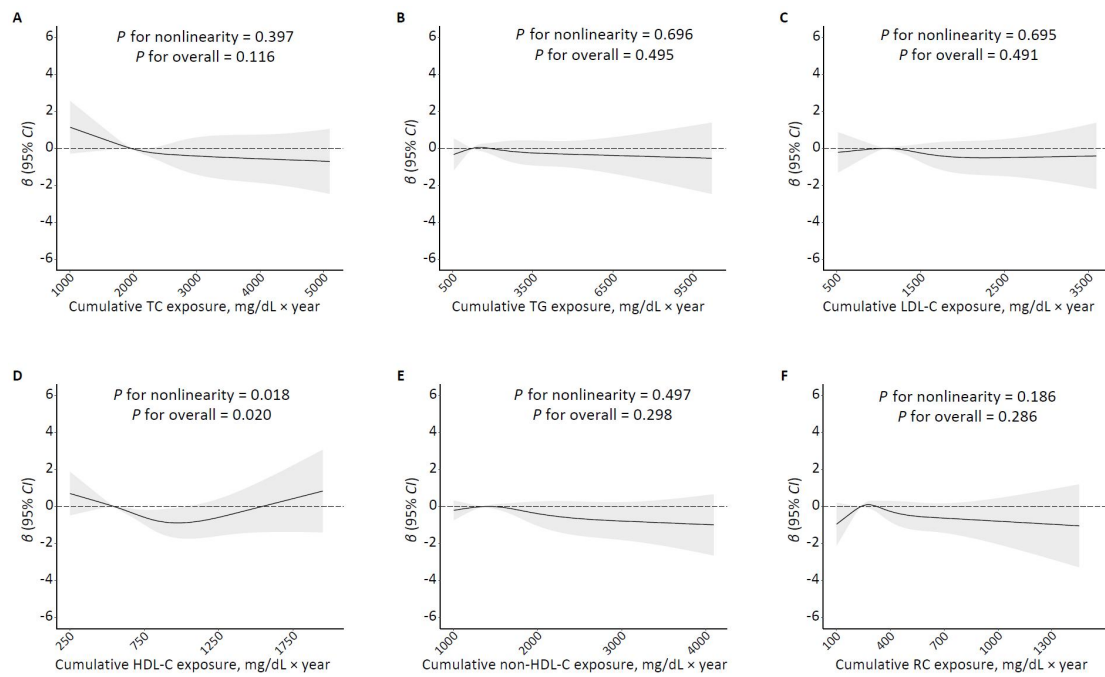
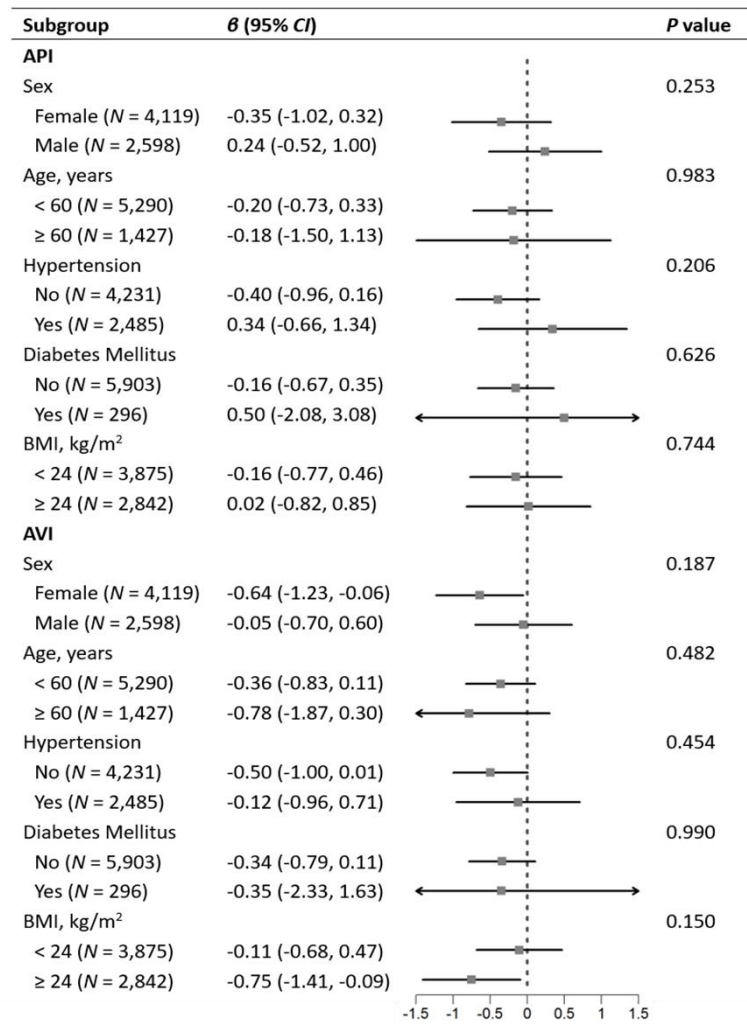
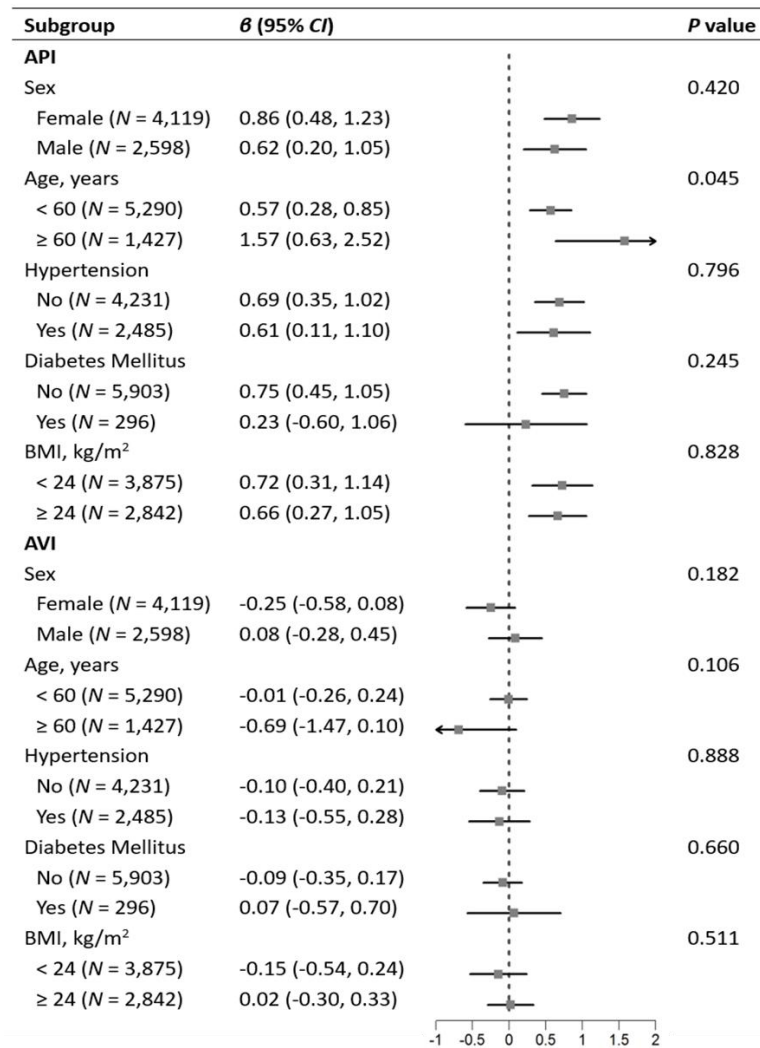




