Supplementary Materials

Table S1. Statin intensity classification.

Statin	Low-	Medium-	High-
Atorvastatin	-	10 ~ <40 mg	≥40 mg
Rosuvastatin	-	5 ~ <20 mg	≥20 mg
Simvastatin	<20 mg	20 ~ <80mg	80 mg
Pitavastatin	1 mg	2 ~ 4 mg	-
Pravastatin	<40 mg	40 ~ 80 mg	-
Fluvastatin	≤40 mg	80 mg	

Table S2. Statin exposure and LDL-C reduction.

Characteristics	Overall (N = 5,049)	Non-achiever (n = 3,935)	Achiever (n = 1,114)	*P* value
Index MI admission				
LDL-C (mmol/L)	3.1 [2.4; 3.7]	2.9 [2.2; 3.6]	3.4 [3.0; 3.9]	<0.001
Statin-naïve at presentation	4547 (90.1%)	3481 (88.5%)	1066 (95.7%)	<0.001
Statin at discharge				
Atorvastatin	2340 (46.3%)	1863 (47.3%)	477 (42.8%)	
Rosuvastatin	1944 (38.5%)	1398 (35.5%)	546 (49.0%)	
Simvastatin	281 (5.6%)	234 (5.9%)	47 (4.2%)	
Pitavastatin	210 (4.2%)	188 (4.8%)	22 (2.0%)	
Pravastatin	45 (0.9%)	42 (1.1%)	3 (0.3%)	
Fluvastatin	4 (0.1%)	4 (0.1%)	0 (0.0%)	
One-year follow-up visit				
LDL-C (mmol/L)	1.9 [1.5; 2.3]	2.1 [1.7; 2.5]	1.4 [1.2; 1.6]	<0.001
LDL-C reduction (mmol/L)	1.1 [0.4; 1.8]	0.9 [0.2; 1.4]	2.0 [1.7; 2.4]	<0.001
No reduction or increase	740 (14.7%)	740 (18.8%)	0 (0.0%)	
0 - 50% reduction	2871 (56.9%)	2871 (73.0%)	0 (0.0%)	
≥ 50% reduction	1438 (28.5%)	324 (8.2%)	1114 (100.0%)	
Statin				
On-going	4580 (90.7%)	3541 (90.0%)	1039 (93.3%)	<0.001
Newly started	234 (4.6%)	186 (4.7%)	48 (4.3%)	
Stopped	102 (2.0%)	82 (2.1%)	20 (1.8%)	

No use	121 (2.4%)	117 (3.0%)	4 (0.4%)	
Statin during follow-up				
On-going at 2-year visit	4545 (90.0%)	3513 (89.3%)	1032 (92.6%)	0.008
On-going at 3-year visit	4363 (86.4%)	3374 (85.7%)	989 (88.8%)	0.001

Values are presented as median [interquartile range] or n (%). LDL-C, low-density lipoprotein cholesterol.

Table S3. Patients with ongoing statin therapy and an LDL-C level > 70 mg/dL at the 1-year follow-up visit.

Characteristics	No reduction or increase (n = 479)	0-50% reduction (n = 1,662)	≥ 50% reduction (n = 303)	*P* value
Demographics				
Age, year	62.0 [53.0;72.0]	59.0 [51.0;69.0]	56.0 [47.5;65.0]	<0.001
Female sex	126 (26.3%)	371 (22.3%)	73 (24.1%)	0.182
BMI > 23 kg/m²	328 (68.5%)	1149 (69.1%)	212 (70.0%)	0.907
Current smoker	178 (37.2%)	787 (47.4%)	143 (47.2%)	<0.001
Hypertension	286 (59.7%)	730 (43.9%)	96 (31.7%)	<0.001
Diabetes	181 (37.8%)	312 (18.8%)	45 (14.9%)	<0.001
Statin-naïve at presentation	360 (75.2%)	1502 (90.4%)	290 (95.7%)	<0.001
History of PCI/CABG	66 (13.8%)	29 (1.7%)	6 (2.0%)	<0.001
Chronic kidney disease	16 (3.3%)	25 (1.5%)	5 (1.7%)	0.032
Clinical presentation				
STEMI	215 (44.9%)	897 (54.0%)	164 (54.1%)	0.002
Multivessel disease	216 (45.1%)	764 (46.0%)	126 (41.6%)	0.369
LM disease	31 (6.5%)	63 (3.8%)	16 (5.3%)	0.035
LVEF <40%	64 (13.4%)	177 (10.6%)	24 (7.9%)	0.053
Complete revascularization	291 (60.8%)	1131 (68.1%)	217 (71.6%)	0.002
Statin therapy at discharge				**<0.001**
Low-intensity	12 (2.5%)	24 (1.4%)	2 (0.7%)	

