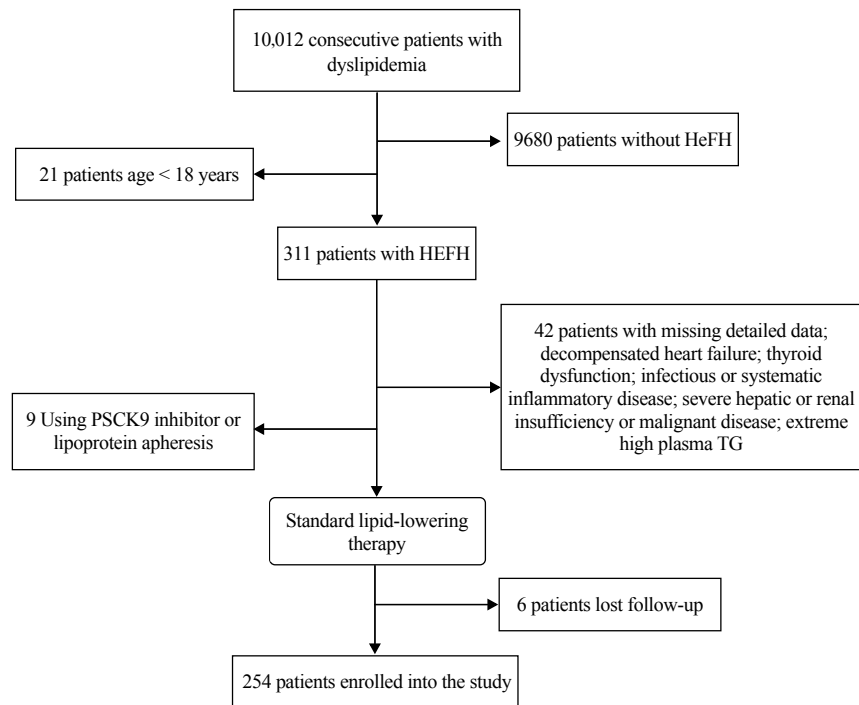


## Supplementary

**Table S1** International classification of diseases codes for MACE

Diagnosis/procedure	ICD-9-CM codes/ ICD-10 codes
Myocardial infarction	I21
Angina pectoris	I20
Cardiovascular death	death due to I00-I10, I11, I13, I20-I51
Ischemic stroke	I63, I64
Percutaneous coronary intervention	ICD-9-CM 36.06/36.07
Coronary artery bypass grafting	ICD-9-CM 36.1-36.19



**Figure S1** The flowchart of this study.

**Table S2** Correlations between lipid variability parameters

P	r	TG			TC			HDL-C			LDL-C			Lp(a)		
		SD	CV	VIM	SD	CV	VIM	SD	CV	VIM	SD	CV	VIM	SD	CV	VIM
TG	SD		0.755	0.696	0.223	0.210	0.220	0.069	0.070	0.074	0.084	0.130	0.118	0.022	0.062	0.039
	CV	<0.001		0.995	0.255	0.309	0.295	0.118	0.149	0.127	0.161	0.212	0.201	0.078	0.100	0.084
	VIM	<0.001	<0.001		0.260	0.317	0.302	0.119	0.153	0.128	0.172	0.221	0.211	0.086	0.104	0.090
TC	SD	<0.001	<0.001	<0.001		0.888	0.960	0.091	0.302	0.110	0.908	0.754	0.857	0.101	0.111	0.121
	CV	<0.001	<0.001	<0.001	<0.001		0.981	0.119	0.320	0.140	0.803	0.887	0.896	0.112	0.178	0.151
	VIM	<0.001	<0.001	<0.001	<0.001	<0.001		0.110	0.320	0.131	0.871	0.858	0.907	0.112	0.156	0.142
HDL-C	SD	0.271	0.061	0.058	0.149	0.057	0.081		0.738	0.998	0.067	0.104	0.091	0.028	0.033	0.036
	CV	0.267	0.017	0.014	<0.001	<0.001	<0.001	<0.001		0.776	0.250	0.240	0.254	0.066	0.068	0.084
	VIM	0.238	0.043	0.041	0.080	0.025	0.037	<0.001	<0.001		0.083	0.120	0.108	0.034	0.038	0.043
LDL-C	SD	0.181	0.010	0.006	<0.001	<0.001	<0.001	0.288	<0.001	0.187		0.822	0.916	0.094	0.095	0.111
	CV	0.039	<0.001	<0.001	<0.001	<0.001	<0.001	0.099	<0.001	0.057	<0.001		0.968	0.110	0.196	0.155
	VIM	0.060	<0.001	<0.001	<0.001	<0.001	<0.001	0.147	<0.001	0.086	<0.001	<0.001		0.111	0.162	0.143
Lp(a)	SD	0.732	0.215	0.174	0.108	0.076	0.075	0.653	0.298	0.592	0.134	0.081	0.078		0.784	0.832
	CV	0.323	0.112	0.099	0.077	<0.001	0.013	0.606	0.279	0.552	0.133	<0.001	0.010	<0.001		0.926
	VIM	0.535	0.182	0.152	0.055	0.016	0.024	0.565	0.183	0.499	0.078	0.014	0.023	<0.001	<0.001	