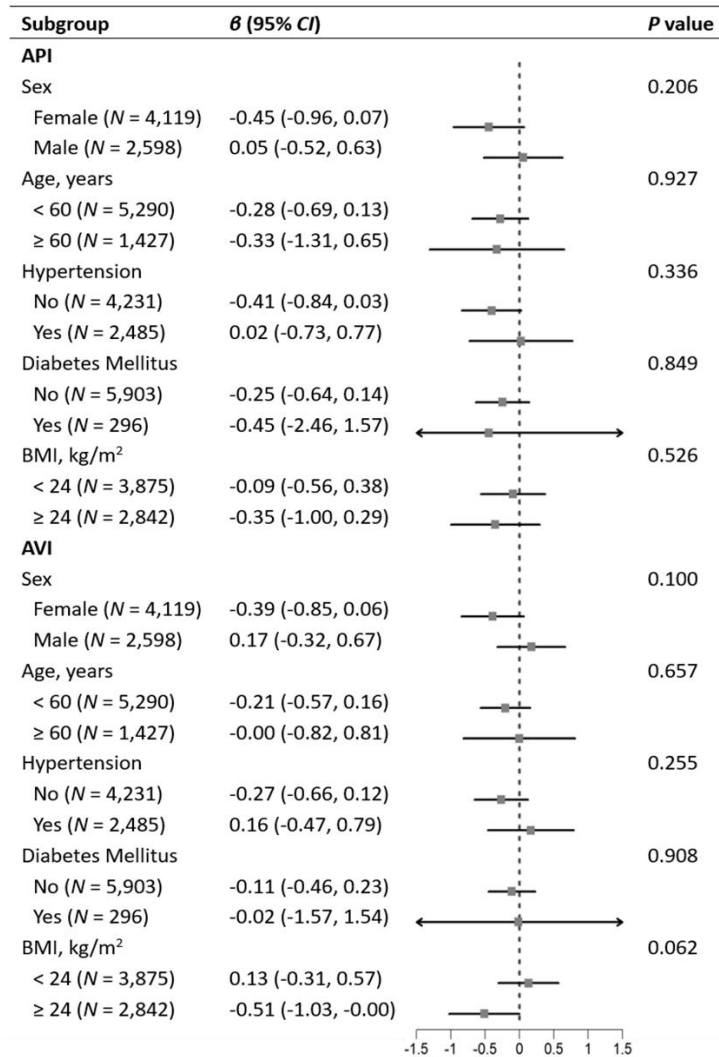
Supplementary Figure S1. Dose–response associations between cumulative lipid exposure and AVI (A to F). Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use. AVI, arterial velocity-pulse index; TC, total cholesterol; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; RC, remnant cholesterol; *CI*, confidence interval.



