

Supplementary Material

Supplementary Table 1. Characteristics of participants enrolled grouped by MetS diagnosis

Characteristics	Non-MetS, N = 756	MetS, N = 261	P value
Age, years	31.00 [26.00, 39.00]	40.00 [32.00, 50.00]	<0.001
Gender, male	697 (92.20%)	239 (91.57%)	0.748
BMI, kg/m²	21.43 [19.20, 23.46]	25.26 [22.76, 27.85]	<0.001
SBP, mmHg	122.00 [115.00, 130.00]	134.00 [126.00, 141.00]	<0.001
DBP, mmHg	84.00 [78.00, 90.00]	90.00 [86.00, 95.00]	<0.001
CD8+ T counts, cells/μl	699.00 [531.75, 918.75]	813.00 [637.00, 1,037.00]	<0.001
CD4+ T counts, cells/μl	462.00 [330.75, 628.25]	473.00 [322.00, 634.00]	0.746
CD4/CD8 ratio	0.67 [0.45, 0.94]	0.62 [0.40, 0.81]	<0.001
HAART Regimen			0.013
DTG group	88 (11.64%)	51 (19.54%)	
B/T/F group	188 (24.87%)	63 (24.14%)	
EFV group	452 (59.79%)	140 (53.64%)	
LPV/r group	28 (3.70%)	7 (2.68%)	
HAART duration, months	24.00 [12.00, 48.00]	24.00 [12.00, 36.00]	0.052
AIDS stage	371 (49.07%)	120 (45.98%)	0.388
CAP, dB/m	205.00 [184.75, 228.00]	263.00 [219.00, 298.00]	<0.001
LSM, kPa	4.90 [4.38, 5.60]	5.40 [4.60, 6.40]	<0.001
WBC, 10⁹/L	5.97 [5.01, 6.90]	6.48 [5.41, 7.86]	<0.001
LYM, 10⁹/L	1.96 [1.60, 2.39]	2.11 [1.69, 2.63]	0.001
NEU, 10⁹/L	3.26 [2.66, 4.05]	3.65 [2.87, 4.71]	<0.001

MONO, 10⁹/L	0.39 [0.32, 0.48]	0.42 [0.33, 0.54]	<0.001
EOS, 10⁹/L	0.10 [0.06, 0.17]	0.11 [0.07, 0.19]	0.013
RBC, 10¹²/L	4.83 [4.52, 5.12]	4.86 [4.54, 5.18]	0.562
HGB, g/L	150.00 [141.00, 158.25]	153.00 [144.00, 161.00]	0.014
PLT, 10⁹/L	240.00 [203.00, 278.00]	237.00 [197.00, 270.00]	0.259
ALT, U/L	21.00 [15.00, 30.00]	30.00 [20.00, 45.00]	<0.001
AST, U/L	20.00 [17.00, 25.00]	24.00 [19.00, 32.00]	<0.001
ALB, g/L	47.20 [45.20, 48.90]	46.30 [44.40, 48.60]	0.004
G, g/L	27.20 [24.70, 30.50]	28.60 [25.60, 32.10]	<0.001
TBIL, μmol/L	7.50 [5.30, 11.03]	7.70 [5.20, 11.10]	0.719
DBIL, μmol/L	3.10 [2.40, 4.20]	3.10 [2.30, 4.10]	0.338
ALP, U/L	87.00 [70.00, 109.00]	89.00 [71.00, 118.00]	0.030
γ-GT, U/L	28.00 [20.00, 44.00]	42.00 [29.00, 74.00]	<0.001
UA, μmol/L	364.00 [307.00, 425.25]	387.00 [326.00, 468.00]	<0.001
CR, μmol/L	80.00 [70.00, 90.00]	81.00 [70.00, 92.00]	0.590
BUN, mmol/L	4.30 [3.60, 5.20]	4.60 [3.90, 5.40]	0.006
eGFR, mL/min/1.73m²	107.26 [94.38, 118.92]	100.37 [85.77, 111.97]	<0.001
TG, mmol/L	1.12 [0.82, 1.48]	2.34 [1.76, 3.30]	<0.001
CHOL, mmol/L	4.26 [3.71, 4.85]	4.58 [3.95, 5.26]	<0.001
HDL-C, mmol/L	1.15 [1.03, 1.33]	0.96 [0.88, 1.11]	<0.001
LDL-C, mmol/L	2.65 [2.20, 3.09]	2.84 [2.38, 3.41]	<0.001
VLDL-C, mmol/L	0.40 [0.25, 0.58]	0.66 [0.49, 0.90]	<0.001
FPG, mmol/L	5.07 [4.76, 5.37]	5.64 [5.08, 6.20]	<0.001
HbA1c, %	5.30 [5.10, 5.60]	5.60 [5.30, 5.90]	<0.001
LDH, U/L	159.00 [143.75, 176.00]	172.00 [154.00, 193.00]	<0.001
HBDH, U/L	119.00 [108.00, 133.00]	126.00 [113.00, 141.00]	<0.001

