

Supplemental Information

Multimodal Prediction of Major Adverse Cardiovascular Events in Hypertensive Patients with Coronary Artery Disease: Integrating Pericoronary Fat Radiomics, CT-FFR, and Clinicoradiological Features

La radiologia medica

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Table S1

Filters	first-order	shape	glcm	gldm	glrlm	glszm	ngtdm	sum
original	18	14	21	14	16	16	5	104
additivegaussiannoise	18		21	14	16	16	5	90
binomialblurimage	18		21	14	16	16	5	90
boxmean	18		21	14	16	16	5	90
boxsigmaimage	18		21	14	16	16	5	90
curvatureflow	18		21	14	16	16	5	90
discretegaussian	18		21	14	16	16	5	90
laplaciansharpening	18		21	14	16	16	5	90
mean	18		21	14	16	16	5	90
normalize	18		21	14	16	16	5	90
recursivegaussian	18		21	14	16	16	5	90
shotnoise	18		21	14	16	16	5	90
specklenoise	18		21	14	16	16	5	90
wavelet	144		168	112	128	128	40	720
sum	378	14	441	294	336	336	105	1904

GLCM: Gray Level Co-occurrence Matrix, GLDM: Gray Level Dependence Matrix, GLSZM: Gray Level Size Zone Matrix, GLRLM: Gray Level Run Length Matrix, NGTDM: Neighbouring Gray Tone Difference Matrix

Table S2 Logistics regression analysis of factors associated with MACE

Clinical Factor	Univariate		Multivariate	
	P value	OR (95% CI)	P value	OR (95% CI)
Demographic characteristics				
Age	0.718	1.006(0.974-1.039)		
Gender	0.995	1.002(0.533-1.887)		
Height	0.740	0.993(0.951-1.036)		
Weight	0.778	1.004(0.974-1.036)		
SBP	0.943	1.000(0.988-1.012)		
DBP	0.590	0.994(0.974-1.015)		
Hypertension history	0.411	1.016(0.978-1.057)		
NYHA grade	0.050	1.382(1.004-1.922)	0.206	1.263(0.878-1.818)
COPD	0.812	1.105(0.479-2.535)		
Hyperlipidemia	0.276	1.531(0.712-3.333)		
Chronic kidney diseases	0.081	2.286(0.920-6.045)	0.634	1.288(0.453-3.739)
Diabetes	0.042	1.906(1.028-3.568)	0.204	1.818(0.722-4.606)
Antihypertense treatment	0.364	1.448(0.658-3.289)		
Statin use	0.088	1.716(0.926-3.210)	0.062	1.931(0.975-3.904)
Smoking	0.342	1.406(0.696-2.854)		
Drinking	0.280	1.559(0.697-3.542)		
DLP	0.592	1.001(0.998-1.003)		
Laboratory characteristics				
FT3	0.032	0.576(0.341-0.914)		
FT4	0.454	1.044(0.934-1.173)		
TSH	0.101	0.866(0.722-1.019)		

TGAb	0.636	1.000(0.999-1.002)		
TPOAb	0.809	0.999(0.994-1.004)		
C-reactive protein	0.201	1.010(0.995-1.026)		
White blood cell count	0.450	1.051(0.925-1.199)		
Creatinine	0.535	1.001(0.998-1.004)		
Troponin	0.084	1.333(1.063-2.020)	0.150	1.269(1.013-1.958)
CKMB	0.026	1.156(1.037-1.345)	0.173	1.102(0.972-1.298)
MYO	0.211	1.002(0.999-1.006)		
Imaging characteristics				
LAD DS	0.008	1.383(1.094-1.769)	0.428	0.781(0.418-1.442)
LCX DS	< 0.01	1.605(1.280-2.042)	0.096	1.368(0.950-1.996)
RCA DS	0.003	1.403(1.124-1.768)	0.462	0.857(0.565-1.290)
DS patients	0.001	1.573(1.208-2.087)	0.330	1.434(0.697-3.009)
Calcification score	0.293	1.000(1.000-1.000)		
Involved segments	0.005	1.147(1.044-1.266)	0.638	0.963(0.818-1.128)
LAD CT-FFR	< 0.01	0.014(0.001-0.130)	0.089	0.079(0.003-0.875)
LCX CT-FFR	0.004	0.028(0.002-0.282)	0.797	0.649(0.022-17.207)
RCA CT-FFR	< 0.01	0.010(0.001-0.104)	0.119	0.063(0.002-1.834)
LAD FAI	0.099	1.028(0.995-1.064)	0.842	0.993(0.928-1.063)
LCX FAI	0.023	1.044(1.007-1.084)	0.532	1.027(0.944-1.118)
RCA FAI	0.048	1.028(1.001-1.057)	0.989	1.000(0.949-1.054)
LAD Fat volume	0.541	1.000(0.999-1.000)		
LCX Fat volume	0.024	0.999(0.999-1.000)	0.677	1.000(0.999-1.001)
RCA Fat volume	0.091	1.000(0.999-1.000)	0.838	1.000(0.999-1.001)
Positive remodeling	0.755	1.103(0.596-2.041)		

