European **Rev**iew for **Med**ical and **Pharmacol**ogical **Sci**ences 2008; 12: 67-69

Letter to the Editor

HCV co-infection does not affect the TREC/IL-7 pathway in HIV disease

Abstract. – About thymic output, little is known in HIV-HCV co-infected patients. Thymic output can be measured by T-cell receptor excision circles (TREC) present in the so called "recent thymic emigrants" (RTEs). We have analyzed, by Real time PCR, sj-TREC$^+$ cells in 11 patients with HIV-HCV co-infection; all patients were treated with highly active antiretroviral therapy (HAART), but were naive for interferon anti-HCV treatment. The results were compared with those of 21 age-matched normal donors. These data show no reduction of sj-TREC$^+$ cells in co-infection. In 5 co-infected patients, IL-7 plasmatic levels were also evaluated by ELISA and no difference between co-infected patients and normal controls was found. Taken together, our data, although limited by the numerosity of the sample, may suggest that HCV co-infection does not affect the TREC/IL-7 pathway in HIV disease.

Key Words:

HIV-HCV co-infection, T-cell receptor excision circles (sj-TREC), Human IL-7, Hepatitis G virus (HGV) co-infection.

Considerable interest has been attracted on thymic output in patients with HIV disease. Thymic output can be measured by T-cell receptor excision circles (TREC) present in the so called "recent thymic emigrants" (RTEs)[1,2]. TREC are DNA fragments representing a byproduct of T-cell receptor rearrangement; there are at least two possible molecules, named coding-joint (cj) and signal-joint (sj) TREC, each of which is produced in a defined moments of the intrathymic maturation of T cells.

Thymic output is reduced in HCV infection[3], but little is known in HIV-HCV co-infected patients. Recently, decreased plasmatic levels of IL-7 in patients with HIV-HCV co-infection have been reported[4]. One limit of this study is that IL-7 levels are increased as compared with HIV monoinfected patients, while no comparison with controls is reported. Our previous report of decreased T-cell receptor excision circles (TREC) positive cells in HCV infection[3] prompted these authors to evaluated TREC in such patients and lower levels of RTEs were not found in co-infected patients.

We have analyzed sj-TREC$^+$ cells in 11 patients with HIV-HCV co-infection; all patients were treated with highly active antiretroviral therapy (HAART), but were naive for interferon anti-HCV treatment. sj-TREC were evaluated by Real time PCR on a LightCycler (Roche Diagnostics, Penzberg, Germany) and the results compared with those of 21 age-matched normal donors (Figure 1). Our data confirm and reinforce those by Soriano-Sarabia et al.[4], showing no reduction of sj-TREC$^+$ cells in co-infection. In 5 co-infected patients, IL-7 plasmatic levels were also evaluated by ELISA (human IL-7, BMS237INST, Bender MedSystems GmbH; Vienna, Austria). Our data show no difference between co-infected patients and normal controls.

Taken together, our data suggest that HCV co-infection does not affect IL-7 mediated thymic output and underline the complex roles of different risk factors in HIV disease: in this conditions, co-infection with HCV[5], low TREC[1] and high IL-7[6-7] levels are all known risk factors

Corresponding Author: Franco Pandolfi, MD; e-mail: franco.pandolfi@uniroma1.it

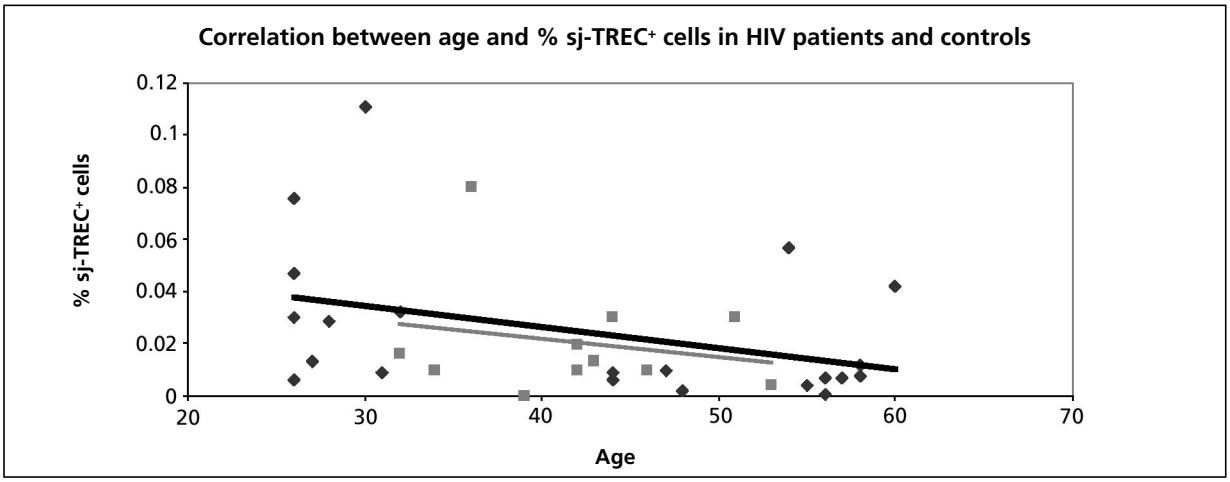

Figure 1. TREC+ cells in 11 patients with HIV-HCV co-infection (grey spots) compared with 21 age-matched normal donors (black spots). A negative correlation between TREC percentage and age was present both in co-infected patients and in control donors. However, no significant differences were shown between patients and controls.

for disease progression. According to our data and those by Soriano-Sarabia et al., the mechanism involving HCV in progression of HIV disease does not appear to be related to reduction of TREC levels.

On the other hand, we could not confirm the presence of altered production of IL-7 in co-infected patients. We agree with Soriano-Sarabia et al. that thymic function may not be influenced by HCV co-infection and further reinforce this hypothesis by showing normal levels of IL-7 in our patients. However, the main message of our data is to suggest that the issue is complex and further studies on larger series of patients are necessary before any conclusion can be drawn. Other confounding factor should also ruled out, such as hepatitis G virus (HGV) co-infection which is reported as a favourable prognostic factor in HIV progression[8]. In Rome area, most of our HCV+ patients are HGV negative (our unpublished observation in collaboration with M. Capobianchi), while the HGV status is not reported by Soriano-Sarabia et al. No data are available on the role (if any) of HGV on TREC and IL-7 production.

In summary, our data although limited by the numerosity of the sample may suggest no link between HIV-HCV co-infection in regard to TREC and IL-7 levels.

Despite more than two decades of research, the interactions between different risk factors for HIV disease progression remain deeply elusive mostly just for a surprising defect of available data.

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R. Cianci, A. De Luca, G. Cammarota, R. Cauda*, F. Pandolfi*
Institutes of Internal Medicine and *Infectious Diseases, Catholic University – Rome