**Table S3** Hazard ratio of TG variability for MACE by subgroup

Variables	SD of TG		CV of TG		VIM of TG	
	HR (95% CI)	P	HR (95% CI)	P	HR (95% CI)	P
Male	1.08 (0.59–2.00)	0.800	0.96 (0.57–1.60)	0.862	1.06 (0.69–1.63)	0.802
Female	0.94 (0.23–3.89)	0.934	0.95 (0.4–2.26)	0.902	0.97 (0.61–1.54)	0.908
Age <50 years	0.65 (0.15–2.83)	0.568	0.88 (0.42–1.85)	0.740	0.91 (0.45–1.83)	0.787
Age ≥50 years	1.33 (0.77–2.30)	0.302	1.05 (0.61–1.81)	0.860	1.04 (0.60–1.78)	0.898
BMI <25	0.77 (0.27–2.18)	0.625	1.01 (0.55–1.86)	0.985	1.04 (0.58–1.87)	0.887
BMI ≥25	1.56 (0.72–3.41)	0.263	0.98 (0.49–1.96)	0.945	0.96 (0.48–1.92)	0.905
Hypertension (+)	1.15 (0.59–2.24)	0.680	1.13 (0.57–2.22)	0.727	1.13 (0.57–2.26)	0.721
Hypertension (–)	1.23 (0.32–4.76)	0.760	1.00 (0.50–2.00)	0.988	0.99 (0.52–1.90)	0.987
Smoking (+)	0.71 (0.16–3.13)	0.649	0.73 (0.30–1.80)	0.490	0.72 (0.30–1.73)	0.461
Smoking (–)	1.34 (0.77–2.33)	0.303	1.15 (0.69–1.92)	0.591	1.15 (0.70–1.89)	0.580

**Table S4** Hazard ratio of TC variability for MACE by subgroup

Variables	SD of TC		CV of TC		VIM of TC	
	HR (95% CI)	P	HR (95% CI)	P	HR (95% CI)	P
Male	1.18 (0.74–1.89)	0.479	1.25 (0.79–1.97)	0.345	1.22 (0.77–1.92)	0.401
Female	2.35 (0.94–5.86)	0.066	2.28 (1.00–5.19)	0.050	2.27 (0.99–5.21)	0.053
Age <50 years	1.07 (0.82–1.39)	0.609	1.05 (0.80–1.37)	0.736	1.05 (0.81–1.36)	0.729
Age ≥50 years	2.01 (1.18–3.45)	0.011	1.72 (1.04–2.84)	0.034	1.81 (1.10–2.97)	0.020
BMI <25	1.23 (0.58–2.6)	0.586	1.19 (0.63–2.26)	0.600	1.19 (0.61–2.34)	0.607
BMI ≥25	1.35 (0.81–2.24)	0.252	1.44 (0.88–2.36)	0.146	1.40 (0.86–2.27)	0.176
Hypertension (+)	2.16 (1.13–4.14)	0.020	1.87 (1.06–3.30)	0.030	1.99 (1.11–3.58)	0.022
Hypertension (–)	1.03 (0.97–1.09)	0.372	1.12 (0.58–2.19)	0.734	1.03 (0.53–2.01)	0.935
Smoking (+)	1.00 (0.46–2.18)	0.997	1.07 (0.61–1.88)	0.820	1.08 (0.61–1.89)	0.798
Smoking (–)	1.46 (0.86–2.47)	0.164	1.74 (1.08–2.82)	0.024	1.60 (0.98–2.60)	0.060