Punctate calcification	0.081	2.286(0.920-6.045)	0.464	1.555(0.481-5.233)
Napkin Ring	0.561	1.440(0.417-5.186)		
Low density spot	0.328	1.406(0.710-2.796)		
HRP	0.044	2.013(1.023-4.021)	0.497	0.708(0.253-1.895)

MACE, major adverse cardiovascular events; OR, odds ratio; CI, confidence interval; SBP, systolic blood pressure; DBP, diastolic blood pressure; NYHA, new york heart association; COPD, chronic obstructive pulmonary disease; DLP, dose-length product; FT3, free triiodothyronine; FT4, free thyroxine; TSH, thyroid-stimulating hormone; TGAb, thyroglobulin antibody; TPOAb, thyroid peroxidase antibody; CKMB, creatine kinase MB; MYO, myoglobin; DS, diameter CT-FFR computed tomography-based fractional flow reserve; FAI, perivascular fat attenuation index.; HRP, high-risk plaques

Fig S1

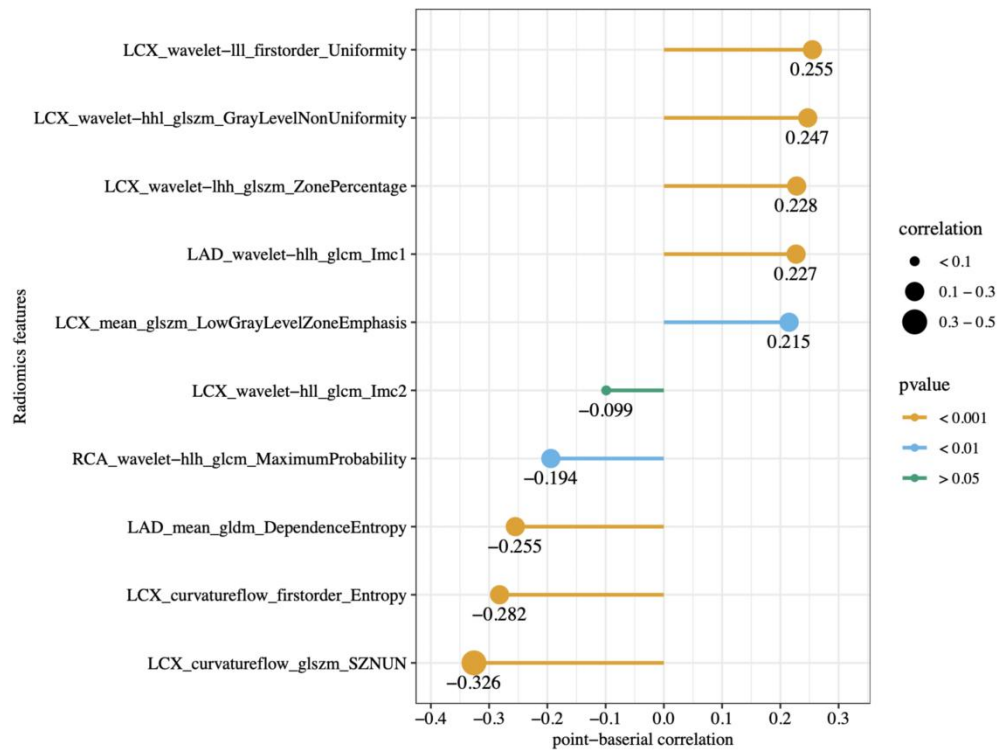


Fig S1 Correlation analysis between Radiomics features and MACE. Only the LCX_wavelet-hlh_glcml_Imc2 (green bar) feature was not significantly correlated with MACE, with a correlation coefficient of less than 0.1 and a correlation test p-value greater than 0.05