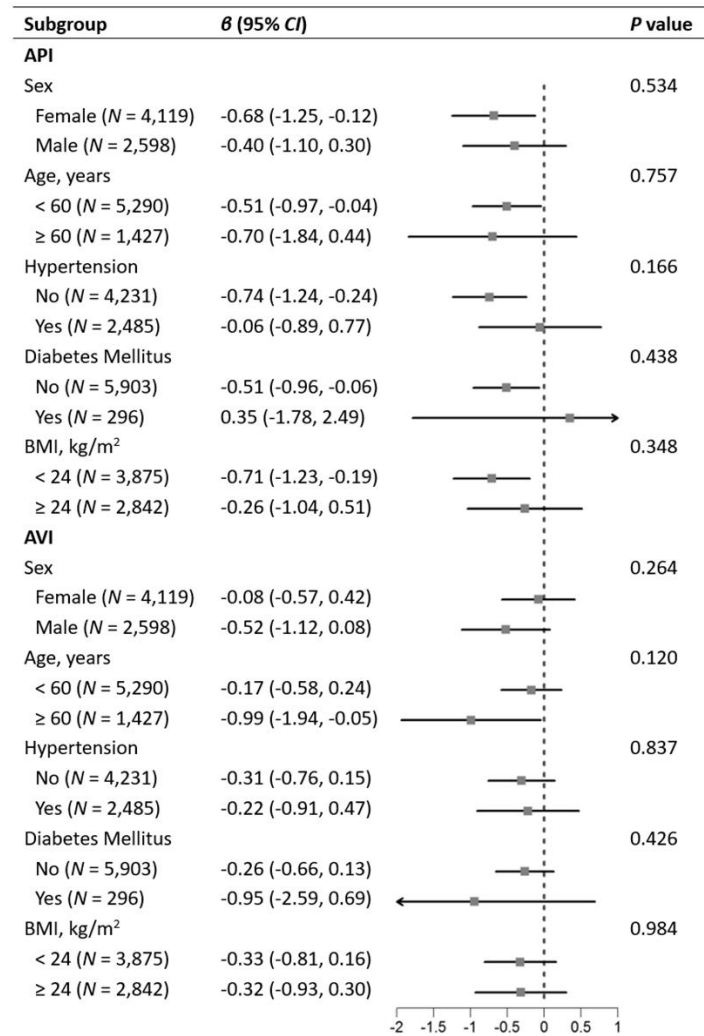
Supplementary Figure S2. Subgroup analyses for the associations of cumulative TC exposure with API and AVI. The squares represented point estimates per SD increment in cumulative TC exposure, and the horizontal lines represented 95% confidence intervals. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use. TC, total cholesterol; API, arterial pressure-volume index; AVI, arterial velocity-pulse index; BMI, body mass index; CI, confidence interval.



