

TABLE I
Study population characteristics (N = 194), stratified by human immunodeficiency virus-1 virologic suppression
(≤ 50 copies/mL vs. > 50 copies/mL)

	Suppressed (≤ 50 copies/mL) N = 98, 50%		Non-suppressed (> 50 copies/mL) N = 96, 49%		
	Median or N (IQR or %)				p-value ¹
Age	36	(28-43)	35	(28-42)	0.28
Sex					
Male	77	(79)	73	(76)	0.67
Weight	55	(47-66)	54	(49-62)	0.50
Site (city)					
Rio de Janeiro	32	(33)	16	(17)	0.03
Manaus	65	(66)	78	(81)	
Salvador	1	(1)	2	(2)	
Race					
White	18	(18)	16	(17)	0.35
Black	17	(17)	11	(12)	
Brown	62	(63)	65	(68)	
Other	1	(1)	4	(4)	
Educational level (Literate)	94	(96)	95	(99)	0.18
Years of education	9	6-12	10	5-12	0.92
Household income ²					
> 1 min wage	30	(31)	31	(32)	0.67
≤ 1 min wage	39	(40)	31	(32)	
Unknown	2	(2)	2	(2)	
No reported	26	(27)	32	(33)	
BCG scar					
yes	78	(80)	72	(75)	0.45
Previous TB					
yes	20	(20)	16	(17)	0.80
HIV-1 viral load (copies/mL and log ₁₀)					
Baseline	9,235	(0-104,241)	83,820	(2,372-334,145)	<0.001
log ₁₀	3.9	(0-5)	4.9	(3.4-5.5)	<0.001
High (≥ 5 log ₁₀ [$\sim 100,000$ copies/mL])	25	(26)	46	(49)	0.001
Low (< 5 log ₁₀)	70	(74)	47	(51)	
CD4 count (cells/ μ L)					
Baseline	150	(57-316)	90	(43-196)	0.04
≤ 200	59	(60)	71	(76)	0.03
> 200	38	(40)	23	(24)	
Month 2	144	(66-305)	98	(68-185)	0.05
≤ 200	54	(59)	52	(75)	0.03
> 200	38	(41)	17	(25)	
End of TB	284	(172-418)	205	(111-331)	0.02
≤ 200	32	(38)	21	(49)	0.24
> 200	50	(62)	22	(51)	



	Suppressed (≤ 50 copies/mL) N = 98, 50%		Non-suppressed (> 50 copies/mL) N = 96, 49%		
	Median or N (IQR or %)				p-value ¹
ART initiation					
Before TB treatment	41	(42)	42	(44)	0.79
ART naïve	57	(58)	54	(56)	
Main ART regimen					
PI	7	(7)	9	(9)	0.69
NNRTI	39	(40)	38	(40)	
INSTI	51	(52)	49	(51)	
PI + INSTI	1	(1)	--	--	
Main ART drug					
Efavirenz	38	(39)	38	(40)	0.68
Dolutegravir	4	(4)	8	(8)	
Raltegravir	47	(48)	41	(43)	
Atazanavir	5	(5)	6	(6)	
Lopinavir	--	--	1	(1)	
Darunavir	2	(2)	2	(2)	
Darunavir + Raltegravir	1	(1)	--	--	
Etravirine	1	(1)	--	--	
<i>CYP2B6</i> Metabolizer profiles					
Normal	25	(31)	21	(23)	0.43
Intermediate	45	(56)	52	(58)	
Slow	11	(14)	17	(19)	
<i>UGT1A1</i> Metabolizer profiles					
Normal	37	(47)	45	(50)	0.60
Intermediate	28	(35)	34	(38)	
Slow	14	(18)	11	(12)	
TB treatment outcomes					
Favorable	84	(86)	46	(48)	<0.001
Unfavorable	14	(14)	50	(52)	
TB treatment outcomes (description)					
Cure	49	(50)	33	(34)	<0.001
Treatment complete	35	(36)	13	(14)	
Death	1	(1)	20	(21)	
Treatment failure	4	(4)	1	(1)	
LTFU	9	(9)	28	(29)	
Transferred	--	--	1	(1)	

ART: antiretroviral therapy; PI: protease inhibitor; NNRTI: non-nucleoside reverse transcriptase inhibitors; efavirenz; INSTI: integrase strand transfer inhibitors; LTFU: loss to follow-up. ¹Statistical tests. categorical variables: Chi squared test; continuous variables: Mann-Whitney test; significance level .05; ²The Brazilian minimum wage is approximately USD 286.00 per month.

