



Association between urinary symptoms and quality of life in HTLV-1 infected subjects without myelopathy

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ABSTRACT

Objective: To investigate the relationship between urinary symptoms and quality of life of patients infected with HTLV-1.

Materials and Methods: This is a cross-sectional study that enrolled individuals with HTLV-1 positive serology from February 2010 to March 2011. Participants were HTLV-1 infected subjects followed in the HTLV-1 clinic of the University Hospital in Salvador, Bahia, Brazil. Patients with HTLV-1 associated myelopathy / tropical spastic paraparesis (HAM/TSP), who had evidence of other neurological diseases, diabetes mellitus or were pregnant were excluded from the study. The questionnaire SF-36 was used to evaluate quality of life and the questionnaire OAB-V8 was used to evaluate urinary symptoms.

Results: From the 118 individuals evaluated, 50 (42.4%) complained of urinary symptoms and 68 (57.6%) did not. Most participants were females. There was no difference between the groups regarding demographic variables. The group with symptoms showed significantly lower scores in all domains of the SF-36 questionnaire. The domains with greatest differences were vitality and general health state.

Conclusions: Urinary symptoms negatively influence the quality of life of individuals infected with HTLV-1.

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INTRODUCTION

The human T-lymphotropic virus type 1 (HTLV-1) was the first human retrovirus isolated (1). It is estimated that 11 to 20 million people are infected worldwide (2). Regions such as Japan, Africa, the Caribbean Islands and South America have the highest incidence of infection (3). In Brazil, Bahia is one of the states with the highest prevalence, totalizing 9.4 individuals per 1,000 blood donors (4). Salvador, the state's capital, is the city with the highest prevalence of infected individuals, with 1.76% of the resident population being affected by the virus (5).

Several clinical conditions have been attributed to this virus with HTLV-1 associated mye-

lopathy / tropical spastic paraparesis (HAM/TSP) and the adult T cell lymphoma/ leukemia (ATLL) (6) being the most important forms of disease. The lifetime prevalence of these two clinical entities is about 5%. However, other clinical and neurological manifestations have been linked to the virus. Among them, the neurogenic bladder has significant prevalence (7,8). Urinary complaints are found in virtually 100% of individuals with HAM/TSP and in about 14% of HTLV-1 individuals without HAM/TSP. The main symptoms are urgency, incontinence and nocturia (8-10).

These urinary manifestations can be an important sign of the virus' evolution and increased severity of the viral infection and are important signs of incipient myelopathy.

Urinary symptoms in individuals infected by the virus have been shown to lead to social isolation and depression (9,11). It is important to determine the effect of these symptoms in the well-being of affected individuals and to assess their general health status in order to prevent disturbances in disease treatment and to improve clinical outcomes. Thus, the objective of this study was to verify the association between quality of life and urinary symptoms in patients infected with HTLV-1.

MATERIALS AND METHODS

Study design

This is a cross-sectional study with 118 non-consecutive HTLV-1 infected individuals followed at the HTLV Multidisciplinary Ambulatory of the Immunology Service, Professor Edgar Santos University Hospital Complex / Federal University of Bahia (COM-HUPES/UFBA), in Salvador, Bahia, Brazil, from February 2010 to March 2011. This outpatient service has an ongoing cohort since 2004 and semi-annual to annual follow-up is carried out for each patient.

Inclusion and exclusion criteria

Individuals over 18 years of age with positive HTLV-1 serology determined by ELISA (Cambridge Biotech, Worcester, MA) and confirmed by Western-blot (HTLV Blot 2.4, Genelabs, Science Park Drive, Singapore) who had been submitted to urological and neurological evaluation were included in the study. Individuals with confirmed HAM/TSP and other neurological diseases that are associated with urinary symptoms (stroke, Parkinson's disease and multiple sclerosis), diabetes mellitus and pregnant women were excluded from the study. The diagnosis criteria for HAM/TSP was based on the Osame Motor Dysfunction Scale (OMDS) ≥ 1 and presence of HTLV-1 in the liquor as recommended by the World Health Organization (WHO).

