

Detailed description of statistical methods

Meta-analysis was performed based on aggregate data from selected studies. We used standardized mean difference (SMD) as measure of effect size. The significance of pooled SMD was determined by the Z test and a p value < 0.05 was considered statistically significant. We ran only the random effects model (DerSimonian and Laird method) due to the presence of heterogeneity between studies and it was quantified by Cochrane Q test and Higgins' I² statistic. A Q statistic with p<0.1 was considered to indicate heterogeneity. In addition, I² classifies the heterogeneity as mild (I²: 25%-49%), moderate (I²: 50%-74%) or high (I²: >75%) [33]. Subgroup meta-analysis was performed to analyze possible sources of heterogeneity [33]. We performed stratified analyses according to devices used to measure aortic stiffness, geographic area (continent), and according to categories based on values above or below the median of age, number of participants, proportion of males, systolic blood pressure (BP). Random-effects meta-regression analysis was also conducted to assess whether specific continuous variables (effect modifiers) influence the magnitude of effect across studies. This analysis was performed only when the value of the potential modifier was available in at least 10 studies [33]. Covariates included in the analysis were mean age, number of participants, publication year (in all the comparisons); mean values of proportion of males, proportion of black people, body mass index (BMI), systolic and diastolic BP, CD4+ cells count in the comparisons between HIV patients never treated with antiviral drugs (HIV+ naïve) with control subjects without HIV infection (HIV-) and between HIV patients treated with antiviral drugs (HIV+ on ART) with HIV-. Only in this latter comparison were tested also the following covariates: age difference, difference in proportion of blacks participants, BMI difference, mean total cholesterol (TC), TC difference, mean HDL cholesterol (HDLc), HDLc difference, mean triglycerides (TG), TG difference, mean proportion of diabetic patients, difference in proportion of diabetic patients, mean proportion of hypertensive subjects, difference in proportion of hypertensive subjects, systolic and diastolic BP difference, known duration of HIV infection and duration of therapy with antiviral drugs (ART), proportion of HIV+ treated with protease inhibitors (PI). Tau² and the restricted maximum likelihood methods were employed to explain residual heterogeneity not explained by

potential effect modifiers [33]. The sensitivity of the meta-analysis was assessed by the leave-one-out analysis, which assess the stability of the effect size obtained every time that a study is removed. We evaluated potential publication bias by visually examining for possible skewness in funnel plots and statistically with the Begg-Mazumdar's rank correlation test [34] and Egger's linear regression test [35], as appropriate given the known limitations of these methods. A significant publication bias was considered if the *P* value was <0.10. If such bias was evident, we used the "trim and fill" approach [36] to generate a pooled estimate that accounted for the potential unpublished negative findings. Calculations, forest plots and funnel plots were realized by MedCalc for Windows, version 9.2.0.2 (MedCalc Software, Mariakerke, Belgium), and UNISTAT 5.0 statistical package for Windows (UNISTAT Ltd, London, UK).

Table S1. Comparison of aortic PWV between HIV+ naïve and HIV– subjects: subgroups analyses.

SUBGROUPS	STUDIES (n)	SMD	95% CI		p	I ² (%)	p _{HETERO}
			<i>Lower bound</i>	<i>Upper bound</i>			
HIV+ naïve vs HIV-							
All (n = 1411)	12	0.333	0.125	0.542	0.002	67.59	<0.001
Age above the median (40.4 years)	6	0.117	-0.167	0.401	0.418	58.82	0.033
Age below the median	6	0.526	0.276	0.775	<0.001	60.73	0.026
Sample size above the median (n = 38)	6	0.427	0.226	0.668	<0.001	47.5	0.090
Sample size below the median	6	0.243	-0.161	0.647	0.239	75.86	<0.001
% of males above the median (59%)	5	0.258	-0.086	0.600	0.139	76.24	0.002
% of males below the median	5	0.408	-0.010	0.827	0.056	76.03	0.002
SBP above the median (124 mmHg)	6	0.226	0.008	0.444	0.042	51.16	0.069
SBP below the median	4	0.371	-0.079	0.821	0.106	78.64	0.003
Complior	7	0.178	-0.119	0.475	0.240	73.67	<0.001
Sphigmocor	4	0.457	0.266	0.647	<0.001	0.2	0.502
SPT-301 Millar tonometer	1	1.282	0.540	2.024	NA	NA	NA
Europe	5	0.277	-0.037	0.590	0.083	62.44	0.031
Africa	4	0.438	0.199	0.676	<0.001	50.86	0.107
South America	2	-0.054	-0.630	0.522	0.854	65.96	0.087
Asia or Australia	1	1.282	0.540	2.024	NA	NA	NA
Papers published after 2012	5	0.436	0.205	0.666	<0.001	42.41	0.139
Papers published before 2012	7	0.224	-0.114	0.562	0.194	77.18	<0.001