CK, U/L	108.00 [83.00, 143.00]	108.00 [81.00, 146.00]	0.748
CKMB, U/L	26.00 [14.00, 44.00]	20.00 [13.00, 34.00]	<0.001
CRP, mg/L	0.83 [0.43, 1.94]	1.73 [0.94, 3.23]	<0.001
ESR, mm/1h	5.00 [3.00, 9.00]	7.00 [4.00, 14.00]	<0.001

Continuous variables are presented as Median [Interquartile Range] (IQR), and categorical variables are presented as N (%).

Abbreviations: MetS, metabolic syndrome; BMI, body mass index; SBP, systolic blood pressure; DBP, diastolic blood pressure; HAART, highly active antiretroviral therapy; DTG, dolutegravir group; B/F/T, Bictegravir group; EFV, Efavirenz group; LPV/r, lopinavir/ritonavir group; AIDS, acquired immunodeficiency syndrome; CAP, controlled attenuation parameter; LSM, liver stiffness measurement; WBC, white blood cell count; LYM, lymphocyte count; NEU, neutrophil count; MONO, monocyte count; EOS, eosinophils count; RBC, red blood cell count; HGB, hemoglobin; PLT, platelets count; ALT, alanine aminotransferase; AST, aspartic aminotransferase; ALB, albumin; G, globulin; TBIL, total bilirubin; DBIL, direct bilirubin; ALP, alkaline phosphatase; γ -GT, gamma-glutamyl transferase; UA, uric acid; CR, creatinine; BUN, blood urea nitrogen; eGFR, estimated glomerular filtration rate; TG, total triglycerides; CHOL, total cholesterol; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; VLDL-C, very low-density lipoprotein cholesterol; FPG, fasting plasma glucose; HbA1c, glycated hemoglobin A1c; LDH, lactate dehydrogenase; HBDH, hydroxybutyrate dehydrogenase; CK, creatine kinase; CKMB, creatine kinase myocardial band; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate.

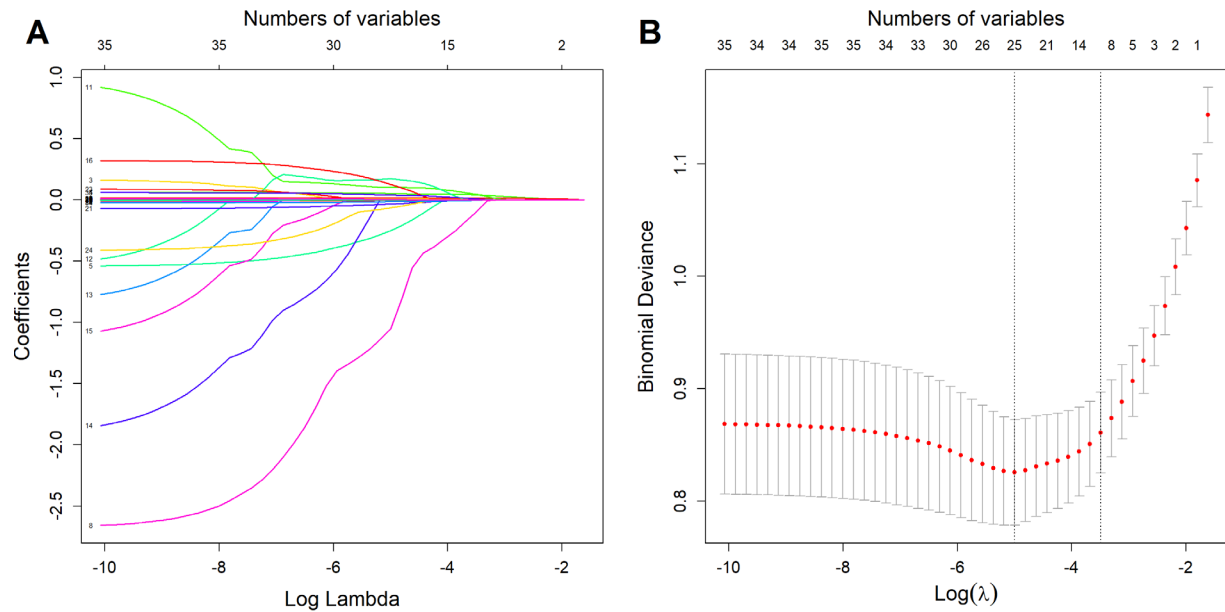
Supplementary Table 2. Univariate and multivariate analysis of MetS in the training cohort of PLWH

