SUPPLEMENTAL MATERIAL

Table S1. Definition of liver fibrosis scores and relative cutoffs.

	Algorithm	**Cut-offs**
NAFLD Fibrosis Score (NFS)	-1.675 + (0.037 × age [years]) + (0.094 * BMI [Kg/m^2]) + (1.13 × IFG/DM [yes=1, no=0]) + (0.99 × AST/ALT ratio) – (0.013 × platelet count [10^9/L]) – (0.66 × albumin [g/dL])	Low risk <-1.455 Intermediate risk -1.455-0.675 High risk >0.675
Fibrosis-4 (FIB-4)	(age [years] × AST [IU/L]) / (platelet count [10^9/L] × $\sqrt{\text{ALT[IU/L]}}$)	Low risk <1.3 Intermediate risk 1.3-2.67 High risk >2.67
BARD	BMI ≥28 kg/m^2 = 1 point, AST to ALT ratio ≥ 0.8 = 2 points, DM = 1 point	Low risk 0-1 Intermediate risk 2 High risk 3-4
AST/ALT ratio	AST (IU/L)/ALT (IU/L)	Low risk <0.8 Intermediate risk 0.8-1.0 High risk >1.0
Forns score	7.811-3.131 × log(platelet count [10^9/L]) + 0.781 × log(GGT [IU/L]) + 3.467 × log(age [year]) –0.014 × total cholesterol (mg/dL)	Low risk <4.2 Intermediate risk 4.2-6.9

		High risk >6.9
GGT platelet ratio (GPR)	GGT/platelet count (10^9/L)	Tertiles by gender
AST to platelet ratio index (APRI)	AST (IU/L)/AST (the upper limit of normal, ULN) × 100 / platelet count (10^9/L)	Low risk <0.5 Intermediate risk 0.5-1.5 High risk >1.5
HUI	y = 3.148 + 0.167 × BMI [kg/m^2] + 0.088×TBil [umol/L]-0.151 × albumin [g/L] – 0.019× platelet count [×10^9/L], HUI score = exp. (y) / (1+exp. (y))	Low risk <0.15 Intermediate risk 0.15-0.5 High risk >0.5

NAFLD, non-alcoholic fatty liver disease; BMI, body mass index; IFG, impaired fasting glucose; DM, diabetes mellitus; AST, aspartate aminotransferase; ALT, alanine aminotransferase; BARD, Body Mass Index, AST/ALT ratio, Diabetes score; GGT, gamma glutamyltransferase.

Table S2. Procedural characteristics of patients with and without primary endpoints.

Variables	Overall (n=4003)	Events (n=315)	Non-events (n=3688)
Number of lesion vessels			
Single-vessel, n (%)	1019 (25.5)	64 (20.4)	955 (25.9)
Double-vessel, n (%)	1369 (34.2)	97 (30.8)	1272 (34.5)
Multi-vessel, n (%)	1613 (40.3)	153 (48.6)	1460 (39.6)
Target vessels			
LM, n (%)	186 (4.6)	16 (5.1)	170 (4.6)
LAD, n (%)	2657 (66.4)	186 (59.2)	2471 (67.0)
LCX, n (%)	1642 (41.0)	163 (51.8)	1479 (40.1)
RCA, n (%)	1942 (48.5)	157 (49.8)	1785 (48.4)
Grafts, n (%)	49 (1.2)	5 (1.6)	44 (1.2)
Number of target vessels	1.20±0.44	1.13±0.43	1.20±0.44
Number of stents implanted	1.82±1.01	1.77±0.94	1.83±1.01
Bifurcation lesion, n (%)	1540 (38.5)	127 (40.3)	1413 (38.3)
Occlusion lesion, n (%)	417 (10.4)	41 (13.0)	376 (10.2)
In-stent restenosis, n (%)	184 (4.6)	14 (4.5)	170 (4.6)
Number of pre-dilations	2 (1-4)	2 (1-5)	2 (1-4)
Number of post-dilations	4 (2-5)	4 (2-6)	4 (2-5)
Total stent length, mm	40.09±20.58	41.73±26.41	40.07±19.97
DES, n (%)	3506 (87.6)	279 (88.7)	3227 (87.5)

Continuous values are summarized as mean ± SD, median (interquartile range) and categorical variables as number (percentage). DES, drug-eluting stent; LM, left main; LAD, Left anterior descending; LCX, left circumflex; RCA, right coronary artery.