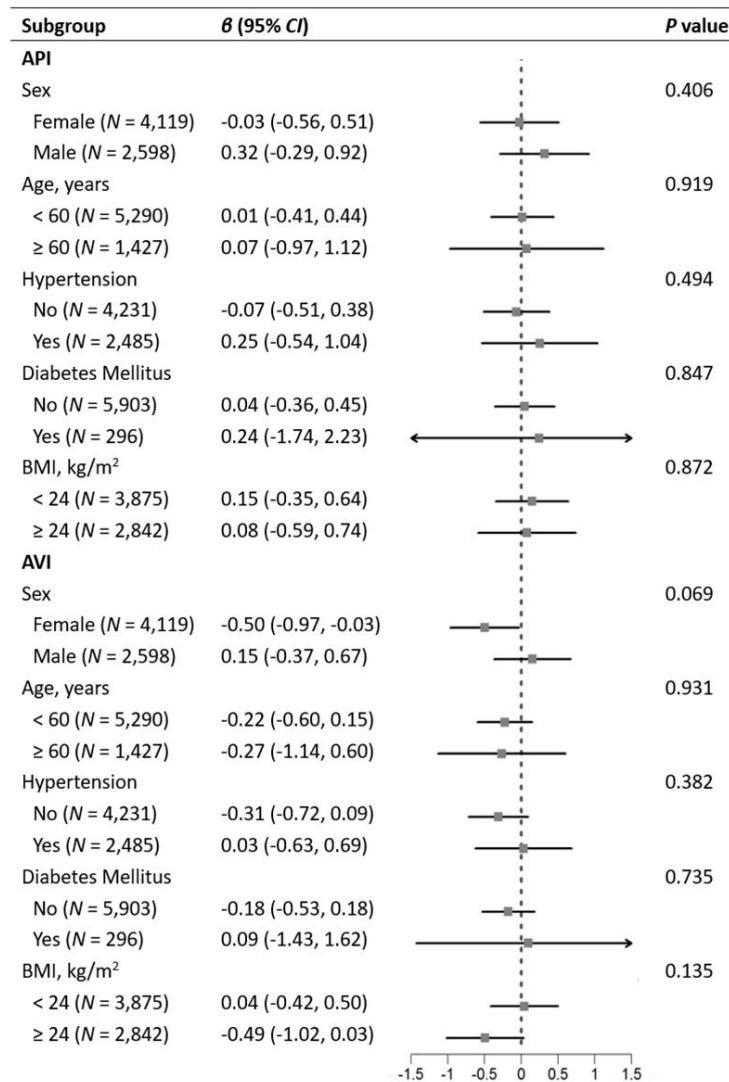
Supplementary Figure S3. Subgroup analyses for the associations of cumulative TG exposure with API and AVI. The squares represented point estimates per SD increment in cumulative TG exposure, and the horizontal lines represented 95% confidence intervals. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use. TG, triglyceride; API, arterial pressure-volume index; AVI, arterial velocity-pulse index; BMI, body mass index; CI, confidence interval.



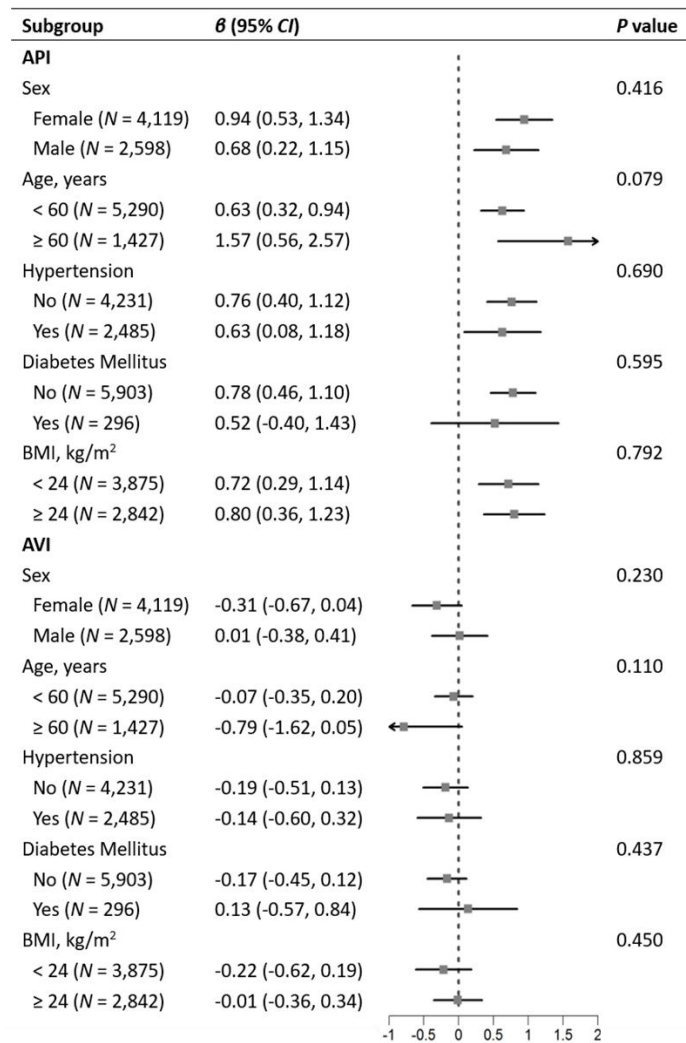
Supplementary Figure S4. Subgroup analyses for the associations of cumulative LDL-C exposure with API and AVI. The squares represented point estimates per SD increment in cumulative LDL-C exposure, and the horizontal lines represented 95% confidence intervals. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use. LDL-C, low-density lipoprotein cholesterol; API, arterial pressure-volume index; AVI, arterial velocity-pulse index; BMI, body mass index; CI, confidence interval.