Medium-intensity	364 (76.0%)	1139 (68.5%)	131 (43.2%)	
High-intensity	86 (18.0%)	485 (29.2%)	168 (55.4%)	
LDL-C levels				
Baseline (mmol/L)	2.1 [1.8; 2.5]	3.4 [2.9; 3.9]	4.7 [4.2; 5.2]	<0.001
1-year follow-up (mmol/L)	2.6 [2.2; 3.1]	2.2 [2.0; 2.6]	2.0 [1.9; 2.2]	<0.001
Reduction (mmol/L)	-0.4 [-0.8;-0.2]	1.0 [0.6; 1.6]	2.6 [2.3; 3.0]	<0.001
Clinical outcomes*				
MACCE	25 (5.2%)	47 (2.8%)	10 (3.3%)	0.033
Cardiovascular mortality	7 (1.5%)	15 (0.9%)	2 (0.7%)	0.439
Recurrent MI	10 (2.1%)	25 (1.5%)	5 (1.7%)	0.649
Ischemic stroke	9 (1.9%)	8 (0.5%)	4 (1.3%)	0.009

Values are presented as median [interquartile range] or n (%). BMI, body mass index; CABG, coronary artery bypass graft surgery; HF, heart failure; LDL-C, low-density lipoprotein cholesterol; LM, left-main; LVEF, left ventricular ejection fraction; MACCE, major adverse cardiac and cerebrovascular events; MI, myocardial infarction; PCI, percutaneous coronary intervention; STEMI, ST-segment elevation MI. *The log-rank test *p*-values are presented for clinical outcomes comparing the three groups according to the percentage reduction in LDL-C.

Table S4. Crude and adjusted hazard ratios of the primary endpoint.

Target LDL-C achiever (vs. non-achiever)	Crude Hazard Ratio (95% CI)	*P*-value	*Adjusted Hazard Ratio (95% CI)	*P*-value
Cox proportional hazard model	0.61 [0.39 - 0.94]	0.024	0.63 [0.40 - 0.98]	0.041
Competing risks†	0.61 [0.40 - 0.94]	0.026	0.63 [0.41 - 0.98]	0.041

*Adjusted for age, sex, body mass index, smoking, hypertension, diabetes, statin usage before index event, history of PCI/CABG, chronic kidney disease, multivessel disease at index event, left-main disease at index event, presentation as STEMI, LV ejection fraction < 40%, LDL-C at index event (mmol/L), and complete revascularization after index event. †Non-cardiovascular death was modelled as a single competing outcome by using the Fine-Gray method. CI, confidence interval.

Table S5. Cox's proportional hazard model analysis of the primary endpoint.

Variables	Univariable HR (95% CI)	*P*-value	Multivariable HR (95% CI)	*P*-value
Age (per years)	1.04 [1.02 - 1.05]	<0.001	1.03 [1.01 - 1.04]	0.002
Female	1.40 [0.99 - 1.98]	0.056	0.98 [0.67 - 1.44]	0.920
Body mass index > 23 kg/m²	0.65 [0.48 - 0.89]	0.008	0.77 [0.56 - 1.07]	0.120
Hypertension	1.62 [1.18 - 2.21]	0.003	1.15 [0.82 - 1.62]	0.413
Diabetes	2.36 [1.73 - 3.21]	<0.001	1.90 [1.36 - 2.66]	< 0.001
Smoking	0.65 [0.47 - 0.90]	0.010	1.02 [0.70 - 1.49]	0.900
Chronic kidney disease	4.77 [2.76 - 8.25]	<0.001	2.49 [1.38 - 4.47]	0.002
Previous PCI/CABG	3.32 [2.06 - 5.36]	<0.001	2.26 [1.34 - 3.81]	0.002
Statin usage before index MI	0.65 [0.35 - 1.20]	0.168	0.46 [0.24 - 0.86]	0.015
LVEF < 40%	2.50 [1.74 - 3.59]	<0.001	1.90 [1.30 - 2.76]	< 0.001
Presentation as STEMI	0.83 [0.61 - 1.13]	0.247	1.03 [0.75 - 1.43]	0.834
Left-main disease	1.76 [0.96 - 3.25]	0.070	1.13 [0.56 - 2.29]	0.730
Multivessel disease	1.52 [1.12 - 2.07]	0.008	1.18 [0.79 - 1.77]	0.410
Complete revascularization	0.58 [0.43 - 0.79]	<0.001	0.80 [0.54 - 1.17]	0.251