Table S3. Multivariate Cox regression analysis for the primary endpoints among patients following selective percutaneous coronary intervention.

Variables	Hazard ratio (95% confidence interval)	*p* value
Age	1.03 (1.02-1.05)	<0.001
Male	1.02 (0.68-1.55)	0.914
Current smoking	1.12 (0.77-1.63)	0.545
Alcohol consumption	0.80 (0.51-1.25)	0.319
Diabetes	1.07 (0.68-1.70)	0.763
Hypertension	1.63 (1.10-2.41)	0.015
Systolic blood pressure	1.01 (0.99-1.01)	0.327
LDL-C	0.97 (0.76-1.25)	0.812
HbA1c	1.08 (0.90-1.30)	0.428
HsCRP	1.04 (1.00-1.09)	0.049
Number of lesion vessels	1.34 (1.08-1.67)	0.008
Baseline statin use	0.65 (0.46-0.90)	0.010
AST/ALT ratio (per 1-SD)	1.15 (1.04-1.27)	0.009

AST, aspartate aminotransferase; ALT, alanine aminotransferase; HbA1c, glycosylated hemoglobin; HsCRP, high sensitivity C-reactive protein; LDL-C, low-density lipoprotein cholesterol; SD, standard deviation.

Table S4. Sensitivity analysis of the association of per 1-SD (per 1-point for BARD) increase of liver fibrosis scores with hard endpoint events by separate adjustment for each of the other significant variables.

Adjustment variable	Hazard ratio (95% confidence interval)			
	NFS	FIB-4	BARD	AST/ALT
Age	-	-	1.22 (1.07-1.40)†	1.09 (1.00-1.19)*
Sex	1.27 (1.01-1.59)*	1.08 (1.01-1.15)*	1.30 (1.14-1.48)‡	1.13 (1.03-1.23)†
Hypertension	1.56 (1.31-1.86)‡	1.09 (1.03-1.16)†	1.30 (1.15-1.48)‡	1.16 (1.06-1.26)†
Diabetes	-	1.08 (1.01-1.24)*	-	1.15 (1.06-1.24)†
Current smoking	1.53 (1.28-1.84)‡	1.08 (1.01-1.15)*	1.31 (1.15-1.49)‡	1.14 (1.05-1.24)†
SBP	1.58 (1.24-2.01)‡	1.08 (1.02-1.14)†	1.28 (1.11-1.46)‡	1.14 (1.01-1.29)*
HbA1c	1.53 (1.28-1.83)‡	1.08 (1.01-1.15)*	1.31 (1.15-1.49)‡	1.15 (1.06-1.24)†
HsCRP	1.54 (1.30-1.83)‡	1.07 (1.02-1.13)†	1.31 (1.16-1.49)‡	1.13 (1.04-1.23)†
Number of lesion vessels	1.53 (1.29-1.81)‡	1.07 (1.01-1.14)*	1.31 (1.15-1.49)‡	1.14 (1.05-1.23)†
Baseline statin use	1.53 (1.29-1.82)‡	1.07 (1.01-1.14)*	1.40 (1.22-1.60)‡	1.14 (1.05-1.24)†

AST, Aspartate aminotransferase; ALT, alanine aminotransferase; BARD, Body Mass Index, AST/ALT ratio, Diabetes score; FIB-4, fibrosis-4; NFS, non-alcoholic fatty liver disease fibrosis score; HbA1c, glycosylated hemoglobin; HsCRP, high-sensitivity C-reactive protein; SBP, systolic blood pressure.

Table S5. Adjusted hazard ratios of each primary cardiovascular event separately according to baseline liver fibrosis scores.

