P0130
Paper Poster Session
Cellular immunity as marker of viral infection

Viral tropism and naïve CD4+ cells predict immune recovery in very advanced patients

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Background: Baseline factors influencing cART-immune recovery at 2 years were analyzed in antiretroviral-naïve patients with < 100 CD4 cells/mm^3 included in 2 randomized clinical trials (RCT).

Material/Methods: Pooled analysis from 2 RCT comparing the efficacy of first-line cART with efavirenz (EFV) vs. indinavir/r + Combivir® (ADVANZ trial) and EFV vs. atazanavir/r vs. lopinavir/r + Truvada® (ADVANZ-3 trial). Pre-cART samples were analyzed for presence of naïve (RA+RO-), memory (RA-RO+) T cells, markers of cell activation (CD38 and HLA-DR), senescence (CD28 and CD57), inflammation (IL-6, TNF-alfa, and ultra-sensitive RCP), coagulation (D-dimer), and bacterial translocation (sCD14); the presence of R5 and X4 HIV-1 strains was also analyzed. Only patients in the per-protocol population were considered for study. A logistic regression model was used to evaluate associations among baseline factors and the probability of having > 350 CD4 cells/mm^3 at 2 years.

Results: Per-protocol population was selected and 89 subjects were included in the analysis. Of these, 37 (42%) reached a CD4+ count > 350 cells/μL after 2 years; 72 (81%) were males, mean age was 42 years, 47 (53%) had an AIDS diagnosis and 14 (17%) were HCV-positive. Median (IQR) CD4 cell count and mean (SD) $\log_{10}$ HIV-RNA were 38 (21; 60) cells/mm^3 and 5.4 (0.6) copies/mL, respectively. Thirty-seven (42%) received an EFV-based regimen. **Table 1** shows the results of the univariate analysis of factors influencing immune recovery at 2 years**.** A multiple logistic regression model revealed 2 factors that independently predict the probability of immune recovery at 2 years: the percentage of CD4+RA+RO- ('naïve') T cells (p=0.0009, adjusted OR per unit increase 1.07, 95%CI

1.03-1.11); and, the R5 viral tropism, compared with X4 and dual/mixed tropism (p=0.0458, adjusted OR 3.125, 95%CI 1.02-9.09).

Conclusions: Advanced patients with X4 tropism and lower levels of baseline naïve CD4+ T cells are less likely to achieve immune recovery after two years of effective cART. Baseline immune activation, inflammation, coagulation and bacterial translocation failed to predict mid-term immune recovery in this population.

Variable	**Crude ODDS RATIO**	**(95% Conf. Interval)**	**p-value**
Gender (M vs F)	0.54	(0.16; 1.80)	0.318
Age (> 40 yrs vs < 40 yrs)	0.65	(0.26; 1.59)	0.344
HCV-positive	0.51	(0.15; 1.79)	0.294
CD4% screening	1.01	(0.87; 1.17)	0.937
HIV-RNA, cp/mL (> 500k vs < 500k)	2.15	(0.83; 5.57)	0.115
AIDS-defining disease (Yes vs No)	1.06	(0.43; 2.58)	0.905
Backbone (AZT/3TC vs TDF/FTC)	0.77	(0.30; 1.99)	0.585
Viral Tropism (R5 vs X4)	2.50	(0.94; 6.66)	0.065
IL-6	1.02	(1.00; 1.04)	0.082
CD4+38+DR+ (%)	0.96	(0.93; 0.99)	**0.018**

CD4+RA+RO- (%)	1.06	(1.02; 1.10)	**0.001**
CD4+RA-RO+ (%)	0.97	(0.95; 1.00)	**0.017**
CD8+CD38+ (%)	1.01	(0.97; 1.06)	0.582

Table 1. Univariate analysis: selected factors influencing immune recovery above 350 CD4+ T cells after 2 years of effective cART.