High-intensity statin at discharge	0.83 [0.60 - 1.16]	0.284	0.98 [0.70 - 1.38]	0.904
LDL-C at index admission (mmol/L)	0.83 [0.71 - 0.98]	0.025	1.05 [0.89 - 1.24]	0.535
Target LDL-C achievement	0.61 [0.39 - 0.94]	0.024	0.63 [0.40 - 0.99]	0.044

MI, myocardial infarction; CABG, coronary artery bypass graft surgery; PCI, percutaneous coronary intervention; LDL-C, low-density lipoprotein

cholesterol; LVEF, left ventricular ejection fraction; STEMI, ST-segment elevation MI.

Figure S1. Distribution of absolute changes in LDL-C from the index event. Median and interquartile

values are 1.1 [0.4 - 1.8] mmol/L (dotted lines). LDL-C, low-density lipoprotein cholesterol; MI,

myocardial infarction
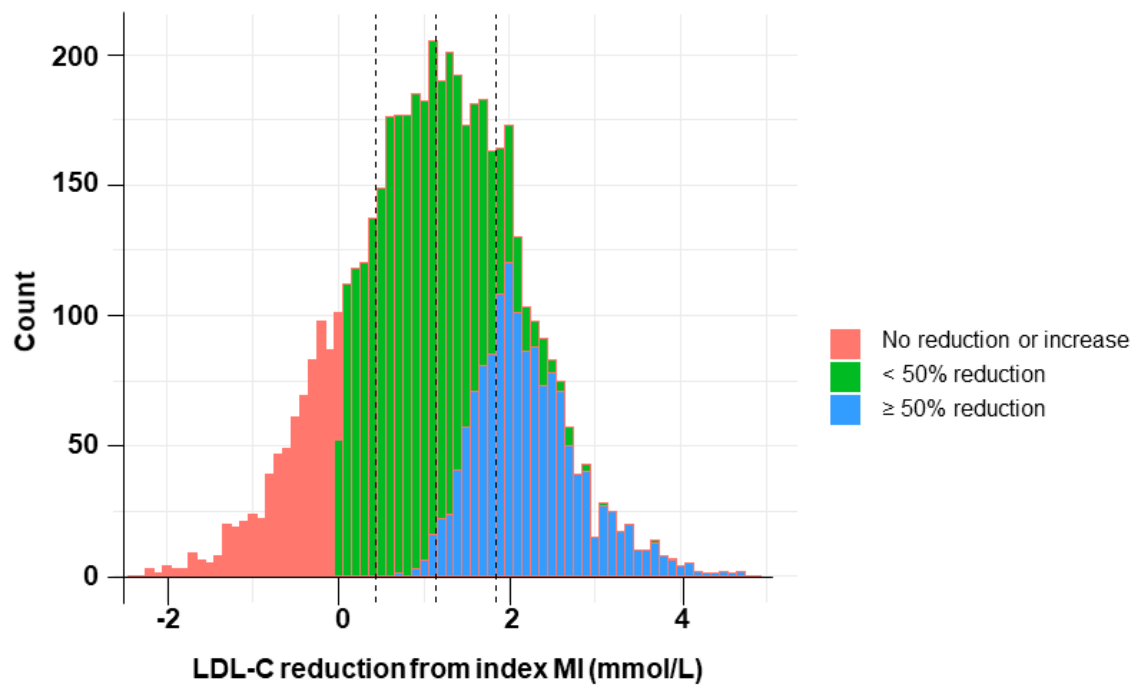
Figure S2. Cumulative incidence of the primary endpoint by percentage changes in LDL-C from the index event. LDL-C, low-density lipoprotein cholesterol; MI, myocardial infarction