**Table S5** Hazard ratio of HDL-C variability for MACE by subgroup

Variables	SD of HDL-C		CV of HDL-C		VIM of HDL-C	
	HR (95% CI)	p	HR (95% CI)	p	HR (95% CI)	p
Male	1.67 (0.72–3.86)	0.235	1.35 (0.83–2.19)	0.229	1.62 (0.75–3.50)	0.218
Female	2.65 (1.03–4.82)	0.046	2.42 (1.04–4.20)	0.043	2.72 (1.07–6.92)	0.036
Age <50 years	1.28 (0.49–3.39)	0.616	1.46 (0.81–2.63)	0.208	1.33 (0.54–3.23)	0.536
Age ≥50 years	1.05 (0.80–1.36)	0.747	1.22 (0.89–1.67)	0.225	1.04 (0.80–1.36)	0.762
BMI <25	1.20 (0.30–4.74)	0.798	1.00 (0.46–2.16)	0.989	1.17 (0.34–4.10)	0.803
BMI ≥25	1.73 (1.03–2.92)	0.040	1.75 (1.12–2.74)	0.014	1.76 (1.06–2.93)	0.030
Hypertension (+)	1.88 (0.94–3.76)	0.074	1.84 (0.97–3.47)	0.062	1.89 (0.96–3.73)	0.066
Hypertension (–)	1.95 (0.87–4.36)	0.104	1.43 (0.76–2.68)	0.268	1.92 (0.89–4.13)	0.097
Smoking (+)	1.32 (0.33–5.29)	0.698	1.09 (0.48–2.48)	0.838	1.29 (0.36–4.59)	0.696
Smoking (–)	1.35 (0.91–2.01)	0.139	1.33 (0.92–1.92)	0.129	1.37 (0.93–2.02)	0.111

**Table S6** Hazard ratio of LDL-C variability for MACE by subgroup

Variables	SD of LDL-C		CV of LDL-C		VIM of LDL-C	
	HR (95% CI)	P	HR (95% CI)	P	HR (95% CI)	P
Male	1.03 (0.61–1.75)	0.911	1.20 (0.74–1.96)	0.454	1.12 (0.69–1.82)	0.654
Female	1.98 (0.78–5.02)	0.152	1.85 (0.83–4.11)	0.133	1.90 (0.84–4.32)	0.126
Age <50 years	1.05 (0.77–1.42)	0.764	1.01 (0.60–1.70)	0.978	1.01 (0.81–1.26)	0.951
Age ≥50 years	2.26 (1.13–4.52)	0.021	1.67 (0.97–2.87)	0.064	1.92 (1.03–3.58)	0.039
BMI <25	1.21 (0.56–2.58)	0.631	1.40 (1.04–1.90)	0.029	1.37 (1.02–1.85)	0.037
BMI ≥25	1.39 (0.76–2.56)	0.290	1.39 (0.82–2.34)	0.218	1.39 (0.81–2.38)	0.237
Hypertension (+)	1.55 (0.85–2.84)	0.152	1.48 (0.88–2.51)	0.140	1.51 (0.89–2.56)	0.130
Hypertension (–)	0.95 (0.48–1.91)	0.890	1.17 (0.60–2.28)	0.657	1.03 (0.53–2.00)	0.921
Smoking (+)	1.20 (0.58–2.51)	0.624	1.06 (0.51–2.18)	0.881	1.12 (0.55–2.29)	0.758
Smoking (–)	1.47 (0.89–2.44)	0.136	1.75 (1.11–2.77)	0.017	1.92 (1.03–3.58)	0.039

**Table S7** Hazard ratio of Lp(a) variability for MACE by subgroup

Variables	SD of Lp(a)		CV of Lp(a)		VIM of Lp(a)	
	HR (95% CI)	P	HR (95% CI)	P	HR (95% CI)	P
Male	1.35 (1.02–1.78)	0.038	1.48 (1.06–2.07)	0.020	1.51 (1.12–2.05)	0.007
Female	1.29 (1.01–1.65)	0.043	1.12 (1.01–1.84)	0.025	1.47 (1.03–2.36)	0.044
Age <50 years	1.29 (1.04–2.05)	0.036	1.22 (1.02–1.98)	0.042	1.40 (1.05–2.33)	0.037
Age ≥50 years	1.51 (1.10–2.07)	0.012	1.90 (1.06–3.27)	0.001	1.85 (1.24–2.76)	0.003
BMI <25	1.10 (1.02–1.95)	0.042	1.26 (1.04–2.12)	0.034	1.26 (1.04–2.16)	0.039
BMI ≥25	1.57 (1.12–2.20)	0.009	1.69 (1.05–2.72)	0.030	1.90 (1.25–2.87)	0.002
Hypertension (+)	1.18 (0.42–3.32)	0.750	1.16 (1.04–1.98)	0.032	1.19 (1.05–2.18)	0.038
Hypertension (–)	1.36 (0.98–1.88)	0.069	1.82 (1.15–2.89)	0.011	1.65 (1.12–2.42)	0.011
Smoking (+)	1.45 (1.06–2.00)	0.022	1.59 (1.01–2.50)	0.046	1.61 (1.09–2.40)	0.018
Smoking (–)	1.34 (1.06–2.73)	0.042	1.56 (1.01–2.44)	0.045	1.63 (1.03–2.56)	0.036