

Supplementary table 1

Title: Baseline patient characteristics in subgroups of the 4th HDL cholesterol quartile

	Q4a	Q4b
N	72	246
Range (mg/dl)	47.0-50.0	50.1-115.5
Age [years]	67.1 (6.8)	66.6 (8.2)
Gender [males (%)]	38 (53)	93 (38)
Ever smoking [n (%)]	26 (36)	92 (37)
Body mass index [kg/m ²]	26.3 (3.9)	26.2 (4.4)
Systolic blood pressure [mm Hg]	148 (23)	147 (22)
Diastolic blood pressure [mm Hg]	77 (11)	77 (11)
Time receiving dialysis [months]	7.5 (6.0)	7.9 (6.8)
History of*		
Arrhythmia [n (%)]	17 (24)	42 (17)
Myocardial infarction, CABG [†] , PCI [‡] , CHD [§] [n(%)]	27 (38)	66 (27)
Congestive heart failure [n (%)]	27 (38)	76 (31)
Stroke or TIA [#] [n (%)]	9 (13)	40 (16)
Peripheral vascular disease [n (%)]	34 (47)	106 (43)
Hemoglobin [g/dl]	11.1 (1.3)	11.0 (1.4)
Glycated hemoglobin [%]	6.7 (1.2)	6.7 (1.2)
Phosphate [mg/l]	6.02 (1.48)	6.12 (1.68)
Albumin [g/dl]	3.84 (0.27)	3.80 (0.30)
LDL cholesterol [mg/dl]	131 (33)	129 (30)
HDL cholesterol [mg/dl]	48.3 (0.9)	59.4 (9.5)
Apolipoprotein A1[mg/dl]	138.6 (17.2)	152.8 (23.8)
Apolipoprotein A2[mg/dl]	31.2 (5.4)	32.6 (6.3)
Apolipoprotein C3[mg/dl]	20.2 (8.8)	18.7 (7.9)
Triglycerides [mg/dl]	210 (116)	173 (87)
C-reactive protein [mg/l, median (25 th -75 th perc.)]	4.4 (2.1-10.4)	4.6 (1.9-11.1)
NT-pro-BNP [ng/l, median(25 th -75 th perc.)]	2776 (1351-7587)	4355 (1785-12337)

Legend: Data shown are mean (standard deviation), if not otherwise mentioned; Q4a HDL cholesterol levels ≤50 mg/dl; Q4b HDL cholesterol levels >50 mg/dl; *Types of disease and intervention are not mutually exclusive, [†] coronary artery bypass grafting surgery; [‡]percutaneous coronary intervention; [§]coronary heart disease, documented by coronary angiography; ^{||}predominantly New York Heart Association II; [#]transitory ischemic attack.

Supplementary table 2

Title: Baseline patient characteristics according to quartiles of apolipoprotein A2 in the propensity score matched subgroup

