus of Tropical Medicine under No. 063/2011 and application of the Informed Consent Form (ICF), which was explained verbally and signed before data collection.

The study included individuals infected with HTLV-1, of both sexes, aged over 18 years, who were not co-infected with other viruses or other clinical conditions that led to immunosuppression and who agreed to participate voluntarily in the study. HTLV 1 carriers were excluded asymptomatic or with non-neurological symptoms.

After being accepted into the research, the participants answered three questionnaires: Visual Analogue Scale (VAS), Katz Index and Roland-Morris Disability Questionnaire for low back pain. VAS has a score ranging from grade 0 (no pain) to 10 (worst possible pain). Then the intensity is classified as Light (degrees 0, 1, 2,3), moderate (degrees 4, 5, 6,7), and intense (degrees 8, 9,10). The modified Katz In-

dex that assesses six basic activities (bathing, dressing, going to the bathroom, transferring from bed or chair, being continent and eating), each function has a

score of 1 to 3, which the lower the score, the more independent the patient is and depending on that score, she classifies it as independent (6 points), semi-dependent

(7 to 12 points) and dependent (13 to 18 points). The Roland-Morris Questionnaire consists of 24 self-answer questions. The questions have a dichotomous answer (yes or no) and the final result corresponds to the sum of the yes answers. This result can vary between 0 (without limitation) to 24 (very severe limitation).

The collected data were stored in a bank using Microsoft Excel version 2007 software, the statistical analysis was performed in the Bioestat 5,4 software, where percentages of categorical variables and means of numerical variables were obtained. In the inferential analysis, the tests were used: G of adherence, Chi-square of adherence for equal expected proportions and Pearson's linear correlation, all considering an alpha level of 5%. The results were demonstrated using tables and graphs.

RESULTS

Fifteen patients (n= 15) with a clinical and molecular diagnosis of HAM/TSP were interviewed, with an average age of 55,86 years, with a higher prevalence of the female gender 60% (n=09). There was a prevalence of low back pain 93,30% (n=13) in patients with HAM/TSP.

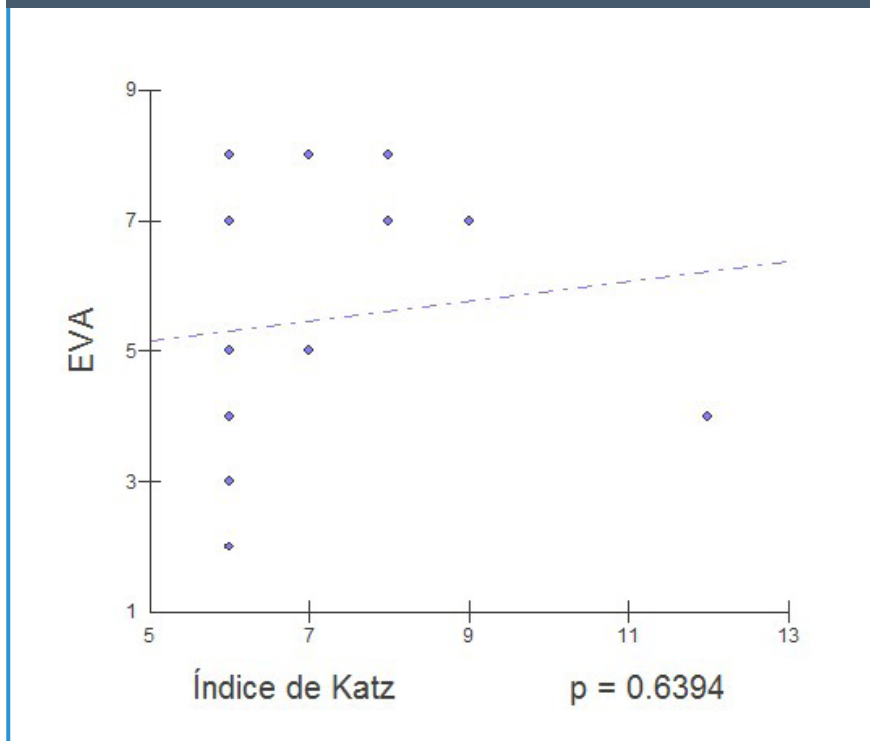
Low back pain was localized (85,71%) and irradiated to lower limbs (14,29%) in the sample studied, there is also a prevalence of moderate low back pain intensity in the interviewed HAM/TSP patients, being statistically significant (p-value= 0,0283), in addition, most HAM/TSP patients (60,00%) were independent, according to the classification of functional capacity of the Katz Index. It is observed that the majority (53,3%) of HAM/TSP patients have functional disability associated with low back pain, however this result is not statistically significant (p-value = 0,0646) (table 1).

