JIAS Journal of the International AIDS Society

Poster Sessions − Abstract P185

Factors associated with HPV-DNA clearance in a cohort of HIV-positive patients: role of cART and gender

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Introduction: We aimed to assess any factors associated with dysplasia regression and with HPV clearance in a cohort of HIV+ patients, with particular focus on cART and gender.
Methods: Asymptomatic HIV+ patients of the San Paolo Infectious Disease (SPID) cohort who underwent anoscopy/gynaecological evaluation were enrolled. Anal/cervical brushing were analyzed for: HPV-PCR detection/genotyping (HR-HPV), cytologic abnormalities (Bethesda System 2001: LSIL-HSIL). Demographics and HIV-related parameters were evaluated at baseline. Activated CD8+/CD38+ lymphocytes were measured (flow citometry). Patients were examined at baseline (T0) and at 12−18 months visit (T1). HPV clearance was defined as negativisation of HPV at T1; SIL regression (SIL-R) and progression (SIL-P) were defined as change from HSIL/LSIL to a lower-grade/absence of dysplasia and as change from absence of HSIL/LSIL to a higher-grade dysplasia at T1, respectively. Mann Whitney test, Chi-square test and multivariate logistic regression were used.
Results: A total of 189 patients were examined, 60 (32%) were women. One hundred fifty patients (79%) were HPV+, 113 (75%) harboured HR-HPV; 103 (68%) showed LSIL/HSIL at T0 (32% of women and 65% of men) (all were HPV-positive). No differences in demographics and HIV-related markers were found between patients with SIL-P (33, 41%) and patients with SIL-R (47, 59%). HPV+ patients who cleared HPV (28, 18%) were found to be more frequently female, heterosexual infected, more frequently on cART and with lower Log10 HIV-RNA and lower levels of CD8+/CD38+ % compared with HPV persistence group (Table 1).
No differences in PI exposure were found between the two groups (p = .08). Interestingly, also when only HR-HPV were considered, clearance was associated with exposure to cART (naïve 4%, vs cART 86%, p = .048). In multivariate analysis, heterosexuals (AOR 5.123, 95% CI 1.5−17.5 vs homosexuals) were independently associated to HPV clearance, whereas CD8+/CD38+% (AOR 0.44, 95% CI 0.65−1.01 for each % more) were predictive of HPV persistence.
Conclusions: Close follow-up of HPV and SIL should be promoted particularly in men and in untreated individuals. We cannot exclude behavioural variables linked to risky sex and reinfection.

Table 1. Characteristics of study population according to HPV clearance

Characteristics of Study Population	Patients that cleared HPV (n = 28)	Patients that remain HPV+ (n = 122)	p
Female Sex	11 (39%)	19 (15%)	0.05
Heterosexual epidemiology	16 (57%)	29 (23%)	0.001
Log10 HIV-RNA*	1.77 (1.59−1.77)	1.77 (1.59−4.16)	0.038
cART	28 (100%)	122 (81%)	0.015
CD8+/CD38+%*	1 (1−2.7)	2 (1−6)	0.001