

## Association between HTLV-I Infection and Chronic Lupoid Leishmaniasis

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### ARTICLE INFO

Article type:

Short Communication

Article history:

Received: Mar 27, 2012

Accepted: Aug 2, 2012

Keywords:

Cutaneous lupoid leishmaniasis

Cutaneous leishmaniasis

Human T cell lymphotropic virus type I

### ABSTRACT

**Objective(s):** One of the special types of cutaneous leishmaniasis is the Chronic Lupoid Leishmaniasis (CLL), which abnormal immune responses have been implicated in its pathogenesis. On the other hand, HTLV-I infection has been known to exist in some infectious diseases. Human T cell lymphotropic virus type I (HTLV-I) and cutaneous leishmaniasis exists endemically in Mashhad. The objective of this study was to evaluate the frequency of HTLV-I in CLL patients.

**Materials and Methods:** This cross sectional study involved 51 CLL patients admitted to cutaneous leishmaniasis clinics of Ghaem and Imam Reza hospitals in Mashhad, Iran. The blood samples were examined for serology tests by ELISA method.

**Results:** The results of the tests for evaluating the existence of HTLV-I in 51 patients in this research were proved to be negative.

**Conclusion:** According to this pilot study, the frequency of HTLV-I in CLL patients is not higher than normal population.

► Please cite this paper as:

Pezeshkpoor F, Rezaei AR, Shirdel A, Khajedaluae M, Alizadeh M, Yazdanpanah MJ. Association between HTLV-I Infection with Chronic Lupoid Leishmaniasis. Iran J Basic Med Sci: 2013; 16: 281-3.

### Introduction

Leishmaniasis consists of chronic human infections, developed by types of parasites that are intracellular protozoan parasites. (1) Cutaneous leishmaniasis is endemically found in different regions of Iran, including Mashhad. (2) CLL is caused by the recurrent papules around the scars of an old leishmaniasis (3). The exact etiology for the existence of such a leishmaniasis is still unknown. CLL is a clinical form of leishmaniasis. Despite the immune response against parasites and a heightened hypersensitive response, the body's immune system will not be able to remove the parasite completely and a chronic granulomatous response continues to exist for a

long time. (4-6) In 2011, the prevalence of HTLV-I in Mashhad was reported to be 2.12%. (7)

Due to the simultaneous spread of these two diseases in Mashhad on the one hand and the evidences of body's immune system's role in those diseases on the other hand, and in order to have a better understanding of CLL pathogenesis and HTLV-I infections, we decided to examine the HTLV-I infections in CLL patients.

### Materials and Method

In this cross-sectional pilot study, conducted in 2010-2011, 51 CLL patients were included in this research at cutaneous leishmaniasis clinics of Ghaem and Imam Reza

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Hospitals in Mashhad, Iran. The project started soon after obtaining the permission from Ethical Committee. The evidence for the existence of CLL in these patients was based on the primary samples of leishmaniasis lesions after one year and a present clinical form of leishmaniasis. In clinical cases, the lesions were the scars of the newly recovered leishmaniasis, along with the recurrent activation of papules or nodules around or on it. The primary diagnosis was mostly done through smear tests. The skin biopsies confirmed the data collected from the early indefinite diagnosis for 8 patients. After giving sufficient information about the objectives of the study to the patients and obtaining formal consent from them, (in the case of the children, the consent was obtained from their parents), the patients' special questionnaire were filled. The patients' blood samples were taken to the laboratory and were examined for serology tests by ELISA (Diaprotek, made in Italy) method. It was expected that in the case of positive results of ELISA test, the patient's blood test should be further examined by PCR in order to test the RNA viruses and proviral load.

In order to analyze the data, and to consider demographic characteristics, SPSS software version 16 and T-test and Chi-square nonparametric statistical tests were used.

## Results

Fifty-one patients were studied. The mean age was  $21.37 \pm 19.1$  years (Min=3 years, Max=70 years). 29 patients (56.9%) were female and 22 of them (43.1) were male. Fifteen patients had more than one lesion. Location of lesions in the majority of cases was on the face. Mean age of the lesions was 2.08 years in females and 4.2 years in males. ELISA tests for HTLV-I antibodies were negative in all cases.

## Discussion

Cutaneous leishmaniasis exists endemically in Mashhad. One of the special types of cutaneous leishmaniasis is the chronic lupoid leishmaniasis which may occur generated after infection with *leishmania tropica*. (4) Chronic course is one of the characteristics of this type of leishmaniasis and its treatment is also difficult.

Moreover, the investigations about the HTLV-I infection and other associated diseases showed more frequent infections such as strongyloides (8), scabies, leprosy and herpes labial. (9,10)

HTLV-I might be responsible for creating disharmonies in body's immune system through insinuating changes. Thus, it can reinforce the possibility of complications originating from the suppression of immune system. (11)

In addition to the above-mentioned issues with the main basis for this study, is the fact that both HTLV-I and CLL exist endemically in Mashhad. In a study carried out

in 1999 in Columbia, the coexistence of HTLV-I with cutaneous leishmaniasis (in three groups of severe, chronic and clinical infections) was examined and was subsequently rejected. (12) In the present study, too, serologic examination of HTLV-I by ELISA method was negative in all patients.

In conclusion, it seems that the frequency of HTLV-I in CLL patients is not much higher than in normal cases.

It is obvious that focusing on the immune system factors is not enough for investigating the CLL pathogenesis and other factors including parasite related factors, environmental factors such as sunlight, UV rays and also host-related factors such as genetic factors, age etc should be taken into account. So, CLL could be considered as a multifactorial disease. (13)

## Acknowledgment

We would like to thank Dr. Khajedaluae M. and Mrs. Valizadeh N. for their cooperation in this research. This article was extracted from the thesis prepared by Dr. Mansoreh Alizadeh. The research council of the Mashhad University of Medical Sciences, Mashhad, Iran is appreciated for financially supporting this study, grant number 2432.

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