Graph 1 shows a positive correlation between the VAS scores and the Katz index. Graph 2 shows a positive correlation between the VAS scores and the Roland-Morris Questionnaire for Disabilities generated by low back pain.

Table 1: Type of pain, intensity, functional capacity and degree of disability associated with low back pain in patients with HAM/TSP, Belém/ PA, 2018.

VARIABLES	ABSOLUTE NUMBER	RELATIVE FREQUENCY (%)	P-VALUE
Backache			
Localized	12	85,71%	0.0162*
Radiated	02	14,29%	
Intensity (VAS)			
Light	2	13,3%	0.0283*
Moderated	10	66,7%	
Intense	3	20,0%	
Katz Index			
Independent	9	60,00%	0.6056
Semi-dependent	6	40,00%	
Q - Roland-Morris of Disability			
Functionally trained	7	46,7%	0.0646
Functionally disabled	8	53,3%	

Graph 1: Correlation between degree of pain and Katz index in patients with HAM/TSP, Belém/ PA, 2018.



DISCUSSION

It was observed that the majority of the studied sample (93,3%) reported low back pain. The prevalence of low back pain in patients with HAM/TSP, described in the literature ranges from 44% to 79%, this variation is explained by the size of the samples, and studies with a larger number tend to have a higher frequency, this data differs from this study, which although it has a small sample, presented a high prevalence.¹¹

Low back pain reported by patients with HAM/TSP in this study can be classified as chronic, as it accompanies the patient in practically the entire course of the disease, presenting in a localized manner in most cases (85,71%) and less frequently with irradiation to lower limbs (14,29%). The WHO proposes as a diagnostic criterion for HAM/TSP, the presence of low back pain with irradiation to lower limbs, and in our study, this prevalence was small. However, this fact may be a specific feature of our sample, since patients have

been undergoing physical therapy for some time, which may have minimized the presence of irradiations.⁹

In most of the HAM/TSP patients studied, the intensity of low back pain graded by VAS was moderate (66,7%), with statistical significance (p -value= 0,0283). Considering that it was a chronic low back pain and that the patients presented, due to the disease, a decrease in mobility, this intensity could contribute to greater restrictions, however an interesting aspect in the present study demonstrated that the subjects probably adapted to pain over the years, making it possible, in spite of the aforementioned pain discomfort, to preserve many of the general activities of their daily lives, as measured by the Katz Index.

In the studied sample, most were independent (60,00%), according to the classification of functional capacity of the Katz Index. Therefore, it can be assumed that the deficiencies resulting from HAM/TSP, do not influence the functionality for the performance of the basic activities

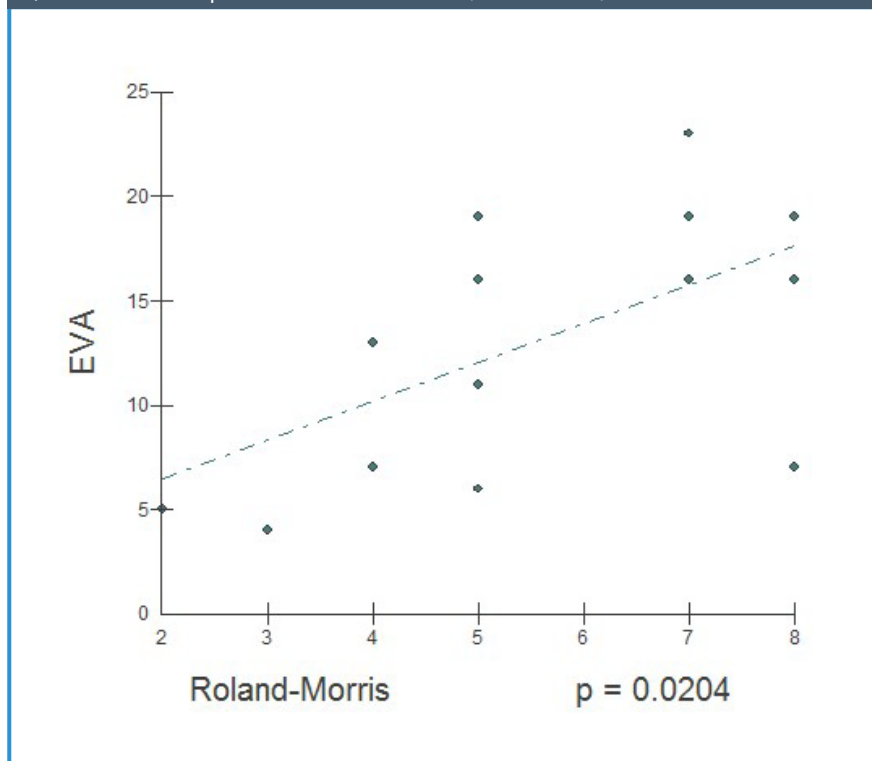
of daily living of individuals with the disease. However, the study 12 reported that the clinical symptoms of HAM/TSP interfere with the degree of functionality, especially locomotion activities (including gait and up and down stairs) and bladder control. The study 13 observed a prevalence of 64% of falls and a significant degree of morbidity in patients with HAM/TSP with a low degree of functional capacity. A high history of falls can result in fear, and consequently, limit participation in physical and social activities, further contributing to the decline in functionality.