Score	Adjusted Hazard ratio (95% confidence interval)			
	All-cause death	CVD death	Non-fatal MI	Ischemic stroke
NFS				
<-1.455	1.00	1.00	1.00	1.00
≥-1.455	3.50 (2.01-6.11)‡	2.56 (1.33-4.93)†	2.83 (1.71-4.70)*	1.23 (0.72-2.10)
Per 1-SD	2.10 (1.76-2.51)‡	2.26 (1.82-2.82)‡	1.45 (1.17-1.80)†	1.14 (0.94-1.39)
FIB-4				
<1.3	1.00	1.00	1.00	1.00
≥1.3	2.18 (1.56-3.05)‡	2.27 (1.41-3.66)†	1.67 (1.01-2.76)*	1.55 (1.02-2.37)*
Per 1-SD	1.09 (1.03-1.16)†	1.09 (0.98-1.21)	1.09 (0.94-1.26)	1.04 (0.94-1.16)
BARD				
0-1	1.00	1.00	1.00	1.00
2-4	1.78 (1.24-2.56)†	2.36 (1.38-4.05)†	1.50 (1.05-2.14)*	1.17 (0.93-1.48)
Per 1-point	1.47 (1.25-1.74)‡	1.84 (1.43-2.36)‡	1.25 (1.07-1.48)†	1.08 (0.97-1.20)
AST/ALT ratio				
<0.8	1.00	1.00	1.00	1.00
≥0.8	2.76 (1.52-5.01)†	2.45 (1.43-4.21)†	1.55 (1.08-2.21)*	1.13 (0.89-1.43)
Per 1-SD	1.19 (1.01-1.41)*	1.31 (1.18-1.45)‡	1.10 (0.92-1.30)	1.02 (0.91-1.14)

The adjusted model included age, sex, current smoking, current drinking, diabetes, hypertension, systolic blood pressure, low-density lipoprotein cholesterol, glycosylated hemoglobin, high-sensitivity C-reactive

protein, number of lesion vessels, and baseline statin use, other than the variables included in the score formula. AST, Aspartate aminotransferase; ALT, alanine aminotransferase; BARD, Body Mass Index, AST/ALT ratio, Diabetes score; FIB-4, fibrosis-4; NFS, non-alcoholic fatty liver disease fibrosis score.

*$p<0.05$; †, $p<0.01$.

Table S6. C-statistic of LFSs for predicting primary endpoints in patients after selective PCI.

	C-statistic (95% CI)	ΔC-statistic (95% CI)	*p* value
Original model	0.651 (0.588-0.714)		
Original model + NFS	0.691 (0.637-0.746)	0.040 (0.009-0.080)	0.026
Original model	0.652 (0.615-0.690)		
Original model + FIB-4	0.689 (0.655-0.724)	0.037 (0.004-0.067)	0.022
Original model	0.688 (0.653-0.723)		
Original model + BARD	0.706 (0.672-0.741)	0.018 (0.007-0.034)	0.008
Original model	0.689 (0.654-0.724)		
Original model + AST/ALT ratio	0.702 (0.668-0.737)	0.013 (-0.002-0.029)	0.094

Original model included included age, sex, current smoking, current drinking, diabetes, hypertension, systolic blood pressure, low-density lipoprotein cholesterol, glycosylated hemoglobin, high-sensitivity C-reactive protein, number of lesion vessels, and baseline statin use, other than the variables included in the score formula. AST, Aspartate aminotransferase; ALT, alanine aminotransferase; BARD, Body Mass Index, AST/ALT ratio, Diabetes score; FIB-4, fibrosis-4; LFSs, liver fibrosis scores; NFS, non-alcoholic fatty liver disease fibrosis score; PCI, percutaneous coronary intervention.