Characteristic	Univariate Regression		Multivariate Regression	
	OR (95%CI)	P value	OR (95%CI)	P value
Age	1.060 (1.045-1.075)	<0.001	1.062 (1.038-1.088)	<0.001
Gender	0.907 (0.491-1.596)	0.745		
CD8+ T counts	1.001 (1.001-1.002)	<0.001	1.000 (0.999-1.001)	0.557
CD4+ T counts	1.000 (1.000-1.001)	0.263		
CD4/CD8 ratio	0.398 (0.239-0.646)	<0.001	0.431 (0.204-0.879)	0.024
ART regimen	0.992 (0.984-1.000)	0.045	0.994 (0.983-1.005)	0.267
AIDS	0.899 (0.656-1.230)	0.505		
CAP	1.023 (1.019-1.027)	<0.001	1.017 (1.013-1.022)	<0.001
LSM	1.363 (1.225-1.530)	<0.001	1.022 (0.887-1.173)	0.765
WBC	1.234 (1.128-1.351)	<0.001	3.954 (0.891-23.430)	0.097
LYM	1.648 (1.281-2.126)	<0.001	0.408 (0.069-1.888)	0.275
NEU	1.182 (1.063-1.314)	0.002	0.294 (0.049-1.317)	0.140
MONO	6.971 (2.392-20.420)	<0.001	0.123 (0.010-1.287)	0.089
EOS	4.506 (1.241-16.020)	0.021	0.301 (0.026-2.983)	0.321
RBC	1.072 (0.844-1.370)	0.574		
HGB	1.009 (0.998-1.020)	0.123		
PLT	0.997 (0.995-1.000)	0.065		
ALT	1.023 (1.015-1.031)	<0.001	1.012 (0.996-1.029)	0.157
AST	1.026 (1.014-1.039)	<0.001	0.989 (0.959-1.015)	0.428
ALB	0.923 (0.877-0.970)	0.002	0.946 (0.885-1.011)	0.100
G	1.059 (1.024-1.096)	<0.001	0.997 (0.946-1.051)	0.914

TBIL	0.987 (0.956-1.018)	0.422		
DBIL	0.925 (0.832-1.022)	0.134		
ALP	1.007 (1.002-1.012)	0.005	1.002 (0.995-1.010)	0.536
γ-GT	1.011 (1.007-1.015)	<0.001	1.007 (1.003-1.012)	0.002
UA	1.003 (1.001-1.005)	<0.001	1.000 (0.998-1.003)	0.687
CR	1.008 (1.000-1.016)	0.068		
BUN	1.217 (1.076-1.379)	0.002	1.017 (0.852-1.213)	0.849
eGFR	0.976 (0.968-0.985)	<0.001	0.996 (0.982-1.011)	0.612
LDH	1.013 (1.008-1.018)	<0.001	1.011 (0.999-1.025)	0.072
HBDH	1.013 (1.006-1.020)	<0.001	0.996 (0.979-1.011)	0.609
CK	0.999 (0.998-1.000)	0.207		
CKMB	0.983 (0.974-0.992)	<0.001	0.985 (0.971-0.997)	0.021
CRP	1.077 (1.033-1.126)	<0.001	1.063 (0.994-1.132)	0.065
ESR	1.030 (1.015-1.046)	<0.001	0.999 (0.975-1.022)	0.932

Abbreviations: ART, antiretroviral therapy; AIDS, acquired immunodeficiency syndrome; CAP, controlled attenuation parameter; LSM, liver stiffness measurement; WBC, white blood cell count; LYM, lymphocyte count; NEU, neutrophil count; MONO, monocyte count; EOS, eosinophils count; RBC, red blood cell count; HGB, hemoglobin; PLT, platelets count; ALT, alanine aminotransferase; AST, aspartic aminotransferase; ALB, albumin; G, globulin; TBIL, total bilirubin; DBIL, direct bilirubin; ALP, alkaline phosphatase; γ-GT, gamma-glutamyl transferase; UA, uric acid; CR, creatinine; BUN, blood urea nitrogen; eGFR, estimated glomerular filtration rate; LDH, lactate dehydrogenase; HBDH, hydroxybutyrate dehydrogenase; CK, creatine kinase; CKMB, creatine kinase myocardial band; CRP, C-reactive protein; ESR, erythrocyte sedimentation rate.

Supplementary Figure 1. LASSO regression of the training cohort



(A) LASSO coefficient profiles of the 35 risk factors. (B) Risk factors were selected using LASSO regression analysis. The two dotted vertical lines were drawn at the optimal scores by minimum criteria and 1-s.e. criteria.