In bold are reported p values < 0.05; in italics are reported p values > 0.05 and < 0.10

Table S2. Meta-regression analyses investigating the association of some potential effect modifiers with the aPWV standardized mean difference between HIV+ naïve and HIV- subjects

	Studies (n)	Regression Coefficients	95% CI		p	R2 (%) (Amount of heterogeneity accounted for)
			<i>Lower bound</i>	<i>Upper bound</i>		
HIV+ naïve and HIV-						
Year of publication	12	0.009	-0.082	0.101	0.841	0.00
Sample size	12	0.001	-0.002	0.004	0.570	0.00
Age	12	-0.026	-0.069	0.017	0.238	10.56
Proportion of males	10	-0.003	-0.014	0.007	0.543	0.00
Proportion of black people	12	0.002	-0.003	0.006	0.500	0.00
Body mass index	12	-0.051	0.151	0.049	0.320	0.15
Systolic blood pressure	11	-0.049	-0.120	0.022	0.179	15.69
Diastolic blood pressure	10	-0.018	-0.136	0.100	0.767	0.00
CD4 count	10	-0.001	-0.003	0.002	0.661	0.00

Table S3. Aortic PWV standardized mean difference between HIV+ naïve and HIV– obtained by leave-one-out sensitivity analysis

Studies	Standardized mean difference (SMD)	95 % Confidence Interval		Standard error	p
		<i>Lower bound</i>	<i>Upper bound</i>		
Overall	0.333	0.125	0.541	0.106	0.002
- Awotedu, 2015	0.323	0.094	0.553	0.117	0.006
- Eira, 2012	0.339	0.116	0.562	0.114	0.003
- Guaraldi, 2010	0.285	0.078	0.492	0.106	0.007
- Lekakis, 2009	0.383	0.183	0.583	0.102	< 0.001
- Maloberti, 2013	0.317	0.088	0.546	0.117	0.007
- Monteiro, 2012	0.393	0.204	0.582	0.097	< 0.001
- Msoka, 2016	0.344	0.118	0.570	0.115	0.003
- Ngatchou. 2013	0.337	0.099	0.574	0.121	0.005
- Rose, 2013	0.288	0.090	0.486	0.101	0.004
- Schillaci, 2008	0.302	0.081	0.522	0.112	0.007
- Van Vonderen, 2009	0.335	0.111	0.559	0.114	0.003
- Vlachopoulos, 2009	0.353	0.131	0.576	0.114	0.002

Table S4. Comparison of aortic PWV between HIV+ on ART and HIV- subjects: subgroups analyses

SUBGROUPS	STUDIES (n)	SMD	95% CI		p	I ² (%)	p _{HETERO}
			<i>Lower bound</i>	<i>Upper bound</i>			
HIV + on ART vs HIV-							
All (n = 5895)	22	0.391	0.225	0.556	<0.001	86.98	<0.001
Age above the median (42.6 years)	11	0.325	0.092	0.558	0.006	91.16	<0.001
Age below the median	11	0.452	0.236	0.668	<0.001	71.67	<0.001
Sample size above the median (n = 64)	11	0.172	-0.015	0.359	0.072	64.53	0.002
Sample size below the median	11	0.675	0.434	0.924	<0.001	86.98	<0.001
% of males above the median (64%)	9	0.568	0.274	0.862	<0.001	88.40	<0.001
% of males below the median	10	0.212	-0.001	0.424	0.051	85.09	<0.001
SBP above the median (122 mmHg)	8	0.242	-0.031	0.516	0.083	92.45	<0.001
SBP below the median	10	0.490	0.256	0.725	<0.001	75.44	<0.001
Complior	10	0.264	0.058	0.469	0.012	82.13	<0.001
Sphigmocor	8	0.520	0.221	0.819	<0.001	85.13	<0.001
Arteriograph	3	0.303	-0.298	0.904	0.324	89.97	<0.001
SPT-301 Millar tonometer	1	1.118	0.508	1.869	NA	NA	NA
Europe	10	0.513	0.256	0.279	< 0.001	85.85	<0.001
Africa	5	0.317	-0.041	0.674	0.082	88.90	<0.001
USA	2	0.115	-0.071	0.300	0.225	0.2	0.447
South America	3	0.320	-0.352	0.674	0.993	93.42	<0.001
Asia or Australia	2	0.635	-0.369	1.369	0.215	84.90	0.01
Papers published after 2012	9	0.139	-0.041	0.320	0.130	81.73	<0.001
Papers published before 2012	13	0.577	0.330	0.825	<0.001	84.32	<0.001

In bold are reported p values < 0.05; in italics are reported p values > 0.05 and < 0.10

Table S5. Meta-regression analyses investigating the association of some potential effect modifiers with the aPWV standardized mean difference between HIV+ on ART and HIV- subjects.