Number at risk

	1.0	1.5	2.0	2.5	3.0
No reduction or increase	766	755	733	692	489
0 - 40% reduction	1,907	1,888	1,850	1,798	1,292
40 – 60% reduction	1,805	1,798	1,764	1,700	1,231
≥ 60% reduction	571	563	548	529	391
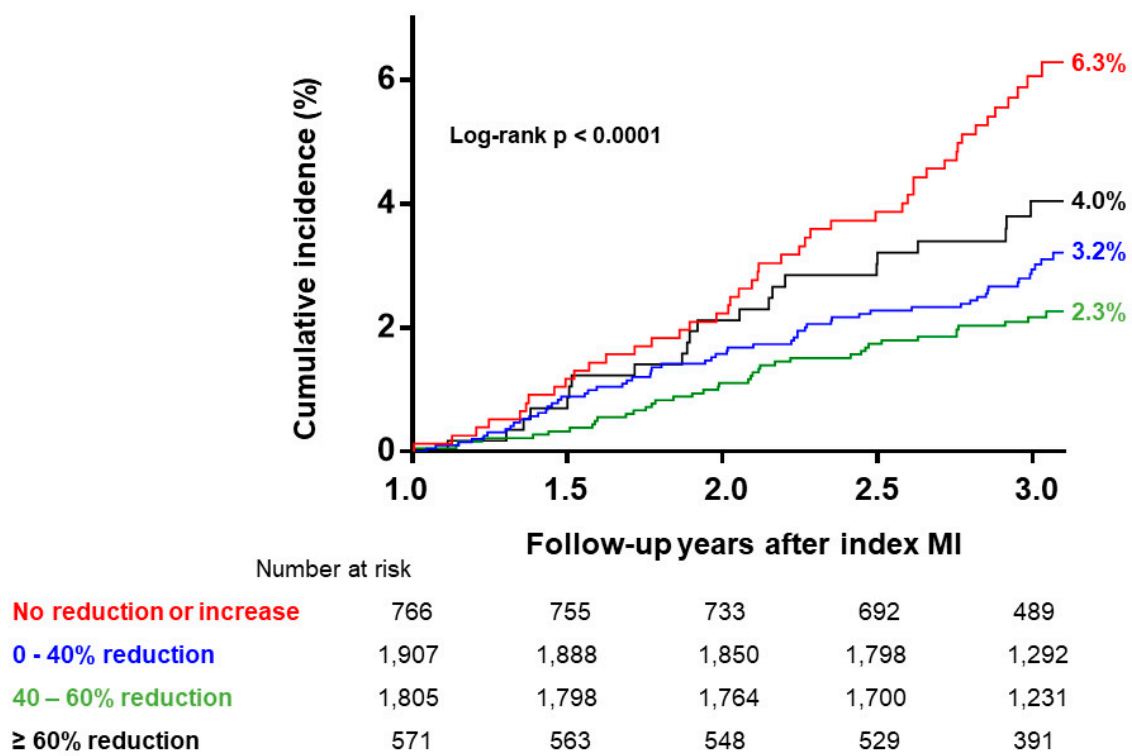
Figure S3. (A) Spline curve for the association of absolute changes in LDL-C with the risk of MACCE. Median and interquartile range are presented as dotted lines. (B) Spline curve for the association of follow-up LDL-C level with the risk of MACCE. Target LDL-C goal of 70 mg/dL is presented as a dotted line. LDL-C, low-density lipoprotein cholesterol; MACCE, major adverse cardiac and cerebrovascular event; MI, myocardial infarction