Instruments

In order to evaluate quality of life in the study participants, the multidimensional questionnaire 36-item Short-Form Health Survey (SF-36) was used. This questionnaire analyzes the physical

and mental components defined by four domains each. The physical components are physical functioning, role limitations due to physical problems, bodily pain, and general health. The mental components are vitality, social functioning, role limitation due to emotional problems and mental health (12). The value obtained for each domain varies in a scale from 0 to 100, with 0 being the worse state and 100 the best.

Urinary symptoms were established based on answers participants gave to the Overactive Bladder Questionnaires - simplified (OAB-V8), an instrument validated to diagnose the presence of overactive bladder (13). Selected participants were placed in groups according to the presence or absence of urinary symptoms as defined by the OAB-V8 questionnaire.

Statistical analysis

Variables in tables contain continuous data presented as mean \pm SD and categorical data presented as absolute and relative (%) frequencies.

The t-test for independent samples was used to compare continuous variables and the Chi-square test was used to compare proportions between the two groups. A logistic regression analysis was performed in order to determine the relationship between quality of life and urinary symptoms.

Statistical significance was established at $p \leq 0.05$. The SPSS version 20.0 was used for statistical analysis.

Ethical aspects

All participants signed an Informed Consent and the study was approved by the Ethics Committee of the COM/HUPES/UFBA.

RESULTS

A total of 118 HTLV-1 infected subjects were included in the study. Fifty individuals (42.4%) had urinary symptoms and 68 (57.6%) had no urinary symptoms. The mean age of the sample was 53.8 ± 12.12 years, mainly females (58.5%). The symptoms identified in the urinary symptoms group were nocturia in 44 participants (84.6%), urgency 33 (63.5%),

increase in urinary frequency in 28 (53.8%), urinary incontinence in 27 (51.9%), urge-incontinence in 22 (42.3%), polyuria in 4 (7.7%), enuresis in 2 (3.8%), and urinary effort in 1 (1.9%).

The sociodemographic characteristics of the subjects without urinary symptoms are shown in Table-1. In both groups, the majority of participants

had basic schooling, were of mixed race/ethnicity, and had income levels between 1 and 3 minimum Brazilian salaries (545.00 Brazilian reais per month, or, at the concurrent exchange rate at the time of study, US\$336.00 or €233.56). There were no significant differences between both groups regarding the sociodemographic characteristics.

Table 1 - Sociodemographic characteristics of the HTLV-1 infected subjects with HTLV-1 with and without urinary symptoms.

	With Urinary Symptoms N = 50	Without Urinary Symptoms N=68	p
Age	55.02 ± 11.50	53.06 ± 12.57	0.38 ^a
Gender			0.64 ^b
Female	28(56.0)	41(60.0)	
Male	22(44.0)	27(40.0)	
Schooling			0.66 ^b
Illiterate	1(2.0)	0	
Basic Education	31(62.0)	42(61.8)	
Pre-college	16(32.0)	22(32.4)	
University	2(4.0)	4(5.9)	
Marital Status			0.90 ^b
Single	9(18.4)	15(22.1)	
Married	29(59.2)	37(54.4)	
Divorced	6(12.2)	10(14.7)	
Widowed	5(10.2)	6(8.8)	
Skin color			0.35 ^b
White	6(12.0)	3(4.4)	
Mixed race/ethnicity	30(60.0)	41(60.3)	
Black	14(28.0)	23(33.8)	
Did not inform	0	1(1.5)	
Family income			0.16 ^b
< 1 minimum wage ¹	10(20.0)	6(8.8)	
1 minimum wage	17(34.0)	18(26.5)	
2 to 3 minimum wages	17(34.0)	34(50.0)	
> 4 minimum wages	6(12.0)	10(14.7)	

The continuous variable (age) is presented as mean ± standard deviation while data are presented as absolute and relative (%) groups.

^a independent T test; ^b Chi-square test.

¹ One minimum wage is about US\$336.00 or €233.56/month.

When the SF-36 questionnaire was applied, all variables tested showed significant differences in the score means between groups. The domains with the highest negative influence were vitality (OR 4.23), general health state (OR 3.81) and limitation due to physical aspects (OR 3.00) (Table-2).

quality of life in the domains of general health perception, social relations, and sleep and mood aspects, in addition to limitations in their activities of daily life (14). However, the study was limited due to heterogeneity in disease stage classification of the study population.

