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Human T-lymphotropic Virus Type 1/2 In Renal Transplant Recipients and Hemodialysis Patients in Khartoum state

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Abstract:

Background: The human T-lymphotropic virus or human T-cell leukemia-lymphoma virus (HTLV) is one of human retroviruses family. There are numerous sorts of HTLV; The human T lymphocyte virus 1 (HTLV-1) is a kind of HTLV that can be a reason for some maladies, for example, HTLV-1 related myelopathy (HAM) and adult T-cell leukemia, (ATL). HTLV-2 is another kin-d of HTLV however it isn't care for HTLV-1 it is less pathogenesis. Patients with hemodialysis powerless to viral contamination since some infections like HTLV can be transmitted by blood; additionally patients with renal transplantation are defenseless to viral diseases because of their immune compromised background. **Objective:** This study aims to provide data about prevalence of (HTLV1/2) among renal transplant recipients and hemodialysis in Khartoum State. **Materials and methods**: A total of 100 patients, 50 patients had renal transplantation and the other 50 patients on hemodialysis. Blood samples were obtained to measure HTLV type 1/2 antibodies using Enzyme-linked Immuno Sorbent Assay (ELISA). The study was done in the period from June to November 2017 in Khartoum state. And SPSS 20 software and Microsoft Excel were used for the statistical analysis. **Results**: The study showed among hemodialysis patients, 2 out of 50 (4%) were seropositive for HTLV1\2, IgG antibodies and 48 (96%) of the cases were sero-negative. Also showed among renal transplant recipients all of them were sero-negative for HTLV1\2 IgG antibodies. The percentage of male and female in the hemodialysis patients was 62.0 % and 38.0 % respectively and in renal transplantation patients was 76.0 % and 24.0 % respectively. **Conclusion**: The human T-lymphotropic virus 1/2 seropositive was found among hemodialysis patients, and the HTLV1/2 sero-negative was found in renal transplant recipients in Khartoum, Sudan. Thus the prevalence of HTLV 1/2 in a large sample size in Sudan should be conducted.

Keywords: *Renal failure, Human T-lymphotropic Virus, Khartoum state*

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Introduction:

Human T-lymphotropic infections (HTLV) one of the Retroviridae family**,** qualities Delta retrovirus, now they are arranged into four kinds: 1, 2, 3 and 4. The HTLV-1 was portrayed in 1980 [(1)] also, fro m that point forward has been recognized on each of the five main lands, with an expected of 15 to 20 million contaminated individuals [(2)].

Regions of incredible predominance for HTLV-1 i ncorporate Japan, Sub-Saharan Africa, Caribbean bowl, South America, Melanesia and the Middle E ast. The HTLV-2 was portrayed in 1982 [(3)] and it i s endemic in African and Amerindian populaces, yet its overall conveyance has been attributed to tr ansmission among intravenous medication clients. HTLV-3 and 4 were found in a country zone of so uthern Cameroon and, at show, they are limited to that area [(4)].

HTLV-1 and 2 are transmitted sexually and vertic ally, right off the bat by breastfeeding, and also pa renterally, by tainted blood transfusion, sharing of polluted needles and syringes, or transplantation o f contaminated organs and tissues. The levels of H TLV-1 proviral load and hostile to HTLV-1/2 anti bodies are critical to sexual or vertical infection tr ansmission, other than the time of presentation to hazard factors (sex or breastfeeding). In endemic t erritories for HTLV-1, around 25% of newborn ch ildren's breastfed by HTLV-1 seropositive moms s ecure the contamination. In view of HTLV-1/2 tra nsmission by blood transfusion, distinctive nations have presented at various circumstances screening for the infections in blood donation centers, some of them the nation over and others just in endemic zones [(5)].

The effectiveness of HTLV-1 transmission by blo od transfusion may rely upon sort and time supply of the blood segment, other than the proviral heap of the blood contributor, since the transmission is needy of the nearness of tainted cells. Think back investigations have indicated diverse rates of sero conversion in patients who have gotten HTLV-1 c ontaminated blood, which is higher in zones with high commonness than those with low predomina nce [(6)]. Hence, HTLV-1/2 screening of blood units is critical to keep the most instances of transfusion transmitted disease, yet the generally long HTLV i mmunological window period (51 days) may pro mpt its transmission, been vital build up haemovig ilance activities in blood donation centers [(7)].

HTLV-2 isn't known to have an exact pathologic p art. It isn't related with any malignancies, yet just with uncommon instances of subacute myelopathy like HAM/TSP, that have an all the more graduall y movement [(8)]. In any case, HTLV-2 seems, by al l accounts, to be related with an expanded rate of pneumonia, asthma and bronchitis, bladder and ki dney disease, incendiary conditions, for example, j oint pain, and with expanded mortality, being reco mmended that HTLV-2 may repress immunologic reactions to respiratory contaminations and incite fiery or immune system responses [(9)].

Human T-lymphotropic infection 2 (HTLV-2) is endemic in some African populaces and in Ameri-indians clans from North, Central and South America, particularly in Brazil, where a few clans indicate predominance of 30% [(10)]. HTLV-2 is like

wise present among intravenous medication clients (IDU), for the most part in the United State s and in Europe [11].

Material and Methods:

This study is a cross sectional study, which was conducted in Khartoum state from June 2017 to November 2017. It included 100 patients, 50 hem odialysis patients at Military hospital, the other 50 were renal transplant recipients at Ahmed Gasim hospital.

Blood sample was collected and allowing stand at room temperature for one hour to obtain serum, centrifuged at 3000 rpm for 5 min, then serum was kept at –20ºC until analysis of HTLV antibodies. HTLV type 1/ 2 antibody analysis was done by standard ELISA technique (Dia Pro diagnostic bio probe kits made in Italy) in the microbiology lab of International University of Africa (IUA).