(A)
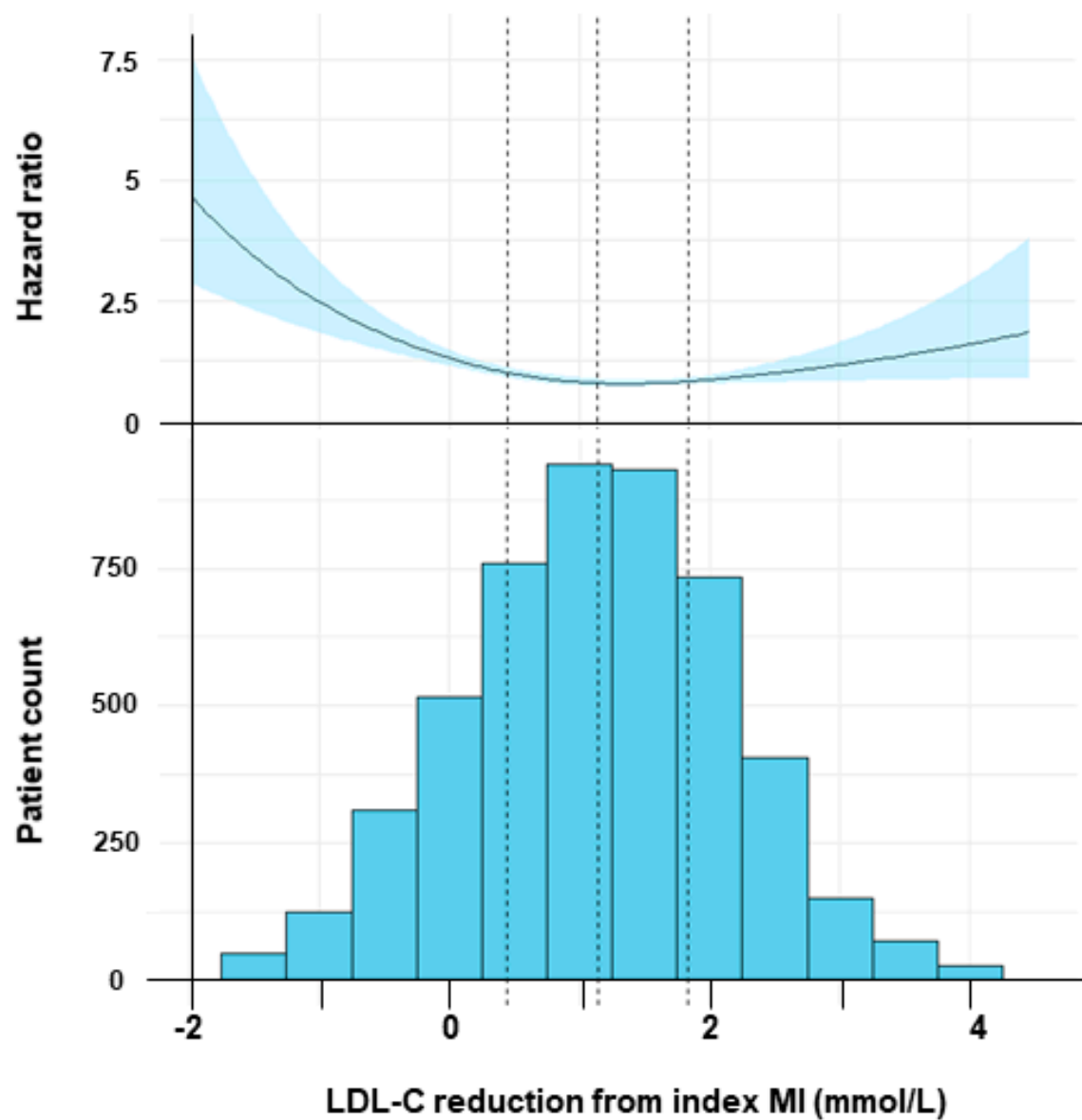
(B)
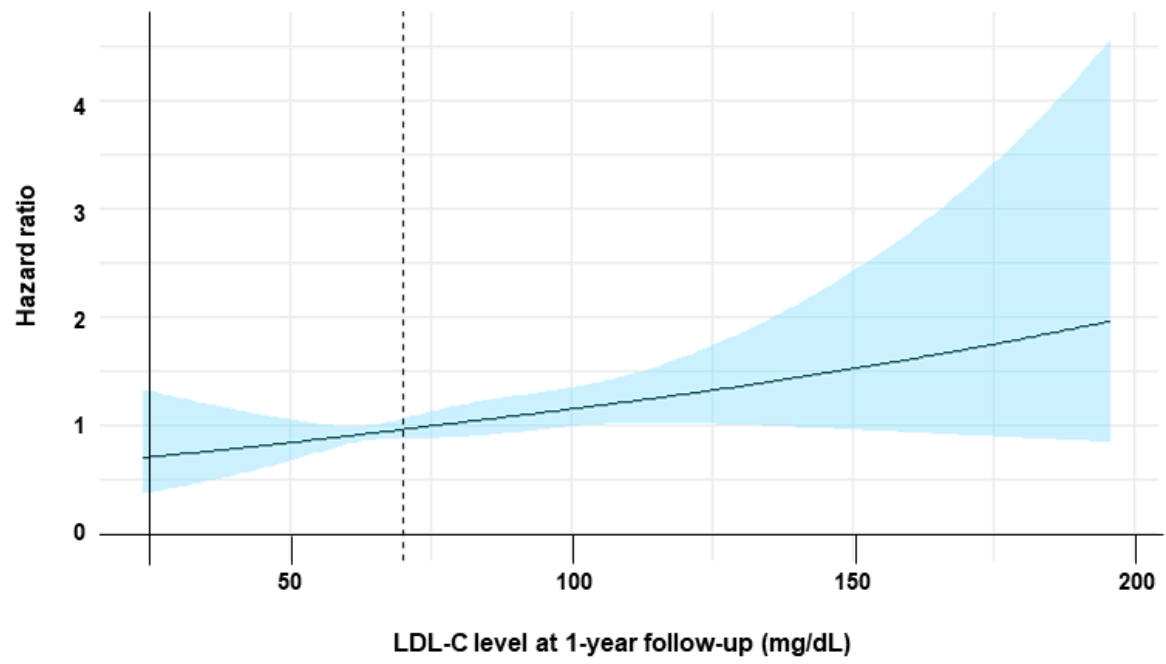
Figure S4. Subgroup analysis of target LDL-C achievement for the primary endpoint. CI, confidence interval; CKD, chronic kidney disease; LDL-C, low-density lipoprotein cholesterol; LVEF, left ventricular ejection fraction.