Supplementary Figure S5. Subgroup analyses for the associations of cumulative HDL-C exposure with API and AVI. The squares represented point estimates per SD increment in cumulative HDL-C exposure, and the horizontal lines represented 95% confidence intervals. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use. HDL-C, high-density lipoprotein cholesterol; API, arterial pressure-volume index; AVI, arterial velocity-pulse index; BMI, body mass index; CI, confidence interval.



Supplementary Figure S6. Subgroup analyses for the associations of cumulative non-HDL-C exposure with API and AVI. The squares represented point estimates per SD increment in cumulative non-HDL-C exposure, and the horizontal lines represented 95% confidence intervals. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use. Non-HDL-C, non-high-density lipoprotein cholesterol; API, arterial pressure-volume index; AVI, arterial velocity-pulse index; BMI, body mass index; CI, confidence interval.



Supplementary Figure S7. Subgroup analyses for the associations of cumulative RC exposure with API and AVI. The squares represented point estimates per SD increment in cumulative RC exposure, and the horizontal lines represented 95% confidence intervals. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use. RC, remnant cholesterol; API, arterial pressure-volume index; AVI, arterial velocity-pulse index; BMI, body mass index; CI, confidence interval.

Supplementary Table S1. Associations of baseline lipids with API and AVI

Characteristics	API		AVI	
	β (95% CI) *	P value	β (95% CI) *	P value
TC	-0.06 (-0.32, 0.19)	0.622	-0.19 (-0.41, 0.03)	0.096
TG	0.55 (0.29, 0.80)	< 0.001	-0.02 (-0.25, 0.20)	0.832
LDL-C	-0.09 (-0.35, 0.17)	0.489	-0.06 (-0.28, 0.16)	0.579
HDL-C	-0.53 (-0.81, -0.25)	< 0.001	-0.38 (-0.62, -0.14)	0.002
Non-HDL-C	0.12 (-0.14, 0.38)	0.368	-0.06 (-0.29, 0.16)	0.578
RC	0.58 (0.32, 0.84)	< 0.001	-0.02 (-0.24, 0.21)	0.877

Note. * β (95% CI) was estimated per SD increment in lipids by multivariable linear regression models adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use. API, arterial pressure-volume index; AVI, arterial velocity-pulse index; CI, confidence interval; TC, total cholesterol; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; RC, remnant cholesterol.

Supplementary Table S2. Associations of cumulative lipids with API and AVI, adjusted for the covariates at the 2018–2020 visit