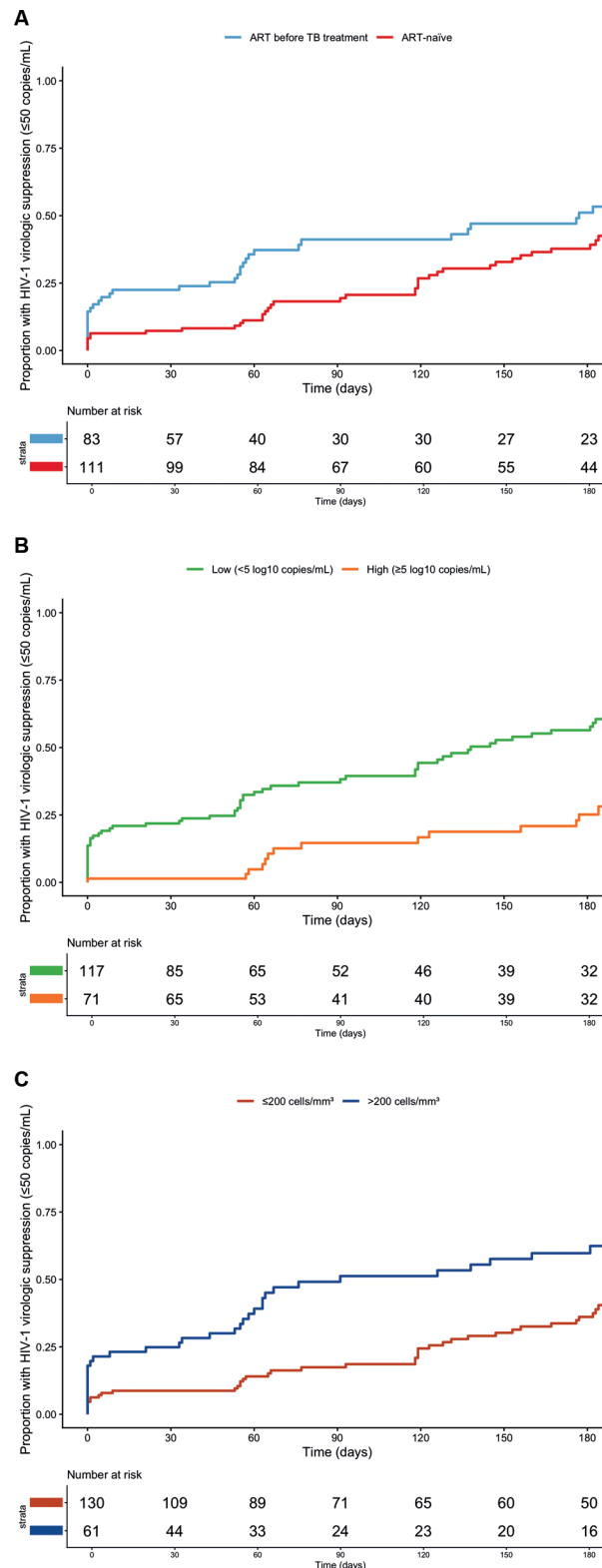


Fig. 1: Kaplan-Meier curves of time-to-virologic suppression (≤ 50 copies/mL) according to antiretroviral therapy (ART) initiation (A), baseline viral load (BVL) (B), and baseline CD4 cell count (C), among all participants ($N = 194$). Numbers at risk are shown below the graph. (A) Virologic suppression occurred in a median of 58 days [interquartile range (IQR) 55-76] for participants who initiated ART before tuberculosis (TB) treatment, compared to a median of 147 days (IQR 118-178) for ART-naïve participants (log-rank $\chi^2 = 6.46$, $p = 0.011$). (B) Suppression was also quicker in participants with low BVL ($< 5 \log_{10}$; median: 63 days; IQR 56-119) compared to those with high BVL ($\geq 5 \log_{10}$ [$\sim 100,000$ copies]; median: 335 days; IQR 77-182), log-rank $\chi^2 = 4.89$, $p = 0.027$. (C) Participants with baseline CD4 counts > 200 cells/ μL achieved suppression faster (median: 63 days; IQR 55-138) than those with ≤ 200 cells/ μL (median: 121 days; IQR 66-177), log-rank $\chi^2 = 5.62$, $p = 0.018$.