	Studies (n)	Regression Coefficients	95% CI		p	R ² (%) (Amount of heterogeneity accounted for)
			Lower bound	Upper bound		
HIV+ on ART and HIV-						
Year of publication	22	-0.074	-0.124	-0.024	0.004	34.67
Sample size	22	-0.001	-0.001	-0.000	0.002	33.60
Age	22	0.010	-0.019	0.020	0.937	0.00
Age difference	19	0.016	-0.037	0.069	0.544	0.00
Proportion of males	20	0.003	-0.007	0.013	0.543	0.00
Proportion of black people	22	-0.003	-0.007	0.001	0.152	3.21
Difference in blacks proportion	22	0.016	-0.061	0.094	0.678	0.00
Body mass index	20	0.013	-0.074	0.048	0.682	0.00
Body mass index difference	16	0.018	-0.021	0.050	0.410	0.00
Total cholesterol	17	0.000	-0.014	0.015	0.973	0.00
Total cholesterol difference	13	0.015	-0.024	0.034	0.731	0.00
HDL cholesterol	16	-0.012	-0.043	0.020	0.476	0.00
HDL cholesterol difference	12	0.006	-0.011	0.023	0.498	0.00
Triglycerides	17	0.000	-0.006	0.007	0.894	0.00
Triglycerides difference	12	0.011	0.002	0.019	0.012	37.02
Proportion of diabetic patients	17	-0.018	-0.036	-0.001	0.042	22.69
Difference in diabetic proportion	15	0.047	0.005	0.088	0.029	19.27
Proportion of hypertensive patients	17	-0.014	-0.028	0.000	0.058	21.02
Difference in hypertensives proportion	16	0.006	-0.010	0.021	0.476	0.00
Systolic blood pressure	20	-0.032	-0.078	0.014	0.174	4.88
Systolic blood pressure difference	18	-0.005	0.056	0.100	0.101	8.72
Diastolic blood pressure	16	-0.022	-0.105	0.061	0.603	0.00
Diastolic blood pressure difference	16	-0.002	-0.045	0.042	0.945	0.00
Proportion of smokers	17	0.009	-0.000	0.019	0.054	15.60
Difference in smokers proportion	15	0.024	0.006	0.042	0.009	37.36
CD4 count	14	-0.001	-0.003	0.001	0.220	3.55
ART duration (months)	13	0.004	-0.005	0.012	0.368	0.00
Proportion of treated with PI	15	0.001	-0.008	0.010	0.893	0.00
Known duration of infection (months)	13	0.000	-0.005	0.005	0.952	0.00

PI: protease inhibitors; in bold are reported p values < 0.05; in italics are reported p values > 0.05 and < 0.10

Table S6 Aortic PWV standardized mean difference between HIV+ on ART and HIV- obtained by leave-one-out sensitivity analysis

Studies HIV + on ART vs HIV-	Standardized mean difference (SMD)	95 % Confidence Interval		Standard error	p
		Lower bound	Upper bound		
Overall	0.389	0.224	0.555	0.084	< 0.001
- Awotedu, 2015	0.395	0.223	0.566	0.087	< 0.001
- Echeverria, 2014	0.379	0.211	0.547	0.086	< 0.001
- Eckard, 2017	0.410	0.238	0.583	0.088	< 0.001
- Eira, 2012	0.351	0.190	0.512	0.082	< 0.001
- Guaraldi, 2010	0.378	0.209	0.547	0.086	< 0.001
- Kooij, 2015	0.414	0.227	0.601	0.095	< 0.001
- Kuilder, 2017	0.402	0.230	0.573	0.087	< 0.001
- Lekakis, 2009	0.395	0.224	0.565	0.087	< 0.001
- Lucas, 2013	0.404	0.230	0.579	0.089	< 0.001
- Maia-LeiteLH, 2016	0.415	0.241	0.588	0.089	< 0.001
- Maloberti, 2013	0.338	0.187	0.489	0.077	< 0.001
- Monteiro, 2012	0.407	0.233	0.582	0.089	< 0.001
- Moreira, 2018	0.426	0.261	0.591	0.084	< 0.001
- Msoka TF, 2016	0.372	0.205	0.539	0.085	< 0.001
- Ngatchou, 2013	0.403	0.230	0.577	0.089	< 0.001
- Okello, 2017	0.421	0.252	0.590	0.086	< 0.001
- Papita, 2012	0.363	0.198	0.527	0.084	< 0.001
- Rose, 2013	0.363	0.199	0.528	0.084	< 0.001
- Schillaci, 2005	0.377	0.209	0.545	0.086	< 0.001
- Schillaci, 2008	0.358	0.195	0.521	0.083	< 0.001
- Van Vonderen, 2009	0.394	0.223	0.565	0.087	< 0.001
- Yannoutsos, 2014	0.405	0.229	0.581	0.090	< 0.001