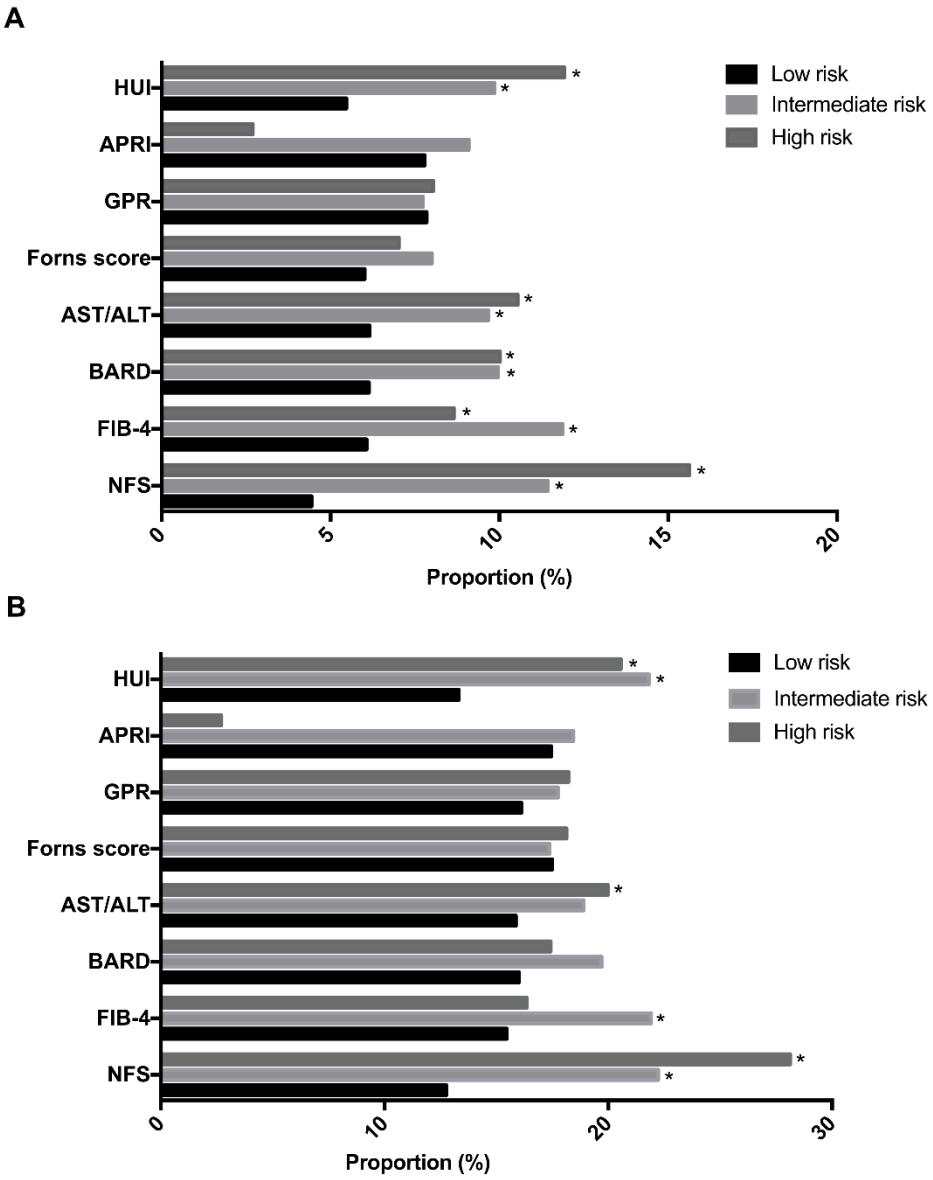

Figure S1. The difference of cardiovascular events incidence according to the categorizations of LFSs. (A) Primary endpoint; (B) Secondary endpoint. AST, Aspartate aminotransferase; ALT, alanine aminotransferase; APRI, AST to platelet ratio index; BARD, Body Mass Index, AST/ALT ratio, Diabetes score; FIB-4, fibrosis-4; GPR, gamma-glutamyltransferase platelet ratio; NFS, non-alcoholic fatty liver disease fibrosis score.

