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Impact of HTLV-I in quality of life and urogynecologic parameters of women with urinary incontinence

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ABSTRACT

Objective: To assess the impact of urinary incontinence in quality of life, epidemiological data, symptoms, findings of gynecological/neurological examination and urodynamic of HTLV-I seropositive women compared with HTLV-I negative women.
Study design: 43 incontinent women were divided in two groups: 24 seropositives and 19 seronegatives for HTLV-I. We used King's Health Questionnaire (KHQ), standardized recorded data and urodynamics. Data were compared using Mann–Whitney test or Chi-squared test.
Results: Quality of life was significantly worse in seropositive incontinent women in the following parameters: general perception of health, impact of incontinence, limitation of daily life activities, social relations, sleep and disposition. Also, the following gynecological/neurological symptoms were more prevalent in seropositives: pain on vesical filling, dyspareunia, parestesis in inferior members, increased perineal sensitivity, pain in vaginal palpation, increased vaginal tonus, gait alteration, increased patellar reflex, Babinski reflex positive and increased tonus in inferior members.
Conclusion: Poor quality of life and physical abnormalities were identified in incontinent HTLV-I seropositive women when compared with incontinent HTLV-I seronegative women.
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1. Introduction

HTLV is a retrovirus of oncovirinae subfamily which preferably infects CD4+ lymphocytes [1–3]. HTLV-I was isolated in 1980 and is mostly associated with adult T-cell leukemia/lymphoma (ATL) and tropical spastic paraparesis (TSP)/HTLV-I-associated myelopathy (HAM). HAM/TSP is a chronic and slowly progressive inflammatory myelopathy that may lead to severe neurological disability. It is characterized by muscle weakness, hyperreflexia, lower extremity spasticity and urinary disturbance [4–6].

HTLV-I is an endemic disease in Japan, Caribbean region, Africa, South America and Melanesian islands. Infection is also endemic in Brazil, with the highest number of cases [7,8]. Studies reported 0.41% seroprevalence in Brazilian blood donors, who present rates of 0.08 and 1.35% in the South and Northeast regions, respectively. These values are probably underestimated because most donors are men and seropositivity is higher in women in endemic zones. High prevalence is also associated with lower educational level, afrodescends, blood transfusion history and use of endovenous illegal drugs [9].

After infection, 1–5% HTLV-I carriers will become symptomatic [10,11]. In most T cells, the virus is in a latent form. Infection induces activation of T cells, which are able to destroy both myelin sheath and axon. This fact leads to demyelination and axon degeneration. Infected lymphocytes release cytokines and other neurotoxic factors that cross the blood-brain barrier, initiating an inflammatory process in the central nervous system, inducing a cellular lesion [5].

ATL and TSP/HAM are the most frequent clinical manifestations. Other clinical forms, including uveitis, infective dermatitis, and opportunistic infections are also reported [2,7]. Attack of the spinal cord by the HTLV-I virus determines the appearance of a serious clinical syndrome with insidious onset and progress. According to World Health Organization criteria, TSP/HAM is characterized by pyramidal signals, variable degrees of sphincterian and sensitive disturbances, and positive serology for HTLV-I virus [12–14].

HTLV-I transmission can occur by mother–child and sexual contacts, blood transfusion and sharing of contaminated syringe needles. Mother–child transmission occurs mainly during breast-

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feeding. Higher sexual infection occurs from men to women. Parenteral transmission may occur by blood transfusion such as erythrocytes and platelets [15,16].

Lower urinary tract manifestations are present in up to 90% of patients with HAM/TSP and are characterized by frequency, urgency, and urge-incontinence. However, most of the available data are limited to case reports and descriptions of the overall clinical picture in patients with overt disease, with neither emphasizing the urogynecological aspects or classifying the individuals according to their clinical or neurologic impairment [17].

In the present study we evaluated epidemiological data, prevalent symptoms, main findings in gynecological/neurological examinations and urodynamic study of HTLV-I seropositive women compared with HTLV-I negative women.

1.1. Patients and methods

The study evaluated 43 incontinent women from January to December 2004. Group 1 ($n = 24$) and Group 2 ($n = 19$) were composed of patients who were respectively seropositive and seronegative for HTLV-I virus.

The study was approved by the Research Ethics Committee of the Blood bank (HEMOPE, Pernambuco, Brazil) and patients signed an informed consent.

Inclusion criteria were: women with age between 20 and 60 years, menacme and pre- or postmenopausal status, clinical complaint of urinary incontinence, and confirmed positive or negative diagnosis for HTLV-I by Western blot or PCR. Exclusion criteria were: age lower than 20 and higher than 60 years, no complaint of urine loss, patients who did not accept to be submitted to screening test, pelvic organ prolapse stages III or IV, urinary tract infection, concomitant HIV infection, diabetes mellitus without clinical control, chronic renal disease, dementia or accentuated cognitive deficit, urogynecological cancer, and confirmed or suspected pregnancy.

