CCR5+ CD8+ T-cell Levels Are Associated with Acute Coronary Syndrome in Patients on cART

Abstract 655

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Background /Aim

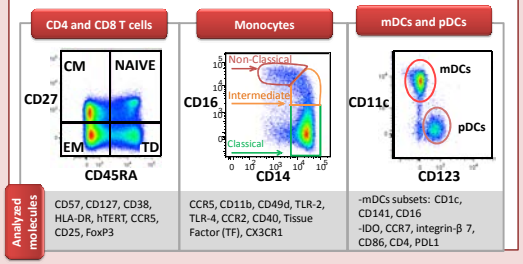
Acute coronary syndrome (ACS) is one of the most frequent non-AIDS-defining Event (nADEs). Previous cross-sectional studies have observed an increased incidence of atherosclerosis and higher T lymphocyte activation in HIV-infected patients compared to healthy subjects. However, there are no longitudinal studies analyzing the characteristics of T and dendritic cell (DC) phenotypes that precede an ischemic event in these patients. The aim of this work was to study in peripheral blood the T and DC phenotypes of HIV-infected patients with ACS on suppressive cART along the year before the nADE.

Patients and design

HIV-infected patients on suppressive cART who suffered an ACS (myocardial infarction or angina) without other previous nADE, were included (n=16). Peripheral blood mononuclear cells (PBMCs) were obtained from the closest time-point (t=0), and 48 (t=-48) and 24 (t=-24) weeks before the ACS (Case group). Plasma samples were also obtained from t=0. HIV-infected subjects on suppressive cART without previous nADEs, matched by age, sex, CD4 T-cell counts, CD4 T-cell nadir, RNA+ for HCV and time from diagnosis (n=16) were included (Control group).

Methods

T cell (CD4 and CD8), monocyte (non-classical, intermediate and classical), and dendritic cell (mDCs and pDCs) phenotypes were analyzed by flow cytometry. Soluble concentrations of inflammatory and coagulation biomarkers were determined.



Results

Table1. Characteristics of HIV-infected patients with ACS and HIV-infected control participants

	Case n=16	Control n=16	p
Sex no. (men)*	13 (81)	13 (81)	1
Age (years) ±	49 [45-52]	48 [43-51]	0.6
Total cholesterol (mg/dL) ±	197 [195-223]	180 [165-205]	0.2
LDL cholesterol (mg/dL) ±	150 [132-192]	125 [102-146]	0.1
HDL cholesterol (mg/dL) ±	51 [43-69]	45 [44-65]	0.7
LDL/HDL	2.9 [1.8-4.1]	2.8 [2.3-3.7]	1
Triglycerides (mg/dL) ±	195 [121-325]	126 [79-206]	0.068
Smoking	9 (56)	5 (31)	0.15
Framingham ±	15 [5-18]	6 [2-9]	0.091
High blood pressure*	2 (13)	2 (13)	1
Diabetes mellitus*	4 (25)	1 (6)	0.14
Transmission route (sexual) *	9 (56)	8 (50)	0.72
CD4 T cell (cells/mm³) ±	587 [431-627]	473 [377-569]	0.2
CD8 T cell (cells/mm³) ±	973 [419-1160]	570 [424-1018]	0.3
Ratio CD4:CD8±	0.5 [0.4-1.4]	0.8 [0.5-1]	0.5
HIV RNA detected*	8 (50)	8 (50)	0.85
Nadir CD4 T cell (cells/mm³) ±	134[53-206]	133[101-168]	0.8
Time since HIV diagnosis (years) ±	14 [9-19]	11 [7-21]	0.8

Values are given as percentage * or median and interquartile range ±

Table 2. Soluble levels of inflammatory and coagulation biomarkers

	Case n=8	Control n=15	p
hsCRP (mg/L) ±	4.5 [1.5-9]	1.1 [0.7-3.2]	0.075
hsCRP >3 (%) *	6 (75)	5 (34)	0.053
β2-microglobulin (μg/mL) ±	1.65 [1.5-2]	2.1 [1.7-2.5]	0.051
D-dimer (μg/L) ±	328 [98-380]	234 [126-383]	0.747

Values are given as percentage * or median and interquartile range ±

Figure 1. Percentage of CCR5 expression on total and CD8 T cell subsets

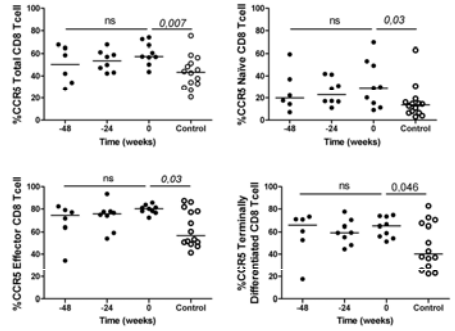
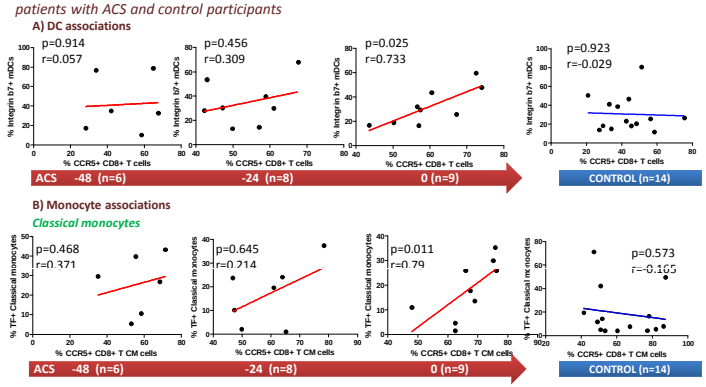
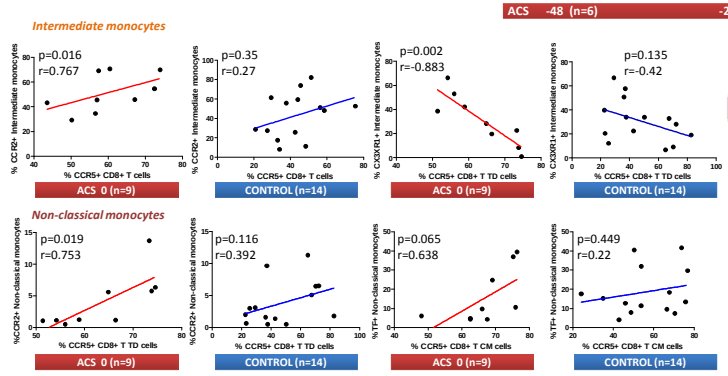


Figure 2. Correlation between innate and adaptive immune activation markers in patients with ACS and control participants





Conclusion

The increase in CCR5+ CD8 T-cell levels precedes the occurrence of ACS in HIV-infected patients on suppressive cART. This increase may be due to a greater recruitment of CD8 T-cells, DCs and monocyte subsets into the inflammatory focus. These new data suggest CCR5 as a new marker of cardiovascular risk and a potential therapeutic target to prevent the development of such events

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