Characteristics	API		AVI	
	β (95% CI)	P value	β (95% CI)	P value
Cumulative TC, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.41 (-0.24, 1.06)	0.215	-0.64 (-1.23, -0.06)	0.031
Quartile 3	-0.00 (-0.74, 0.74)	0.999	-0.75 (-1.42, -0.09)	0.026
Quartile 4	-0.46 (-1.62, 0.70)	0.438	-0.39 (-1.44, 0.66)	0.464
Per SD increase	0.03 (-0.46, 0.51)	0.912	-0.59 (-1.02, -0.15)	0.008
Cumulative TG, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.57 (-0.07, 1.22)	0.083	0.15 (-0.44, 0.73)	0.618
Quartile 3	0.84 (0.16, 1.53)	0.016	-0.42 (-1.04, 0.19)	0.179
Quartile 4	1.44 (0.69, 2.19)	< 0.001	0.11 (-0.57, 0.79)	0.748
Per SD increase	0.40 (0.14, 0.66)	0.002	0.05 (-0.19, 0.29)	0.678
Cumulative LDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.24 (-0.40, 0.88)	0.464	-0.15 (-0.73, 0.42)	0.599
Quartile 3	-0.21 (-0.91, 0.48)	0.547	-0.45 (-1.08, 0.17)	0.157
Quartile 4	-0.14 (-1.13, 0.85)	0.780	-0.72 (-1.61, 0.17)	0.112
Per SD increase	0.00 (-0.36, 0.36)	0.999	-0.30 (-0.62, 0.03)	0.074
Cumulative HDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	-0.07 (-0.71, 0.57)	0.835	-0.66 (-1.24, -0.08)	0.025
Quartile 3	-0.45 (-1.18, 0.27)	0.220	-1.40 (-2.05, -0.75)	< 0.001
Quartile 4	-0.70 (-1.77, 0.37)	0.199	-1.90 (-2.86, -0.94)	< 0.001
Per SD increase	-0.39 (-0.80, 0.01)	0.056	-0.43 (-0.79, -0.07)	0.020
Cumulative non-HDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.33 (-0.32, 0.97)	0.320	-0.33 (-0.90, 0.25)	0.269
Quartile 3	0.01 (-0.70, 0.72)	0.979	-0.45 (-1.09, 0.19)	0.171
Quartile 4	0.21 (-0.82, 1.24)	0.690	-0.58 (-1.51, 0.34)	0.217
Per SD increase	0.17 (-0.21, 0.55)	0.382	-0.29 (-0.63, 0.05)	0.098
Cumulative RC, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.39 (-0.26, 1.04)	0.237	0.07 (-0.51, 0.66)	0.812
Quartile 3	0.86 (0.15, 1.57)	0.018	-0.24 (-0.89, 0.40)	0.454
Quartile 4	1.66 (0.82, 2.50)	< 0.001	-0.01 (-0.77, 0.74)	0.970
Per SD increase	0.49 (0.20, 0.77)	0.001	-0.00 (-0.26, 0.25)	0.971

Note. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use at the 2018–2020 visit ($N = 6,717$).

API, arterial pressure-volume index; AVI, arterial velocity-pulse index; *CI*, confidence interval; TC, total cholesterol; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; RC, remnant cholesterol.

Supplementary Table S3. Associations of cumulative lipids with API and AVI, after excluding participants using lipid-lowering drugs

Characteristics	API		AVI	
	β (95% CI)	P value	β (95% CI)	P value
Cumulative TC, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.70 (0.04, 1.36)	0.039	-0.49 (-1.07, 0.09)	0.097
Quartile 3	0.24 (-0.51, 1.00)	0.532	-0.63 (-1.29, 0.03)	0.061
Quartile 4	-1.19 (-2.45, 0.07)	0.063	-0.06 (-1.16, 1.03)	0.909
Per SD increase	-0.20 (-0.71, 0.31)	0.445	-0.34 (-0.79, 0.11)	0.134
Cumulative TG, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.56 (-0.10, 1.23)	0.098	0.25 (-0.33, 0.83)	0.398
Quartile 3	0.81 (0.09, 1.52)	0.027	-0.35 (-0.98, 0.27)	0.272
Quartile 4	2.21 (1.42, 3.00)	< 0.001	0.02 (-0.67, 0.71)	0.953
Per SD increase	0.68 (0.40, 0.97)	< 0.001	-0.06 (-0.31, 0.19)	0.632
Cumulative LDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.37 (-0.29, 1.04)	0.268	-0.11 (-0.69, 0.47)	0.709
Quartile 3	-0.09 (-0.81, 0.63)	0.804	-0.43 (-1.05, 0.20)	0.185
Quartile 4	-1.08 (-2.18, 0.01)	0.053	-0.33 (-1.29, 0.62)	0.496
Per SD increase	-0.29 (-0.68, 0.11)	0.152	-0.10 (-0.44, 0.25)	0.581
Cumulative HDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.01 (-0.65, 0.67)	0.978	-0.59 (-1.17, -0.01)	0.045
Quartile 3	-0.42 (-1.16, 0.33)	0.275	-1.14 (-1.79, -0.49)	0.001
Quartile 4	-1.19 (-2.32, -0.07)	0.038	-1.25 (-2.23, -0.27)	0.012
Per SD increase	-0.53 (-0.98, -0.08)	0.022	-0.31 (-0.70, 0.08)	0.119
Cumulative non-HDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.69 (0.03, 1.35)	0.040	-0.24 (-0.81, 0.34)	0.416
Quartile 3	0.17 (-0.56, 0.90)	0.646	-0.44 (-1.08, 0.20)	0.174
Quartile 4	-0.22 (-1.35, 0.90)	0.696	-0.51 (-1.49, 0.47)	0.308
Per SD increase	0.02 (-0.38, 0.43)	0.916	-0.16 (-0.51, 0.20)	0.390
Cumulative RC, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.55 (-0.12, 1.21)	0.106	0.07 (-0.51, 0.65)	0.822
Quartile 3	0.79 (0.05, 1.53)	0.037	-0.08 (-0.73, 0.56)	0.801
Quartile 4	2.38 (1.49, 3.26)	< 0.001	-0.15 (-0.92, 0.62)	0.703
Per SD increase	0.74 (0.44, 1.05)	< 0.001	-0.12 (-0.39, 0.15)	0.380