	Q1	Q2	Q3	Q4	P-value ¹
N	188	269	286	312	
Range (mg/dl)	12.5-22.5	23.8-26.3	27.5-30.0	31.3-53.8	
Age [years]	66.6 (7.8)	66.9 (8.6)	66.7 (8.1)	66.1 (8.8)	0.705
Gender [males (%)]	57.5	53.5	49.7	51.6	0.394
Ever smoking [n (%)]	43.6	40.9	38.1	36.9	0.632
Body mass index [kg/m²]	27.5 (4.7)	27.8 (4.9)	27.5 (4.9)	27.4 (4.6)	0.734
Systolic blood pressure [mm Hg]	145.3 (23.6)	146.1 (22.7)	144.2 (21.1)	147.0 (22.5)	0.472
Diastolic blood pressure [mm Hg]	75.1 (10.8)	75.3 (11.2)	76.7 (11.3)	76.0 (11.1)	0.358
Time receiving dialysis [months]	18.6 (8.1)	17.5 (8.5)	17.8 (8.7)	18.0 (8.3)	0.551
History of*					
Arrhythmia [n (%)]	27.7	21.6	20.0	19.1	0.465
Myocardial infarction, CABG[†], PCI[‡], CHD[§] [n(%)]	36.2	29.7	26.6	27.2	0.113
Congestive heart failure [n (%)]	40.0	39.4	31.1	29.8	0.147
Stroke or TIA[#] [n (%)]	17.6	19.0	15.7	18.0	0.788
Peripheral vascular disease [n (%)]	47.1	46.8	42.7	41.8	0.440
Hemoglobin [g/dl]	10.6 (1.4)	10.9 (1.4)	11.0 (1.3)	11.2 (1.3)	0.186
Glycated hemoglobin [%]	6.7 (1.2)	6.7 (1.4)	6.7 (1.2)	6.6 (1.2)	0.539
Phosphate [mg/dl]	6.0 (1.8)	6.0 (1.6)	6.0 (1.5)	5.9 (1.6)	0.977
Albumin [g/dl]	3.7 (0.3)	3.8 (0.3)	3.8 (0.3)	3.8 (0.3)	0.589
LDL cholesterol [mg/dl]	116.5 (30.0)	125.1 (27.2)	124.0 (29.7)	128.3 (32.8)	0.001
HDL cholesterol [mg/dl]	28.1 (8.7)	32.1 (9.9)	36.4 (11.0)	44.1 (15.6)	0.001
Apolipoprotein A1[mg/dl]	105.2 (13.1)	115.1 (14.7)	127.1 (16.8)	147.4 (24.1)	0.001
Apolipoprotein A2[mg/dl]	20.7 (2.1)	25.2 (1.0)	28.7 (1.0)	35.4 (4.2)	0.001
Apolipoprotein C3[mg/dl]	17.6 (10.1)	20.0 (9.4)	20.6 (9.1)	22.2 (9.2)	<0.001
Triglycerides [mg/dl]	288.1 (203.6)	276.0 (168.8)	258.9 (154.5)	239.7 (147.0)	0.006
C-reactive protein [mg/l, median (25th -75thperc.)]	6.8 (10.1)	5.9 (11.1)	3.8 (8.0)	3.5 (5.2)	0.245
NT-pro-BNP [ng/l, median (25th - 75thperc.)]	2712 (5254)	2415 (5253)	2509 (5531)	2742 (5163)	0.458

Legend: Data shown are mean (standard deviation), if not otherwise mentioned; Q1-Q4 quartile 1-4; ¹ P-values for comparison of groups were derived from an analysis of covariance model (for continuous variables) or logistic regression model (for categorical variables), both adjusted for age and gender. *Types of disease and intervention are not mutually exclusive, † coronary artery bypass grafting surgery; ‡percutaneous coronary intervention; §coronary heart disease, documented by coronary angiography; ¶predominantly New York Heart Association II; #transitory ischemic attack

Supplementary table 3

Title: Endpoints according to quartiles of HDL cholesterol

Combined vascular endpoint	n	first events	following events	events total	person-years
Q1	312	121	16	137	876
Q2	308	117	16	133	851
Q3	317	108	20	128	917
Q4	318	123	27	150	910
Total	1255	469	79	548	3554

Cardiac death	n	first events	following events	events total	person-years
Q1	312	75	0	75	876
Q2	308	67	0	67	851
Q3	317	55	0	55	917
Q4	318	73	0	73	910
Total	1255	270	0	270	3554

Sudden cardiac death	n	first events	following events	events total	person-years
Q1	312	43	0	43	876
Q2	308	38	0	38	851
Q3	317	32	0	32	917
Q4	318	47	0	47	910
Total	1255	160	0	160	3554

Non-fatal MI	n	first events	following events	events total	person-years
Q1	312	37	1	38	876
Q2	308	38	4	42	851
Q3	317	37	6	43	917
Q4	318	37	6	43	910
Total	1255	149	17	166	3554

All cardiac events	n	first events	following events	events total	person-years
Q1	312	118	27	145	876
Q2	308	121	38	159	851
Q3	317	99	31	130	917
Q4	318	113	38	151	910
Total	1255	451	134	585	3554

All cerebrovascular events	n	first events	following events	events total	person-years
Q1	312	35	5	40	876
Q2	308	35	5	40	851

Q3	317	40	8	48	917
Q4	318	39	9	48	910
Total	1255	149	27	176	3554

Death from all causes	n	first events	following events	events total	person-years
Q1	312	167	0	167	876
Q2	308	149	0	149	851
Q3	317	137	0	137	917
Q4	318	164	0	164	910
Total	1255	617	0	617	3554

