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## Background:

Data on the response to antiretroviral therapy (ART) in HIV-2 infected patients are sparse. There is clear evidence that NNRTI-based regimen are inappropriate for the treatment of HIV-2 infection. While access to ART increases in West Africa, management of HIV-2 infected patients must be considered given the prevalence of HIV-2 in that region.

## Methods:

The International epidemiologic Database to Evaluate AIDS (IeDEA) in West Africa is a prospective, observational multi-cohort collaboration assembling data from 12 cohorts in Benin, Gambia, Côte d'Ivoire, Mali and Senegal (<http://www.iedeawestafrika.org>). All patients aged 16 or older at ART initiation with a documented date of starting ART, with at least one measure of CD4 count during the first year of follow-up and the type of HIV known were included. Repeated CD4 count were analysed using linear mixed models. Potential bias due to lost-to-follow-up (LTFU) was checked by comparing these estimates with those from a joint model of longitudinal measurements of CD4 and log time to drop-out.

## Results:

Among 17 291 patients (including 16% of LTFU), 10 073 were eligible for this analysis (including 6% of LTFU). We included 9482 HIV-1 infected patients, 270 HIV-2 infected patients and 321 dually infected patients. Observed baseline CD4 counts were similar in the three groups ( $p=0.52$ ).

The response to ART was quite satisfactory during the first year but was better for HIV-1 infected patients (Fig 1a). Restrictive analysis on the patients treated by NNRTI-based regimens and PI-based regimens **did not show different CD4 counts after one year of treatment** by HIV type (Fig 1b and 1c).

Adjusted models on other determinants (gender, age, disease stage and ART-naive status at baseline) showed similar results: a better response in HIV-1 infected patients compared to HIV-2 and dually infected in those treated by NNRTI-including regimens ( $p=0.03$ ) and similar responses in those treated by PI-based regimens ( $p=0.42$ ).

Table 1: Characteristics of the 10073 included patients

Characteristics	Type of infection			p-value	Total
	HIV-1	HIV-2	Dual		
Effective	9482	270	321		10073
Gender				<10 <sup>-4</sup>	
Men (%)	3410 (36)	123 (46)	155 (48)		3688 (37)
Women (%)	6071 (67)	147 (54)	166 (52)		6384 (63)
Median age (IQR)*	37 (31-43)	43 (36-50)	40 (23-46)	<10 <sup>-4</sup>	37 (31-44)
Median CD4 count at treatment initiation (IQR)*	155 (68-250)	148 (77-232)	152 (69-236)	0.52	155 (68-249)
Median follow-up in months (IQR)*	11 (7-12)	11 (6-13)	11 (7-12)	0.33	11 (7-12)
Median number of measurements (IQR)*	2 (1-2)	2 (1-3)	2 (1-2)		2 (1-2)
	Max=11	Max=8	Max=8		Max=11
Advanced stage (CDC=3 or WHO=3 or WHO=4)					
Yes	4114	97	141		4352
No	3685	123	123		3931
Unknown	1863	50	57		1790
ART naive at baseline					
Yes	8174	199	283		8656
No	894	31	31		956
Unknown	414	40	7		461
Group of transmission					
Heterosexual	2252	45	62		2359
Others	5	0	1		6
Unknown	7225	225	258		7708
Type of regimen					
2NRTIs+NNRTI	7714	45	135		7894
2NRTIs+PI	931	109	106		1146
2NRTIs+PI boosted	326	84	80		470
3NRTIs	325	21	15		361
Mono or bitherapy	171	10	5		186
Others	14	1	0		15
Unknown	1	0	0		1

\*IQR: InterQuartile Range

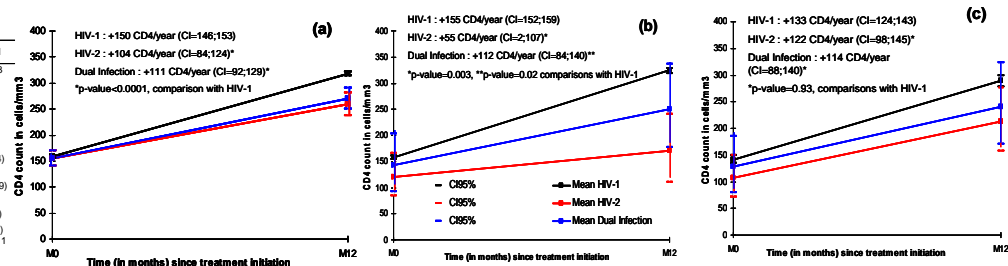


Figure 1: Evolution of CD4 count during the first year of treatment by HIV type for whole population (a), treated with NNRTI (b) and treated with PI (c).

## Conclusion:

Optimal CD4 response to ART in West Africa requires determining HIV type prior to initiation of treatment. NNRTI's are the mainstay of first line ART in West Africa but are inferior to PI's in the treatment of HIV-2 infected patients; additional work is needed to appreciate the response between different PI's.