Note. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, and diabetes mellitus ($N = 6,443$). API, arterial pressure-volume index; AVI, arterial

velocity-pulse index; *CI*, confidence interval; TC, total cholesterol; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; RC, remnant cholesterol.

Supplementary Table S4. Associations of cumulative lipids with API and AVI, after excluding participants with cardiovascular disease, cancer, and/or chronic renal failure at baseline

Characteristics	API		AVI	
	β (95% CI)	P value	β (95% CI)	P value
Cumulative TC, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.76 (0.10, 1.42)	0.024	-0.51 (-1.09, 0.06)	0.079
Quartile 3	0.32 (-0.43, 1.07)	0.405	-0.61 (-1.26, 0.05)	0.068
Quartile 4	-1.08 (-2.32, 0.15)	0.086	-0.11 (-1.18, 0.96)	0.839
Per SD increase	-0.13 (-0.64, 0.37)	0.604	-0.39 (-0.83, 0.05)	0.081
Cumulative TG, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.57 (-0.09, 1.24)	0.091	0.24 (-0.34, 0.82)	0.413
Quartile 3	1.01 (0.30, 1.72)	0.005	-0.50 (-1.11, 0.12)	0.116
Quartile 4	2.31 (1.53, 3.09)	< 0.001	-0.02 (-0.70, 0.65)	0.946
Per SD increase	0.70 (0.42, 0.98)	< 0.001	-0.09 (-0.33, 0.16)	0.482
Cumulative LDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.36 (-0.30, 1.02)	0.286	-0.18 (-0.76, 0.39)	0.526
Quartile 3	-0.09 (-0.80, 0.63)	0.811	-0.45 (-1.07, 0.18)	0.160
Quartile 4	-0.88 (-1.96, 0.20)	0.110	-0.44 (-1.38, 0.49)	0.354
Per SD increase	-0.26 (-0.65, 0.12)	0.181	-0.15 (-0.49, 0.18)	0.370
Cumulative HDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.00 (-0.65, 0.66)	0.994	-0.57 (-1.13, 0.00)	0.051
Quartile 3	-0.44 (-1.19, 0.30)	0.242	-1.09 (-1.73, -0.45)	0.001
Quartile 4	-1.01 (-2.12, 0.10)	0.073	-1.09 (-2.05, -0.13)	0.025
Per SD increase	-0.49 (-0.93, -0.05)	0.030	-0.26 (-0.64, 0.13)	0.192
Cumulative non-HDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.67 (0.01, 1.32)	0.047	-0.34 (-0.91, 0.23)	0.240
Quartile 3	0.28 (-0.45, 1.01)	0.446	-0.46 (-1.09, 0.18)	0.158
Quartile 4	-0.05 (-1.17, 1.06)	0.926	-0.54 (-1.51, 0.42)	0.270
Per SD increase	0.06 (-0.34, 0.46)	0.766	-0.22 (-0.57, 0.13)	0.213
Cumulative RC, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.48 (-0.18, 1.14)	0.155	0.04 (-0.54, 0.61)	0.900
Quartile 3	1.02 (0.28, 1.75)	0.007	-0.23 (-0.87, 0.41)	0.473
Quartile 4	2.40 (1.53, 3.28)	< 0.001	-0.20 (-0.96, 0.56)	0.605
Per SD increase	0.77 (0.46, 1.07)	< 0.001	-0.15 (-0.42, 0.11)	0.261