Permission to carry out this research was obtained from the health authorities. Patients were fully informed about this work.

Statistical analysis

For data analysis the Statistical Package for Social Science (SPSS-20) and Microsoft Office Excel was used.

Result:

The frequency of hemodialysis patients and renal transplant recipient were equal to 50 patients, (ie.50 % each), (Table 1). The percentage of male and female in the hemodialysis patients was 62.0 % and 38.0 % respectively and in renal transplantation patients was 76.0 % and 24.0 %, respectively (Figure 1).

This study also represent that among hemodialysis patients, 2 out of 50, (4%) were seropositive for HTLV1\2, IgG antibodies and 48, (96%) of the cases were seronegative, (Table 2). The 2 HTLV positive cases were on hemodialysis 2 – 3 time per week. As among renal transplantation recipients al l of them were seronegative for HTLV1\2 IgG antibodies (Table 3). All the cases under this study were transplanted just once and no history of graft rejection.

Table (1): Represent the frequency of patients in both cases:

	FREQUENCY	PERCENTAGE
HEMODIALYSIS PATIENTS	50	50 %
RENAL TRANSPLANT RECIPIENTS	50	50 %
TOTAL	100	100 %

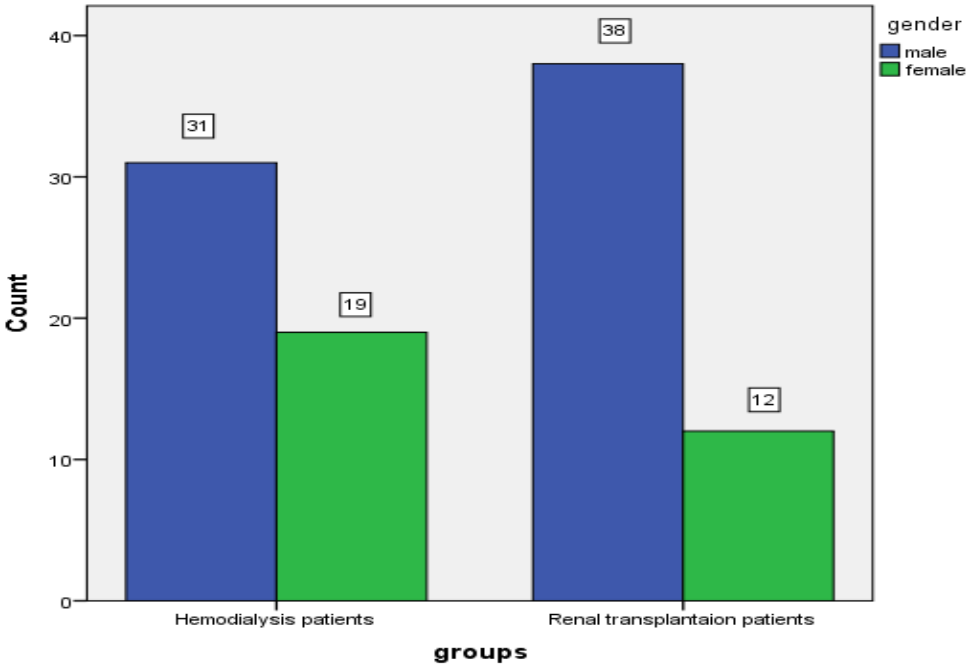

Figure (1): Shows the distribution of patients according to gender

Table (2): The percentage of HTLV1/2 positive cases in hemodialysis

	FREQUENCY	PERCENTAGE
HTLV1/2 IGG POSITIVE	2.0	4.0 %
HTV1/2 IGG NEGATIVE	48	96 %
TOTAL	50	100 %

Table (3): The percentage of HTLV1/2 positive cases in renal transplantation recipients

	FREQUENCY	PERCENTAGE
HTV1/2 IGG POSITIVE	0	0.0 %
HTV1/2 IGG NEGATIVE	50	100 %
TOTAL	50	100 %

Discussion:

This illustrative investigation was directed to give some epidemiological information with respect to the commonness of HTLV1/2 in chance gathering patients, the hemodialysis and renal transplant beneficiaries in Khartoum state –Sudan. Using ELISA, the overall seroprevalence of HTLV1/2 was 4 % from hemodialysis patients.

As stated in the Introduction, there are few articles in this regard, worldwide. Nakamura and colleagues from Japan, in an endemic region for HTLV-1, reported the seroprevalence of HTLV-1 as 8.3% to 9.9 % in renal transplant recipients [(12)]: another study by Linhares and colleagues found the HTLV seropositivity of renal transplant recipients to be 11.1%; in Brazil [(13)]. Both mentioned frequencies much higher values than th ose achieved in our study, which can be justified by the higher HTLV seroprevalence among their population compared to ours.. However, another study by Perez reported only 2 HTLV-1 seropositive cases, (0.89%), in a population of 224 American renal transplant recipients [(14)].

The current study revealed no significant difference between the seroprevalence of HTLV among hemodialysis patients and renal transplant recipients. The frequency is higher in hemodialysis patients.

Constrained accessible information from Japan un covered that in HTLV-1 endemic territories of Japan, (for example, Okinawa), the seroprevalence of HTLV-1 in transplant beneficiaries is much lower than that of hemodialysis patients (just about 9% versus 20%) [(15)].

Conclusions

The study concludes that the frequency of HTLV-1/2 seropositive was found among hemodialysis patients, in Khartoum State, and all the renal trans plant recipients in the study were seronegative for HTLV-1/2.

Limited sample size in the study probably interfered and had an influence on the final results, so implementing further studies with large amounts of participants to study the prevalence of HTLV-1/2 infection is strongly recommended.

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