It was observed that the disability generated by low back pain, assessed by the Roland-Morris Questionnaire, was present in more than half of the sample (53,3%), and this can cause even more important limitations. Although pain does not appear as a direct dependency factor in many studies, some epidemiological research has confirmed the interference of pain in various aspects of life and has been related to functional limitations.¹⁴ It is believed that the occurrence of pain in the lumbar region is predominantly nociceptive, of spastic origin, being of high prevalence.¹⁵ It is important to emphasize the fact that the functional disability analyzed by the Rolland Morris Questionnaire is exclusively related to the specific low back pain of these patients, being the same caused by a posterior joint syndrome and favored by the hypertonicity of the paravertebral musculature, and not by any other pathophysiological mechanisms or clinical aspects of the disease itself.¹⁶

In the present study, it was observed that there was no statistically significant positive correlation (p -value= 0,6394) between the analysis of pain (VAS) and functional capacity (Katz index). The study 17 found similar results when verifying that among the sensory symptoms related to the disease, pain is the most frequent and initial, with low back pain being the most prevalent, however, not positively correlated with the degree of functional capacity of individuals with HAM/TSP.

On the other hand, there was a direct relationship between pain (VAS) and the

Graph 2: Correlation between degree of pain and the Roland-Morris Questionnaire in patients with HAM/TSP, Belém/ PA, 2018.



level of disability (Roland-Morris Questionnaire), thus, the higher the level of pain reported by patients, the greater the level of limitation presented by them, and this association was statistically significant (p -value = 0,0204). The study 18 identified a significant association between the disability of the individual with HAM/TSP and the pain classification, where individuals with worse disability have a higher pain index, while less compromised individuals have a lower pain index.

Finally, the study carried out presented a limitation regarding the sample size, which,

when presented in a small number, allows the results to be considered only for the population in question. The definition of the sample can also be considered a limiting factor, given the fact that it is not random.

CONCLUSION

The analysis of the data obtained through this study allowed us to conclude that low back pain was the most frequent symptom among patients with HAM/TSP, followed by pain complaints in the lower limbs. Low back pain in patients

with HAM/TSP was characterized by being chronic and generally localized, with moderate intensity.

The results of the correlations show that the level of low back pain is directly related to the level of functional disability, thus, the higher the level of pain reported by patients, the greater the level of functional limitation presented by them, for the performance of small day-to-day activities, however, this pain does not limit them to global, less complex activities, possibly due to the adaptation of individuals to this pain. ■