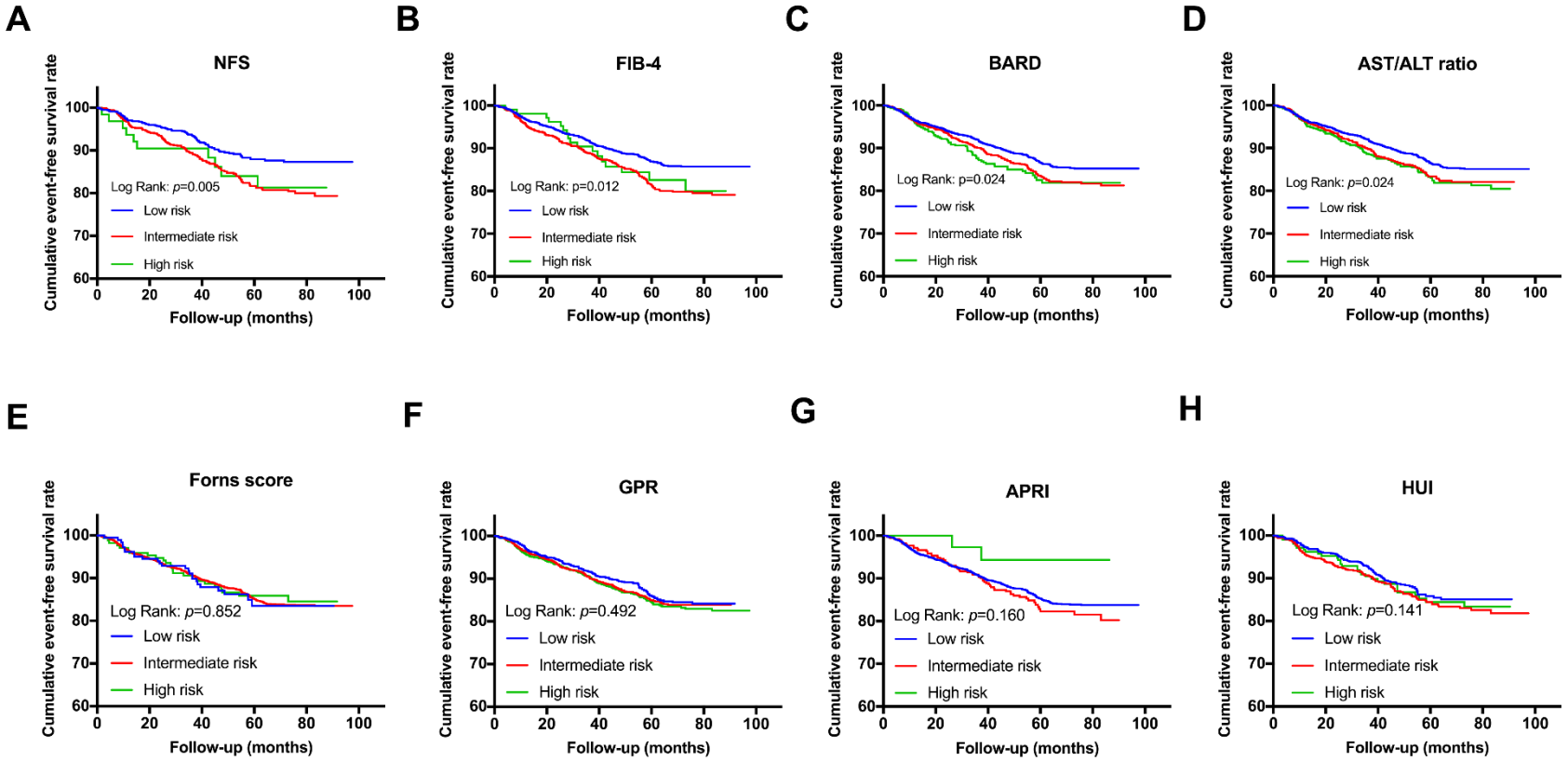

Figure S2. The cumulative event-free survival analysis for secondary endpoint according to baseline LFSs. (A) NFS; (B) FIB-4; (C) BARD; (D) AST/ALT ratio; (E) Forns score; (F) GPR; (G) APRI; (H) HUI. AST, Aspartate aminotransferase; ALT, alanine aminotransferase; APRI, AST to platelet ratio index; BARD, Body Mass Index, AST/ALT ratio, Diabetes score; FIB-4, fibrosis-4; GPR, gamma-glutamyltransferase

platelet ratio; NFS, non-alcoholic fatty liver disease fibrosis score.

