Cattelan et al. Journal of the International AIDS Society 2010, 13(Suppl 4):P213
http://www.jiasociety.org/content/13/S4/P213

JOURNAL OF THE INTERNATIONAL AIDS SOCIETY

POSTER PRESENTATION Open Access

Relationship between dynamics of Epstein-Barr virus and immune activation in HIV-1 infected subjects in the HAART era

AM Cattelan[1*], M Zanchetta[2], L Sasset[1], R Petrara[3], R Freguja[3], K Gianesin[3], MG Cecchetto[1], F Cremona[2], A De Rossi[3]

From Tenth International Congress on Drug Therapy in HIV Infection
Glasgow, UK. 7-11 November 2010

Purpose of the study

HAART has greatly modified the course of HIV-1 infection; however, its impact seems to be less favourable on lymphoproliferative disorders associated with Epstein-Barr virus (EBV) than on other AIDS-defining illnesses. The aim of this study was to estimate the relationship between EBV levels and other viro-immunological parameters in HIV-1 infected subjects in the HAART era.

Patients and methods

164 HIV-1 infected patients (pts) who attended the Infectious Diseases Unit of Rovigo Hospital, from July 2007 to December 2009 were included in this study. 28% of patients had HBV and/or HCV coinfections. HIV-1 RNA in plasma was quantified by COBAS Taqman HIV-1 test. HIV-1 DNA and EBV-DNA in peripheral blood mononuclear cells (PBMC) were determined by real-time PCR. Lipopolysaccharide (LPS), a marker of microbial translocation, was determined in plasma samples using a chromogenic assay (Limolus Amebocyte Lysate). B-cell activation was analyzed by flow cytometry using monoclonal antibodies CD19PerCP, CD86APC, and CD69PE.

Results

The median (IQR) EBV-DNA load was 41(1-151) copies/105 PBMC. 48% of pts had CD4 >500 cells/μl and 27% had undetectable HIV viral load. The EBV-DNA level was significantly higher in pts with CD4 below 500 cells/μl than in those with CD4 >500cells/μl [72(14-324) vs 18 (1-80) copies/105; p<0.0001] and in pts with detectable HIV-1 RNA than in those with undetectable viremia [49(7-315) vs 17(1-55) copies/105; p=0.001]. Levels of EBV-DNA were higher in the group of pts with CD4 cell counts >500 cells/μl and high HIV-1 viremia (>1000 copies/ml) than in pts with low viremia, regardless of the immunological status [48 (5-153) vs 18(1-60); p=0.015). EBV-DNA was also significantly higher in pts with coinfections than in pts with no coinfections [85(10-527) vs 33(1-114); p= 0.003]. Furthermore, pts with high EBV loads (up to 75th percentile) had higher levels of HIV-1 DNA [40 (1-132) vs 10(1-76) HIV-DNA copies/105; p= 0.050) and higher levels of LPS [130(88-244) vs 98(81-134) pg/ml; p=0.024) than pts with low EBV loads. B-cell activation in pts with high EBV loads was confirmed by immunophenotyping; two of these pts developed a B-cell lymphoma.

Conclusions

These findings suggest that HIV-1viremia, other coinfections, and immune activation play an important role in the B-cell stimulation and expansion of EBV-infected cells. Persistent HIV-1 viremia, despite immunereconstitution, may represent a risk factor for the onset of EBV-related cancers.

Author details
[1]Division of Infectious Diseases, General Hospital of Rovigo, Viale Tre Martiri, Rovigo, Italy. [2]IOV-IRCCS, Padova, Italy. [3]Dept Oncology and Surgical

[1]Division of Infectious Diseases, General Hospital of Rovigo, Viale Tre Martiri, Rovigo, Italy
Full list of author information is available at the end of the article

Sciences, Section of Oncology, AIDS Reference Center, University of Padova, Padova, Italy.

Published: 8 November 2010

doi:10.1186/1758-2652-13-S4-P213
Cite this article as: Cattelan *et al.*: Relationship between dynamics of Epstein-Barr virus and immune activation in HIV-1 infected subjects in the HAART era. *Journal of the International AIDS Society* 2010 **13**(Suppl 4): P213.