REFERENCES

1. Araya N, Sato T, Collier-Reilly A, Yagishita N, Yamano Y. Developing novel treatments for HTLV-1-associated myelopathy (HAM) by investigating molecular pathomechanisms. *Jpn J Clin Immun.* 2016;39(3):207-12.
2. Barreto FK, Krouri R, Rego FFA, Santos LA, Amarante MFC, Biluk I, et al. Analyses of HTLV-1 sequences suggest interaction between ORF-I mutations and HAM/TSP outcome. *Infect Genet Evol.* 2016; 45(1): 420-425.
3. Matsuura E, Nozuma S, Tashiro Y, Kubota R, Izumo S, Takashima H. HTLV-1 associated myelopathy/tropical spastic paraparesis (HAM/TSP): A comparative study to identify factors that influence disease progression. *J Neurol Sci.* 2016; 371(2): 11-116.
4. Dimber R, Guo Q, Bishop C, Adonis A, Buckley A, Kocsis A, et al. Evidence of Brain Inflammation in Patients with Human T-Lymphotropic Virus Type 1-Associated Myelopathy (HAM): A Pilot, Multimodal Imaging Study Using 11C-PBR28 PET, MR T1-Weighted, and Diffusion-Weighted Imaging. *J Nucl Med.* 2016; 57(12): 1905-1912.
5. Yusuma K, Matsuzaki T, Yamano Y, Takashima H, Matsuoma M, Saito M. HTLV-1 subgroups associated with the risk of HAM/TSP are related to viral and host gene expression in peripheral blood mononuclear cells, independent of the transactivation functions of the viral factors. *J Neurovirol.* 2016;22(4):416-30.
6. Alcaide GG, Ramos JM, Huamaní C, Mendoza C, Soriano V. Human t-lymphotropic virus 1 (htlv-1) and human t-lymphotropic virus 2 (htlv-2): geographical research trends and collaboration networks (1989-2012). *Rev Inst Med Trop.* 2016; 58(11): 52-45.
7. Cafai RC, Orsini M, Felicio LR, Sohler MP. Muscular weakness represents the main limiting factor of walk, functional independence and quality of life of myelopathy patients associated to HTLV-1. *Arq Neuro Psiquiatr.* 2016; 74(4): 109-64.
8. Ciminelli A, Melo F, Copin MC, Proietti AB, Rezende SM. Hematological manifestations of human T lymphotropic virus type 1 infection: a possible association with autoimmune myelofibrosis. *Rev Bras Hematol Hemoter.* 2016; 38(1): 78-75.
9. Martin DL, Santos DN, Baptista AF. Pain prevalence, characteristics and associated factors in human T-cell lymphotropic virus type 1 infected patients: a systematic review of the literature. *Braz J Infect Dis.* 2016; 20(6): 598-592.
10. Stratford PW, Riddle DL. A Roland Morris Disability Questionnaire Target Value to Distinguish between Functional and Dysfunctional States in People with Low Back Pain. *Physiother Can.* 2016; 68(1): 29-35.
11. Proietti ABF, Ribas JGR, Soares BC, Martins ML, Melo GEA, Martins O, et al. Infecção e doença pelos vírus linfotrópicos humanos de células T (HTLV-I/II) no Brasil. *Rev Soc Bras Med Trop.* 2002; 35 (5): 508-499.
12. Franzoi AC, Araújo AQ. Disability profile of patients with HTLV-I-associated myelopathy/tropical spastic paraparesis using the Functional Independence Measure (FIM). *Spinal Cord.* 2005; 43(4): 236-40.
13. Facchinetti, LD. Falls in patients with HTLV-I associated myelopathy/tropical spastic paraparesis (HAM/TSP). *Spinal* 2013; 51(3): 5-222.
14. Ferreira MSM, Ferreira MG. O papel moderador do tipo de família na relação entre incapacidade funcional e qualidade de vida em doentes com lombalgia crônica. *Cien Saude Colet.* 2016; 21 (1): 309-303.
15. Teixeira MJ, Almeida DB, Yeng LT. Conceito de dor neuropática aguda. O papel do nervinervorum na distinção entre dores agudas nociceptiva e neuropática. *Rev Dor.* 2016; 17 (1): 10-5.
16. Smdja B. Paraplegia associated with HTLV-1 in Martinique. Study of 271 cases including 70 with neuromuscular involvement. *Bull Soc Pathol Exot.* 1993; 86(5): 433-8.
17. Costa CMC, Araújo AQC, Câmara CC, Ferreira AS, Santos TJ, Costa SB, et al. Pain in tropical spastic paraparesis/HTLV-I associated myelopathy patients. *Arq Neuro Psiquiatri.* 2009; 67(3): 866-70.
18. Netto EC, Brittes C. Characteristics of Chronic Pain and Its Impact on Quality of Life of Patients With HTLV-1-associated Myelopathy/Tropical Spastic Paraparesis (HAM/TSP). *Clin J Pain.* 2011;27(2):131-5.