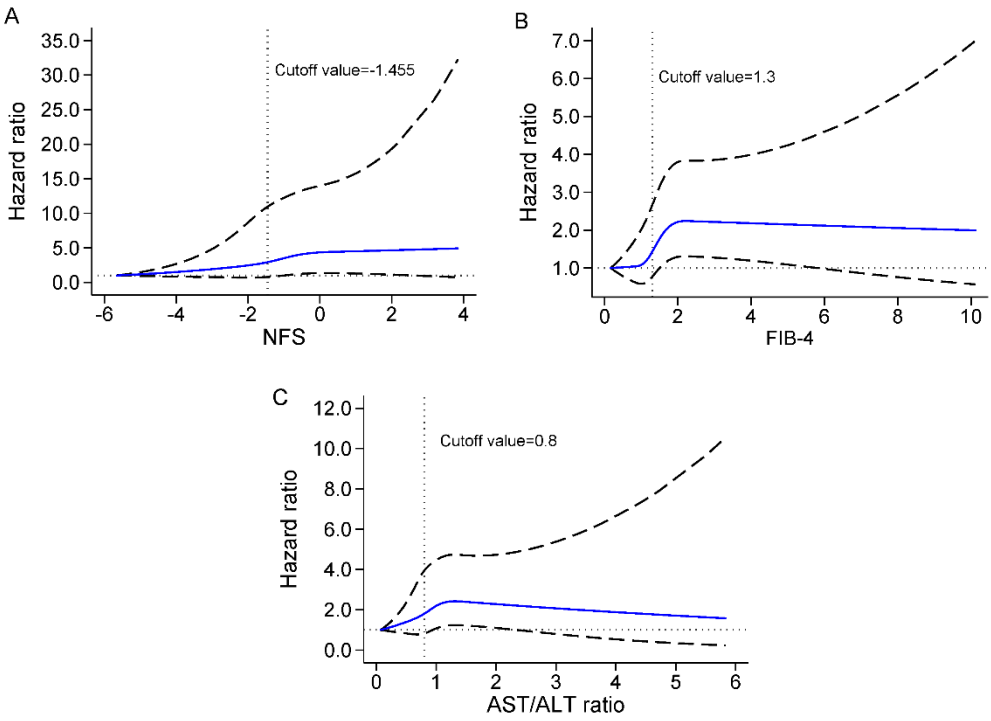

Figure S3. Age- and sex-adjusted restricted cubic spline plot of liver fibrosis scores and risk of primary endpoint events. (A) NFS; (B) FIB-4 index; (C) AST/ALT ratio. NFS, non-alcoholic fatty liver disease fibrosis score; FIB-4, fibrosis 4; AST, aspartate aminotransferase; ALT, alanine aminotransferase.

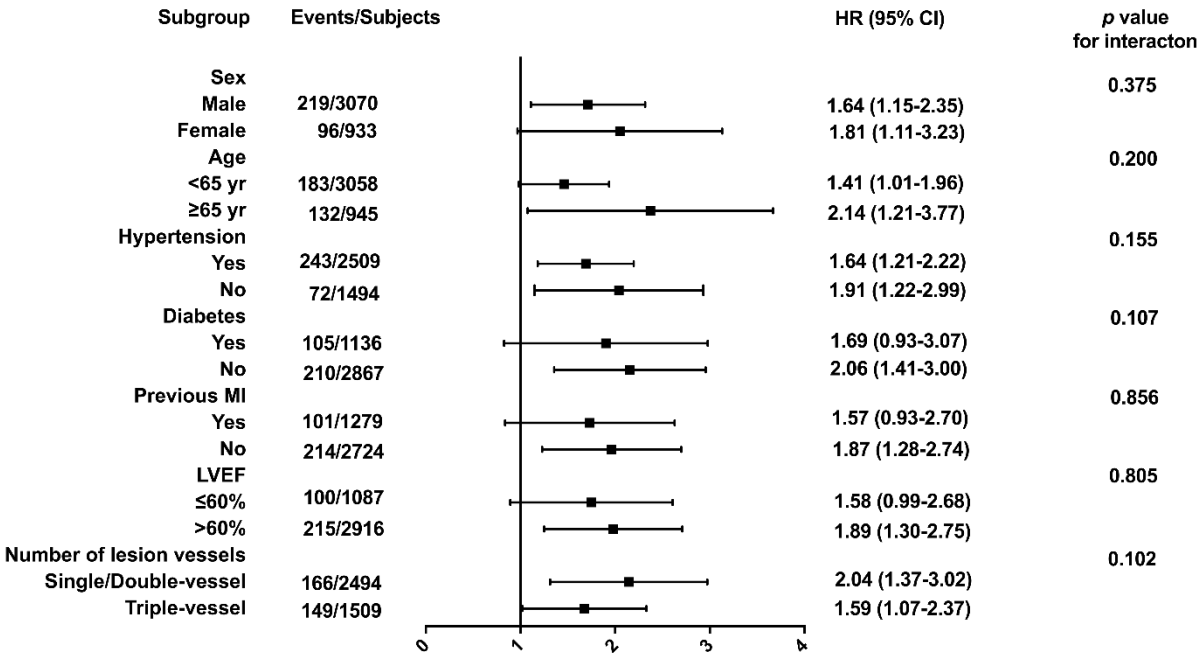

Figure S4. Subgroup analyses of FIB-4 for predicting primary cardiovascular events. CI, confidence interval; FIB-4, fibrosis 4; HR, hazard ratio; LVEF, left ventricular ejection fraction; MI, myocardial infarction.