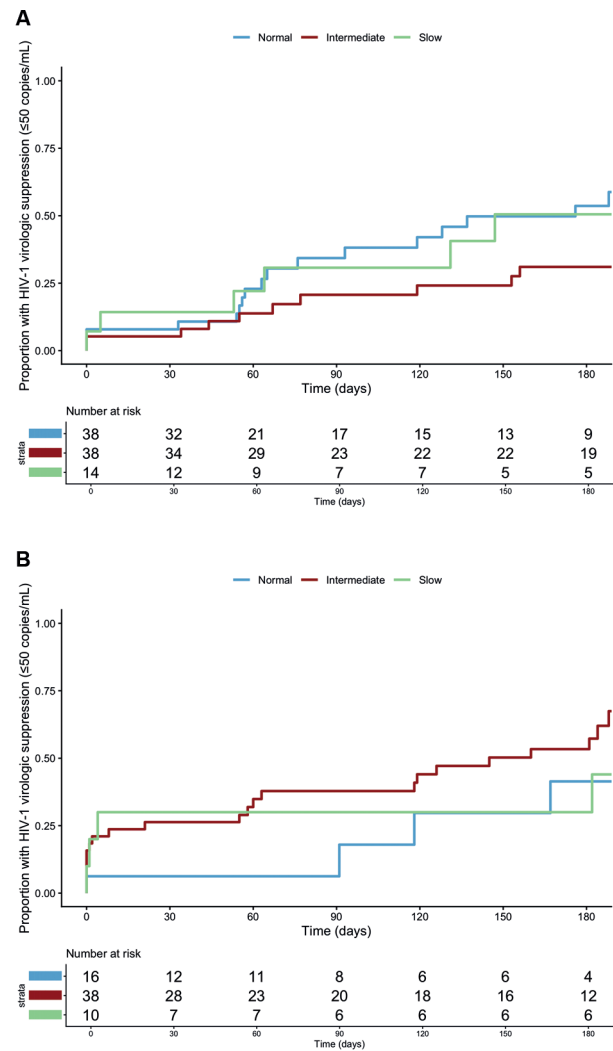


Fig. 2: Kaplan-Meier curves of time-to-virologic suppression (≤ 50 copies/mL) according to (A) *UGT1A1* genotypes among participants on integrase strand transfer inhibitors (INSTI)-based regimens and (B) *CYP2B6* genotypes among participants on efavirenz (EFZ)-based regimens. (A) For INSTI-based regimens ($N = 90$), median time-to-virologic suppression was 64 days [Interquartile range (IQR) 57-176] for normal *UGT1A1* genotypes, 178 days (IQR 67-196) for intermediate genotypes, and 109 days (IQR 54-196) for slow genotypes, with no statistically significant differences observed (log-rank test $\chi^2 = 3.56$, $p = 0.169$). (B) For EFZ-based regimens ($N = 64$), median time to virologic suppression was 78 days (IQR 31-183) for normal *CYP2B6* genotypes, 119 days (IQR 56-181) for intermediate genotypes, and 181 days (IQR 154-209) for slow genotypes, with no statistically significant differences observed (log-rank test: $\chi^2 = 1.47$, $p = 0.480$). Note: among participants on INSTI-based regimens ($N = 100$), *UGT1A1* genotyping was performed for 90% ($N = 90$). Similarly, *CYP2B6* genotyping was performed for 84% ($N = 64$) of participants on EFZ-based regimens ($N = 76$).

TABLE II

Univariate and multivariate Cox regression analysis of predictors of human immunodeficiency virus (HIV)-1 virologic suppression (≤ 50 copies/mL) among all study participants (N = 194)