Table 2 – Quality of life of the studied sample according to the groups with and without urinary symptoms.

SF-36	With Urinary Symptoms N = 50	Without Urinary Symptoms N = 68	p ^a	OR (IC 95%)	p ^b
Functional capacity	64.90 ± 31.15	81.01 ± 27.18	< 0.01	2.43 (1.01 - 5.86)	0.04
Limitation (physical aspects)	52.50 ± 49.63	78.46 ± 39.28	< 0.01	3.00 (1.36 - 6.60)	< 0.01
Pain	51.60 ± 30.06	69.02 ± 27.92	< 0.01	2.94 (1.33 - 6.47)	< 0.01
General health state	47.46 ± 17.74	60.59 ± 19.78	< 0.01	3.81 (1.74 - 8.35)	< 0.01
Vitality	56.10 ± 23.91	72.46 ± 24.69	< 0.01	4.23 (1.86 - 9.60)	< 0.01
Social aspects	73.34 ± 25.35	84.34 ± 24.64	0.02	2.70 (1.02 - 7.16)	< 0.01
Limitation (emotional aspects)	56.66 ± 47.26	78.88 ± 38.60	< 0.01	2.55 (1.14 - 5.70)	< 0.01
Mental health	61.58 ± 22.25	73.43 ± 23.58	< 0.01	2.22 (0.91 - 5.37)	< 0.01

^a independent T test; ^b univariate logistic regression relating items of the questionnaire of quality of life with the presence of urinary symptoms. In codifying variables: 1 = low quality of life (score < 50) 0 = adequate quality of life (score > 50).

DISCUSSION

From all items evaluated in the questionnaire SF-36, general health state and vitality were independently associated with quality of life in the group with urinary complaints. The consistent relationship of these factors with quality of life reflects how these individuals feel in relation to life and health. It is also a reflection of the limitations their symptoms have on the performance of their activity of daily life as well as their professional and social activities. In addition, it reflects the impact of their disease on their emotional state and their quality of life.

A previous study that compared the impact of urinary incontinence in the quality of life of women infected with HTLV-1 with uninfected women showed that infected women had worse

In addition, gynecological symptoms were also present in female participants, which could have interfered in the final analysis in the present study although we assumed that vaginal delivery should have been similar in both groups. We recognize that one of the limitations was to not have had history of vaginal delivery. Additionally, we could not rule out that the other symptoms may have influenced the quality of life. It is relevant to mention that erectile dysfunction in HTLV-1 infected subjects is highly associated with urinary symptoms of overactive bladder (10).

Quality of life has been previously analyzed in HTLV-1 infected subjects with or without HAM/TSP who present urinary symptoms. About 13.9% of HTLV-1 carriers were found to have bad or very bad quality of life (15). These findings led to the conclusion that HTLV-1 infection, even in absence

of HAM/TSP as long as urinary symptoms are present, negatively affects quality of life in affected individuals. However, limitations in the culture appropriateness of the questionnaire used (Ditrovic) could affect the efficacy of the evaluation instrument (16).

The advantage of SF-36 questionnaire used in this study compared to previously used surveys is that it is a multidimensional instrument that considers both individual perceptions and their health state. In addition, it encompasses various aspects of health in addition to being validated and translated into Portuguese.

Urinary symptoms can affect an individual's life both socially and economically. When investigating the impact of overactive bladder on work productivity, Sexton et al. (17) demonstrated that urinary symptoms were associated with low levels of work productivity. Although studies have shown a negative influence in the quality of life of HTLV-1 carriers who present urinary symptoms, a passive attitude is observed regarding the search for therapeutics that could soften this suffering. The findings here presented highlight the importance of health care professionals being aware of the psychosocial aspects of urinary symptoms in HTLV-1 infected subjects in order to improve quality of care, reinforcing the need to offer these patients alternatives for treatment aiming at improving overall quality of life and boosting self-esteem and dignity.

CONCLUSIONS

In conclusion, urinary symptoms negatively influence the quality of life of individuals infected by HTLV-1. Investments should be made in therapeutic resources in order to decrease the risks of urinary infection, and preservation of a functional urinary system. Steps should be taken to ease the psychosocial, physical and emotional limitations in affected individuals to improve quality of life.

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CONFLICT OF INTEREST

None declared.

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