Note. Adjusted for age, sex, region, urban or rural residence, educational attainment, cohort, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index,

hypertension, diabetes mellitus, and lipid-lowering drug use ($N = 6,637$). API, arterial pressure-volume index; AVI, arterial velocity-pulse index; *CI*, confidence interval; TC, total cholesterol; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; RC, remnant cholesterol.

Supplementary Table S5. Associations of cumulative lipids with API and AVI, based on meta-analysis of three cohorts from the China-PAR project

Characteristics	API		AVI	
	β (95% CI)	P value	β (95% CI)	P value
Cumulative TC, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	-0.05 (-0.70, 0.60)	0.883	0.12 (-1.06, 1.31)	0.836
Quartile 3	0.29 (-0.37, 0.95)	0.390	-0.47 (-1.30, 0.36)	0.270
Quartile 4	0.03 (-0.65, 0.71)	0.936	-0.58 (-1.60, 0.44)	0.267
Per SD increase	0.23 (-0.24, 0.70)	0.334	-0.48 (-1.13, 0.18)	0.155
Cumulative TG, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.33 (-0.67, 1.33)	0.520	-0.20 (-1.58, 1.17)	0.771
Quartile 3	0.54 (-0.12, 1.21)	0.111	-0.10 (-0.69, 0.50)	0.743
Quartile 4	1.23 (0.54, 1.91)	< 0.001	-0.07 (-1.05, 0.91)	0.889
Per SD increase	0.36 (0.07, 0.66)	0.015	0.03 (-0.25, 0.30)	0.839
Cumulative LDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.29 (-0.36, 0.94)	0.379	0.51 (-0.20, 1.23)	0.157
Quartile 3	0.21 (-0.95, 1.37)	0.717	0.03 (-0.72, 0.79)	0.932
Quartile 4	-0.01 (-0.73, 0.72)	0.983	-0.13 (-0.95, 0.68)	0.750
Per SD increase	0.04 (-0.32, 0.40)	0.835	-0.21 (-0.61, 0.19)	0.297
Cumulative HDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	-0.17 (-0.82, 0.47)	0.598	-0.39 (-0.96, 0.19)	0.188
Quartile 3	-0.11 (-1.14, 0.92)	0.836	-0.39 (-0.99, 0.21)	0.201
Quartile 4	-0.29 (-1.00, 0.42)	0.420	-0.68 (-1.59, 0.23)	0.144
Per SD increase	-0.04 (-0.46, 0.38)	0.860	-0.42 (-0.94, 0.09)	0.104
Cumulative non-HDL-C, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	-0.10 (-0.75, 0.55)	0.758	0.47 (-0.12, 1.05)	0.119
Quartile 3	0.23 (-0.68, 1.14)	0.619	0.03 (-0.56, 0.61)	0.932
Quartile 4	0.06 (-0.62, 0.74)	0.872	-0.32 (-1.80, 1.15)	0.668
Per SD increase	0.19 (-0.18, 0.56)	0.310	-0.22 (-0.70, 0.26)	0.373
Cumulative RC, mg/dL $\times$ y				
Quartile 1	Reference		Reference	
Quartile 2	0.67 (0.00, 1.35)	0.050	0.05 (-0.77, 0.88)	0.905
Quartile 3	0.72 (0.06, 1.39)	0.033	-0.11 (-0.71, 0.49)	0.719
Quartile 4	1.36 (0.67, 2.05)	< 0.001	0.05 (-0.56, 0.67)	0.865
Per SD increase	0.41 (0.03, 0.78)	0.033	-0.03 (-0.35, 0.29)	0.848

Note. Adjusted for age, sex, region, urban or rural residence, educational attainment, smoking status, alcohol consumption, physical activity, follow-up duration, body mass index, hypertension, diabetes mellitus, and lipid-lowering drug use ($N = 6,717$). China-PAR, Prediction

for Atherosclerotic Cardiovascular Disease Risk in China; API, arterial pressure-volume index; AVI, arterial velocity-pulse index; *CI*, confidence interval; TC, total cholesterol; TG, triglyceride; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; RC, remnant cholesterol.