All patients underwent a standard clinical history assessment in which they were asked about urinary leakage as well as other urogynecologic symptoms such as: (a) urinary symptoms: urine loss on effort, urge-incontinence, urinary frequency, nocturia, enuresis, hesitation, sensation of incomplete voiding, voiding difficulty, dysuria, vesical pain; (b) proctological symptoms: constipation, evacuation effort, incontinence of feces or flatus, anal or rectal pain; (c) peripheral neurological symptoms: difficulty in deambulation, weakness, strength loss, numbness and tingling in the lower limbs, falls; and (d) complaint of pain in intercourse, decrease in libido, difficulty with orgasm.

Patients were clinically evaluated with gynecological examination, pap-smear cytology, glycemia, and uroculture. Data from the physical examination were recorded (specular examination and vaginal and rectal touch, trophism, urethral mobility, functional evaluation of pelvic floor, evaluation of genital prolapse, perineal sensibility, vaginal pain and tonus, evaluation of reflexes in perineum and lower limbs, evaluation of gait, strength, and tonus in lower limbs).

They were submitted to urodynamic examination performed with four-channel Dynamed Uro-Master II equipment according to recommended technique. Detrusor overactivity was defined as urodynamic observation characterized by involuntary detrusor contractions during the cystometry which may be spontaneous or provoked [18].

All patients also answered a Portuguese version of King's Health Questionnaire (KHQ) for quality of life [19].

1.2. Statistical analysis

All numerical data are expressed as the mean ± standard deviation (SD). The two groups were assessed for comparability using either a Mann–Whitney test for or Chi-squared test for categorical variables. Level of significance (p) was set at ≤ 0.05 ($\alpha = 5\%$).

Table 1
Clinical data of general features of the two groups.

	Group 1 $n = 24$	Group 2 $n = 19$	p value
Age (years)	50.7 ± 10.4	50.8 ± 10.4	0.98
Race			
White	7	14	
Non-white	17	5	0.003
Degree education			
Less than 4 years	8	0	
4–8 years	8	7	
More than 8 years	8	12	
None	0	0	0.015
Transmission			
Transfusional	6	0	
Mother–child	3	0	
Unknown	11	0	<0.001

Group 1: seropositive for HTLV-I virus, Group 2: seronegative for HTLV-I virus, values are given as mean (±standard deviation) or number of subjects (n).

2. Results

Epidemiological data are presented in Table 1.

The mean age was 50 years. Difference between groups was not observed regarding parity, type of childbirth, hormonal status, use of hormonal therapy, previous gynecological surgery, diabetes mellitus, peripheral neuropathy, need for ambulation assistance or wheelchair use. However, the presence of urinary infection confirmed by uroculture, non-white race (71%), and low education (66%) were more frequent in the seropositive group.

In this study, 63% of the seropositive patients were considered healthy carriers and 38% of them had diagnosis of TSP/HAM. Peripheral blood samples of all seropositive patients were analyzed for HTLV-I to confirm positivity with Western blot or PCR test. PCR test was performed in 38% of seropositive patients and the result showed to be positive for HTLV-I in all cases and in 47% of seronegative patients, in which the result showed to be negative for HTLV-I. A possible way for infection transmission (transfusional, sexual, or mother–child) was identified in 55% of seropositive patients and none of the patients presented cross infection with HIV or HTLV II.

Table 2 shows domains of KHQ significantly altered in seropositive patients. Changes were observed in general perception of health ($p = 0.003$), impact of incontinence ($p = 0.045$), limitation in activities of the everyday life ($p = 0.036$), social relationships ($p < 0.0001$), and sleep and disposition ($p = 0.001$).

Table 2
Data on quality of life of patients with urinary incontinence between two groups.

Domains	Group 1 $n = 24$	Group 2 $n = 19$	p value
General health perception	62.4 ± 26.5	42.1 ± 16.7	0.003
Incontinence impact	82.6 ± 30.1	63.1 ± 31.2	0.045
Limitation on daily activity	52.1 ± 36.0	29.8 ± 31.7	0.036
Physical limitation	56.5 ± 34.9	37.6 ± 34.1	0.082
Social limitation	41.4 ± 36.8	31.5 ± 29.1	0.330
Social relationships	59.0 ± 24.0	30.5 ± 12.5	0.001
Emotions	14.0 ± 20.9	5.0 ± 7.7	0.059
Sleep and disposition	66.1 ± 40.0	32.4 ± 25.7	0.001
Measurements of severeness	43.0 ± 26.2	39.6 ± 20.0	0.630

Group 1: seropositive for HTLV-I virus, Group 2: seronegative for HTLV-I virus, values are given as mean (±standard deviation).

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