Global view

Human T lymphotrophic virus-I (HTLV-I) infection in patients with unclassifiable dermatitis in central Kerala, south India: a preliminary study

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Human T lymphotrophic virus-I (HTLV-I), a pathogenic virus, is the aetiology of adult T cell leukaemia/lymphoma (ATLL), and tropical spastic paraparesis (TSP). It is endemic in Japan, the Caribbean islands, and Africa. It has also been reported from some places in India, from select populations in Israel, and other countries in the West. This virus is mainly spread vertically through the sexual route, through blood transfusions and sharing of needles. HTLV-I has also been associated with clinical conditions like infective dermatitis. In countries with a high prevalence of HTLV-I in the general population, the prevalence of HTLV-I infection in these conditions is higher than in countries with a lower prevalence.

In India, HTLV-I infection has been reported in individuals with ATLL, TSP and sexually transmitted infections (STI). This infection has also been proven by molecular techniques. Most of the cases of ATLL published from India are from the state of Kerala, south India. Despite this fact, there are no systematic studies among the other risk groups in Kerala. We have conducted a preliminary serostudy to confirm the presence of this virus in patients with dermatitis of unknown aetiology and among individuals with STI in central Kerala. Patients with unclassifiable dermatitis were selected in order to see if dermatitis could be aetiologically related to HTLV-I infection in these conditions.

PATIENTS

Forty five consecutive patients who attended the dermatology clinic of Medical College Kottayam between April 1998 and April 1999 with extensive dermatitis that could not be clinically classified into any known clinical entity were included in the study. Before inclusion at least three blinded dermatologists examined these patients independently to make a definite clinical diagnosis. All these patients had at least 30% of their skin affected by dermatitis. All patients underwent detailed clinical examinations and investigations including haemogram, chest x ray, and ultrasound abdomen to rule out any co existing systemic pathology.

RESULTS

From the dermatitis group 45 individuals were tested (male:female = 25:20). The average age was 32.9 (range 6–72 years). The STD group consisted of 37 individuals. The majority were male (male:female ratio 29:8). The average age was 27.7 years (range 17–60 years).

METHODS

Serum/plasma samples were screened for anti-HTLV-I antibody by a gelatin particle agglutination test (PAT) (Serodia HTLV-I, Fujirebio, Tokyo, Japan) at the Department of Clinical Virology, Christian Medical College Hospital, Vellore. Samples that reacted with the sensitised particles (at a dilution of 1/16) and not the unsensitised particles were considered reactive. These samples were then titrated by end point dilution. Samples that reacted with both sensitised and unsensitised particles were considered indeterminate. Reactive and indeterminate samples were confirmed by an immunoblot (InnoLiA HTLV-I/II, Innogenetics, Belgium).

DISCUSSION

There are a few case reports of HTLV-I induced ATLL and TSP from India. There are regional variations in the endemicity of HTLV-I in the Indian subcontinent itself. It is known to be present in the states of Kerala, Tamil Nadu, and Andhra Pradesh in south India. While a study on samples from Uttar Pradesh (north India) and West Bengal (north east India) failed to demonstrate the presence of HTLV-I, a study from Delhi (north India) documents prevalence in 6% of HIV seronegative cases and in 30% of HIV seropositive blood donors by a particle agglutination test.

Though a high seropositivity has been reported among the blood donors by the screening test, the antibody titres were low, and a confirmatory test was not performed on these samples. Hence, the true seropositivity in this area is not known.

HTLV-I infection is also associated with sexual transmission in the Yellove region (Tamilnadu state) of south India. We have found evidence of vertical transmission of HTLV-I from Kerala and Andhra Pradesh; early, we have detected the presence of this virus among patients with ATLL and CTCL from Kerala.

HTLV-I is seen associated with a poorly defined dermatitis (infective dermatitis) in the Caribbean countries. This entity is not reported from India. HTLV-I also has been reported to produce various types of skin rashes. Though cases of ATL have been reported from Kerala, there are no studies on the association of this virus and dermatitis from this region. Our study proves the presence of antibodies to this virus in a subset of individuals with unclassifiable dermatitis in Kerala.

The first patient showed recurrent erythematous plaques with massive collection of lymphocytes in the dermis. This patient did not have evidence of malignancy and, unfortunately, she was lost to follow up. The second patient had generalised dermatitis. Biopsy from this patient showed a dermatitic pattern, which can be an early manifestation of cutaneous T cell lymphoma. There are some anecdotal studies which report cases of HTLV-I associated cutaneous T
cell lymphoma with, serological response, though molecular demonstration of HTLV-I sequences is possible.\(^1\)\(^2\) We have also found a lack of seroreactivity to HTLV-I both in cases of haematological malignancy and among family members of infected individuals.\(^3\) If the same is true in infectious dermatitis, serodiagnosis may give a low estimate of HTLV-I infection. In addition, the prevalence of HTLV-I infection in cases of infectious dermatitis is high in areas with a high prevalence of HTLV-I infection in the general population. As south India is not an area where the seroprevalence of HTLV-I is high,\(^4\) the low seroprevalence seen here among individuals with dermatitis may be a reflection of the low seroprevalence of infection in the community.

We failed to find evidence of HTLV-I among individuals with STI. This probably is a reflection of the small sample size as this is a pilot study. In the Vellore region of the neighbouring state of Tamil Nadu, a prevalence of 1.1–1.2% has been reported among commercial sex workers a prevalence of 3.8% has been reported.\(^5\) A larger study on STI patients is required to identify the prevalence in this group.

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**References**