

Low-level Viremia (LLV) Ranging from 50 to 500 Copies/mL is Associated to an Increased Risk of AIDS Events in the Icona Foundation Cohort

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Objectives: To estimate 3-month incidence of AIDS, severe non-AIDS event (SNAE) and death in people with current LLV and to compare incidence to that of people with current viral load (VL) ≤50 copies/mL.

Methods: Patients enrolled in Icona Foundation Cohort with at least one person-year follow-up (PYFU) spent with a VL in the range of 0-1,000 copies/mL ≥6 months after first initiation of cART. Endpoints were: AIDS, SNAE (SMART definition) or death for any cause. Incidence rates (95%CI) of endpoints were calculated assuming a Poisson distribution, by most recent (within 3 months) VL stratified according to the following exposure groups: suppressed VL (0-50 copies/mL) and three more strata in the range of LLV of 51-1,000 copies/mL. Poisson regression was fitted to estimate unadjusted and adjusted rate ratios (RR 95%CI) after controlling for potential confounders in Table.

Results: We identified 7,277 patients (male 75%; median age [IQR] 37 [31-43] yrs; IDU 20%; previous AIDS 13%; HCV+ 18%; median [IQR] CD4 count at cART 302 [171-427] cell/mm³). Distribution of patients by VL levels 6 months after starting cART: 0-50 copies/mL (n=3,919), 51-200 (n=1,811), 201-500 (n=1,117), 501-1,000 (n=430). During a total of 28,429 PYFU we observed 204 AIDS and 438 SNAEs, for an overall incident rate (IR per 100 PYFU) of AIDS/death and SNAE/death of 0.72 and 1.54, respectively. Number of events, PYFU, IR and rate ratios of AIDS/death and SNAE/death by LLV strata as time updated variable are reported in Table.

	No. AIDS	PYFU	Rate/100 PYFU (95%CI)	Rate ratio (95%CI)			No. SNAE	PYFU	Rate/100 PYFU (95%CI)	Rate ratio (95%CI)		
				Unadjusted	Adjusted (1)	Adjusted (2)				Unadjusted	Adjusted (1)	Adjusted (2)
Current LLV (copies/mL)												
0-50	115	22,155	0.52 (0.43, 0.62)	1.00	1.00	1.00	323	22,155	1.46 (1.31, 1.63)	1.00	1.00	1.00
51-200	48	3,835	1.25 (0.94, 1.66)	2.40 (1.71, 3.36)	2.10 (1.49, 2.97)	1.74 (1.23, 2.47)	68	3,835	1.77 (1.40, 2.25)	1.21 (0.93, 1.57)	1.19 (0.91, 1.56)	1.09 (0.83, 1.42)
201-500	34	1,776	1.91 (1.37, 2.68)	3.67 (2.50, 5.39)	3.24 (2.18, 4.81)	2.30 (1.53, 3.44)	30	1,776	1.69 (1.18, 2.42)	1.15 (0.79, 1.68)	1.15 (0.79, 1.68)	1.00 (0.68, 1.46)
501-1,000	7	663	1.06 (0.50, 2.21)	2.02 (0.95, 4.33)	1.85 (0.86, 4.00)	1.30 (0.60, 2.81)	17	663	2.56 (1.59, 4.13)	1.75 (1.08, 2.85)	1.80 (1.10, 2.94)	1.54 (0.94, 2.52)
⁽¹⁾ Adjusted for age, gender, black ethnicity, mode of HIV transmission, hepatitis C co-infection status, AIDS diagnosis before cART, CD4 count nadir, year of starting cART and stratified by clinical center.												
⁽²⁾ Adjusted for age, gender, black ethnicity, mode of HIV transmission, hepatitis C co-infection status, AIDS diagnosis before cART, current CD4 count, year of starting cART and stratified by clinical center.												

[Table LLV]

Conclusions: LLV, in the range of 51-500 copies/mL, was associated with a risk of developing a new AIDS diagnosis, which was up to 2.3 fold higher than suppressed VL. Conversely, LLV did not predict a more elevated risk of SNAEs. These results may be useful to better define threshold of virological failure valid for clinical purposes and to optimize treatment strategies.