Variable	Univariate analysis		Multivariate analysis	
	HR (95% CI)	p-value	aHR (95% CI)	p-value
Age (per year increase)	1.01 (1.00-1.03)	0.13	1.01 (0.99-1.02)	0.49
Sex				
Male	Ref.	—	Ref.	—
Female	0.80 (0.49-1.30)	0.38	0.86 (0.61-1.22)	0.40
Site				
Manaus	Ref.	—	Ref.	—
Rio de Janeiro	1.32 (0.85-2.05)	0.22	0.70 (0.48-1.02)	0.06
Salvador	1.05 (0.15-7.61)	0.96	1.30 (0.39-4.29)	0.67
Baseline CD4 count (per 100 cells/ μ L)	1.26 (1.15-1.38)	<0.001	1.09 (1.00-1.19)	0.06
Baseline HIV-1 viral load ($\log_{10}$)	0.65 (0.58-0.73)	<0.001	0.82 (0.74-0.91)	<0.001
ART statusBefore				
TB treatment	Ref.	—		
ART naïve	0.73 (0.48-1.09)	0.13	0.95 (0.69-1.32)	0.78
Race				
White	Ref.	—	—	—
Black	0.96 (0.47 - 1.93)	0.90	—	—
Brown	0.96 (0.57 - 1.63)	0.88	—	—
Other	0.48 (0.06 - 3.63)	0.48	—	—
UGT1A1 genotypes				
Normal	Ref.	—	—	—
Intermediate	0.63 (0.32-1.21)	0.16	—	—
Slow	1.24 (0.54-2.85)	0.62	—	—
CYP2B6 genotypes				
Normal	Ref.	—	—	—
Intermediate	2.25 (0.85-5.98)	0.10	—	—
Slow	1.46 (0.44-4.89)	0.54	—	—

ART: antiretroviral therapy; HR: hazard ratio; aHR: adjusted hazard ratio; 95% CI: 95% confidence interval. Significance level.

TABLE III

Univariate and multivariate Cox regression analysis of predictors of human immunodeficiency virus (HIV)-1 virologic suppression (≤ 50 copies/mL) among participants with: integrase strand transfer inhibitors (INSTI)- and efavirenz (EFZ)-based ART regimens

Variable	Univariate analysis		Multivariate analysis	
	HR (95% CI)	p-value	aHR (95% CI)	p-value
INSTI (N = 100)				
Age (per year increase)	1.00 (0.97-1.03)	0.96	0.98 (0.96-1.01)	0.22
Sex				
Male	Ref.	—	Ref.	—
Female	0.86 (0.42-1.80)	0.70	1.09 (0.64-1.87)	0.75
Site				
Manaus	Ref.	—	Ref.	—
Rio de Janeiro	2.12 (1.09-4.12)	0.03	1.42 (0.74-2.72)	0.29
Salvador	0.00 (0.00-Inf)	1.00	1.10 (0.13-9.41)	0.93
Baseline CD4 count (per 100 cells/ μ L)	1.25 (1.07-1.45)	0.00	1.12 (0.98-1.27)	0.11
Baseline HIV-1 viral load ($\log_{10}$)	0.69 (0.58-0.81)	<0.001	0.84 (0.74-0.95)	0.00
<i>UGT1A1</i> genotypes				
Normal	Ref.	—	Ref.	—
Intermediate	0.63 (0.32-1.21)	0.16	0.59 (0.36-0.95)	0.03
Slow	1.24 (0.54-2.85)	0.62	0.89 (0.45-1.76)	0.74
EFZ (N = 76)				
Age (per year increase)	1.03 (1.00-1.06)	0.06	1.00 (0.98-1.03)	0.81
Sex				
Male	Ref.	—	Ref.	—
Female	0.79 (0.34-1.82)	0.58	0.88 (0.43-1.82)	0.74
Site				
Manaus	Ref.	—	Ref.	—
Rio de Janeiro	1.54 (0.74-3.20)	0.25	0.66 (0.30-1.44)	0.30
Salvador	7.68 (0.96-61.50)	0.05	2.45 (0.22-27.51)	0.47
Baseline CD4 count (per 100 cells/ μ L)	1.28 (1.12-1.47)	<0.001	1.03 (0.88-1.20)	0.71
Baseline HIV-1 viral load ($\log_{10}$)	0.57 (0.47-0.71)	<0.001	0.72 (0.59-0.86)	<0.001
<i>CYP2B6</i> genotypes				
Normal	Ref.	—	Ref.	—
Intermediate	2.25 (0.85-5.98)	0.10	1.21 (0.59-2.48)	0.61
Slow	1.46 (0.44-4.89)	0.54	0.54 (0.20-1.45)	0.22

ART: antiretroviral therapy; HR: hazard ratio; aHR: adjusted hazard ratio; 95% CI: 95% confidence interval; Significance level .05. Note: among participants on INSTI-based regimens (N = 100), *UGT1A1* genotyping was performed for 90% (N = 90). Similarly, *CYP2B6* genotyping was performed for 84% (N = 64) of participants on EFZ-based regimens (N = 76).