Subgroup	No. of Patients	Non-achievers (N=3,935)	Achievers (N=1,114)	Hazard Ratio (95% CI)	P value for Interaction
		No of patients with event (%)			
Overall	5,049	139 (3.5%)	24 (2.2%)	0.61 [0.39 - 0.94]	
Diabetes					0.783
Yes	1,314	63 (6.1%)	10 (3.5%)	0.57 [0.29 - 1.11]	
No	3,735	76 (2.6%)	14 (1.7%)	0.64 [0.36 - 1.14]	
CKD					0.658
Yes	109	12 (13.0%)	2 (11.8%)	0.88 [0.20 - 3.92]	
No	4,940	127 (3.3%)	22 (2.0%)	0.60 [0.38 - 0.95]	
Statin-naïve					0.661
Yes	4,547	129 (3.7%)	23 (2.2%)	0.58 [0.37 - 0.90]	
No	502	10 (2.2%)	1 (2.1%)	0.94 [0.12 - 7.37]	
LVEF < 40%					0.971
Yes	560	33 (7.3%)	5 (4.7%)	0.63 [0.25 - 1.62]	
No	4,489	106 (3.0%)	19 (1.9%)	0.62 [0.38 - 1.01]	
STEMI					0.937
Yes	2,632	66 (3.2%)	12 (2.0%)	0.62 [0.33 - 1.15]	
No	2,417	73 (3.9%)	12 (2.3%)	0.60 [0.32 - 1.10]	
High-intensity statin					0.492
Yes	1,757	40 (3.4%)	10 (1.7%)	0.52 [0.26 - 1.04]	
No	3,292	99 (3.6%)	14 (2.6%)	0.71 [0.40 - 1.24]	

0   1   2   3

Target LDL-C achievers Better   Target LDL-C achievers Worse