

# Human T-Lymphotropic virus type 1 and Human Immunodeficiency Virus co-infection in rural Gabon, Central Africa

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## Background

Human T-cell lymphotropic virus type-1 (HTLV-1) and human immunodeficiency virus (HIV-1) co-infection can occur. People living with HIV-1 and infected with HTLV-1 seem more likely to progress rapidly towards AIDS. Both retroviruses are endemic in Gabon. We investigated HTLV-1 and HIV-1 co-infection in the Haut-Ogooué province, and assessed factors that may favor the rapid progression to AIDS in co-infected patients.

## Methods

Plasma samples from HIV-1 patients were tested using ELISA HTLV-1/2, and positive samples were then tested by western blot (WB). We used PCR to detect HTLV-1 Tax/Rex genes using DNA extracted from the buffy coat of ELISA-positives samples. All tax-positive samples were further analyzed with another semi-nested PCR to amplify a 522 bp fragment of the *env* gene.

## Results

We recruited 299 individuals (mean age: 46 years) including 90 (30%) men and 209 (70%) women, all of whom are under treatment. Of these, 45 were ELISA seropositive. According to WB criteria, 20 were HTLV-1 (44%), 1 HTLV-1/2 (2%), 2 indeterminate (4%) and 22 seronegative (49%). PCR results showed that 23 individuals were positive for the Tax/Rex region. The overall prevalence of HTLV-1 infection was estimated at 7.7%. Phylogenetic analyses of the *env* gene fragment showed that 13 of the new 14 characterized strains belonged to HTLV-1b genotype. One belonged to the HTLV-1d genotype. Being a woman and increasing age were found to be independent risk factors for co-infection. Mean CD4+ cell counts were higher in HTLV-1/HIV-1 co-infected (578.1 ( $\pm$  340.8) cells/mm<sup>3</sup>) than in HIV-1 mono-infected (481.0 ( $\pm$  299.0) cells/mm<sup>3</sup>) Individuals. Similarly, the mean HIV-1 viral load was Log 3.0 ( $\pm$  1.6) copies/ml in mono-infected and Log 2.3 ( $\pm$  0.7) copies/ml in coinfecting individuals.

## Conclusion

We described an overall high prevalence of HTLV-1/HIV-1 co-infection in Gabon. Our findings stress the need of strategies to prevent and manage these co-infections.

**DISCLOSURE OF INTEREST STATEMENT: None**