Table S7. Comparison of aortic PWV between HIV+ on ART and HIV+ naïve subjects: subgroups analyses

SUBGROUPS	STUDIES (n)	SMD	95% CI		p	I ² (%)	p _{HETERO}
			Lower bound	Upper bound			
HIV + on ART vs HIV+ naïve							
All n= 1218	10	0.262	0.006	0.518	0.045	74.68	<0.001
Sample size above the median (n = 53)	4	0.138	-0.211	0.487	0.438	77.13	0.004
Sample size below the median	6	0.361	-0.017	0.739	0.061	72.84	0.002
Age above the median (40 years)	5	0.543	0.328	0.758	<0.001	12.88	0.332
Age below the median	5	-0.039	-0.274	0.196	0.743	49.32	0.096
% of males above the median (38%)	3	0.701	0.389	1.013	<0.001	16.57	0.302
% of males below the median	4	0.146	-0.211	0.503	0.332	78.66	0.003
SBP above the median (122 mmHg)	4	0.320	-0.036	0.676	0.078	69.69	0.019
SBP below the median	5	0.361	-0.017	0.739	0.204	81.51	<0.001
Complior	6	0.264	-0.097	0.625	0.151	79.78	<0.001
Sphigmocor	3	0.279	-0.209	0.768	0.262	78.54	0.009
SPT-301 Millar tonometer	1	0.235	-0.354	0.824	NA	NA	NA
Europe	3	0.389	0.016	0.763	0.041	45.07	0.162
Africa	4	-0.010	-0.317	0.297	0.950	71.59	0.014
South America	2	0.720	0.121	1.329	0.019	67.69	0.078
Asia or Australia	1	0.235	-0.354	0.824	NA	NA	NA
Papers published after 2012	5	0.167	-0.172	0.507	0.334	74.34	0.004
Papers published before 2012	5	0.371	-0.056	0.799	0.089	78.37	0.001
Age above the median (40 years)	5	0.543	0.328	0.758	<0.001	12.88	0.332
Age below the median	5	-0.039	-0.274	0.196	0.743	49.32	0.096

Table S8. Meta-regression analyses investigating the association of some potential effect modifiers with the aPWV standardized mean difference between HIV+ on ART and HIV+ naïve subjects.

	Studies (n)	Regression Coefficients	95% CI		p	R ² (%) (Amount of heterogeneity accounted for)
			Lower bound	Upper bound		
HIV+ on ART vs HIV+ naïve						
Year of publication	10	0.005	-0.110	0.120	0.929	0.00
Sample size	10	0.002	-0.006	0.001	0.256	4.47
Age	10	0.116	0.049	0.182	<0.001	7

Table S9. Aortic PWV standardized mean difference between HIV+ on ART and HIV+ naïve obtained by leave-one-out sensitivity analysis

Studies	Standardized mean difference (SMD)	95 % Confidence Interval		Standard error	p
		Lower bound	Upper bound		
Overall	0.262	0.006	0.518	0.130	0.045
- Awotedu, 2015	0.318	0.046	0.589	0.139	0.022
- Eira, 2012	0.182	-0.052	0.415	0.119	0.127
- Guaraldi, 2010	0.316	0.039	0.593	0.141	0.025
- Kooij, 2015	0.414	0.227	0.601	0.095	< 0.001
- Kuilder, 2017	0.402	0.230	0.573	0.087	< 0.001
- Lekakis, 2009	0.225	-0.040	0.489	0.135	0.097
- Maloberti, 2013	0.232	-0.040	0.505	0.139	0.095
- Monteiro, 2012	0.242	-0.036	0.519	0.142	0.088
- Msoka, 2016	0.229	-0.042	0.500	0.138	0.098
- Ngatchou, 2013	0.319	0.049	0.590	0.138	0.021
- Rose, 2013	0.266	-0.010	0.542	0.141	0.059
- Van Vonderen, 2009	0.290	0.012	0.569	0.142	0.041