Fig S2

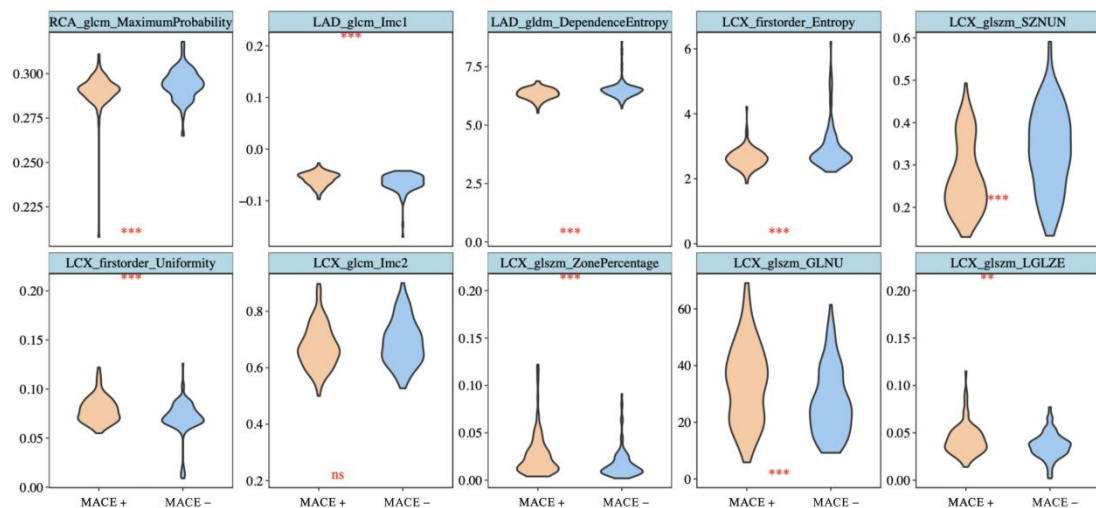


Fig S2 Violin plot of Radiomics features between MACE+ and MACE- group. ***, $p < 0.001$; **, $p < 0.01$; *, $p < 0.05$; ns, $p > 0.1$

Fig S3

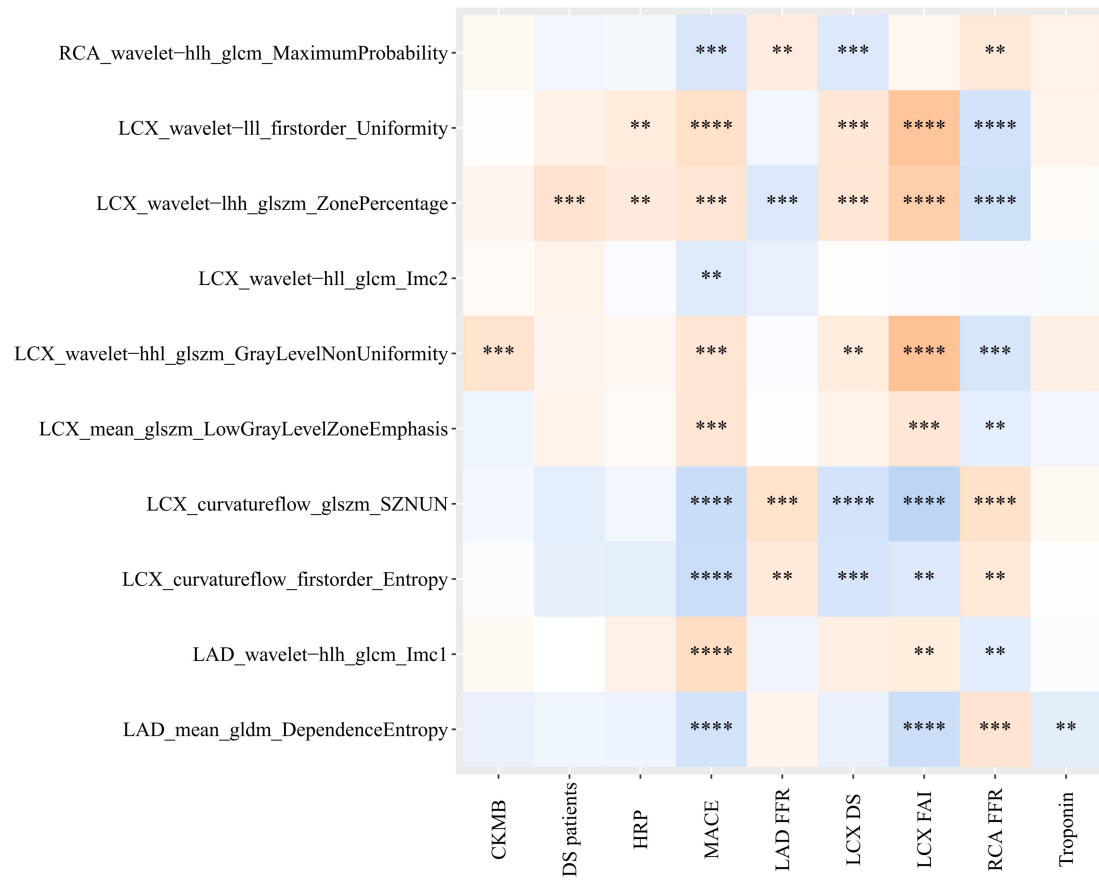


Fig S3 The heatmap of the correlation between MACE, clinicoradiological and radiomics features.

****, $p < 0.001$; ***, $p < 0.01$; **, $p < 0.05$; *, $p < 0.1$