Legend: Q1-Q4 quartile 1-4

Supplementary table 4

Title: Endpoints according to quartiles of apolipoprotein A1

Combined vascular endpoint	n	first events	following events	events total	person-years
Q1	312	123	15	138	833
Q2	311	126	19	145	861
Q3	305	101	22	123	881
Q4	327	119	23	142	979
Total	1255	469	79	548	3554

Cardiac death	n	first events	following events	events total	person-years
Q1	312	71	0	71	833
Q2	311	74	0	74	861
Q3	305	60	0	60	881
Q4	327	65	0	65	979
Total	1255	270	0	270	3554

Sudden cardiac death	n	first events	following events	events total	person-years
Q1	312	46	0	46	833
Q2	311	35	0	35	861
Q3	305	38	0	38	881
Q4	327	41	0	41	979
Total	1255	160	0	160	3554

Non-fatal MI	n	first events	following events	events total	person-years
Q1	312	36	4	40	833
Q2	311	41	2	43	861
Q3	305	33	6	39	881
Q4	327	39	5	44	979
Total	1255	149	17	166	3554

All cardiac events	n	first events	following events	events total	person-years
Q1	312	113	26	139	833
Q2	311	126	47	173	861
Q3	305	104	29	133	881
Q4	327	108	32	140	979
Total	1255	451	134	585	3554

All cerebrovascular events	n	first events	following events	events total	person-years
Q1	312	39	5	44	833
Q2	311	35	7	42	861

Q3	305	32	5	37	881
Q4	327	43	10	53	979
Total	1255	149	27	176	3554

Death from all causes	n	first events	following events	events total	person-years
Q1	312	166	0	166	833
Q2	311	149	0	149	861
Q3	305	149	0	149	881
Q4	327	153	0	153	979
Total	1255	617	0	617	3554

Legend: Q1-Q4 quartile 1-4

Supplementary table 5

Title: Endpoints according to quartiles of apolipoprotein A2

Combined vascular endpoint	n	first events	following events	events total	person-years
Q1	232	111	12	123	602
Q2	314	109	22	131	882
Q3	338	130	24	154	948
Q4	367	119	21	140	1107
Total	1251	469	79	548	3539

Cardiac death	n	first events	following events	events total	person-years
Q1	232	67	0	67	602
Q2	314	69	0	69	882
Q3	338	72	0	72	948
Q4	367	62	0	62	1107
Total	1251	270	0	270	3539

Sudden cardiac death	n	first events	following events	events total	person-years
Q1	232	46	0	46	602
Q2	314	37	0	37	882
Q3	338	39	0	39	948
Q4	367	38	0	38	1107
Total	1251	160	0	160	3539

Non-fatal MI	n	first events	following events	events total	person-years
Q1	232	29	3	32	602
Q2	314	35	2	37	882
Q3	338	43	8	51	948
Q4	367	42	4	46	1107
Total	1251	149	17	166	3539

All cardiac events	n	first events	following events	events total	person-years
Q1	232	101	25	126	602
Q2	314	113	33	146	882
Q3	338	121	42	163	948
Q4	367	115	34	149	1107
Total	1251	450	134	584	3539

All cerebrovascular events	n	first events	following events	events total	person-years
Q1	232	32	4	36	602
Q2	314	39	9	48	882

Q3	338	35	6	41	948
Q4	367	43	8	51	1107
Total	1251	149	27	176	3539

Death from all causes	n	first events	following events	events total	person-years
Q1	232	156	0	156	602
Q2	314	163	0	163	882
Q3	338	153	0	153	948
Q4	367	144	0	144	1107
Total	1251	616	0	616	3539

Legend: Q1-Q4 quartile 1-4

Supplementary table 6

Title: Endpoints according to quartiles of apolipoprotein C3

Combined vascular endpoint	n	first events	following events	events total	person-years
Q1	321	123	16	139	884
Q2	306	112	17	129	847
Q3	307	119	24	143	882
Q4	321	115	22	137	941
Total	1255	469	79	548	3554

Cardiac death	n	first events	following events	events total	person-years
Q1	321	67	0	67	884
Q2	306	63	0	63	847
Q3	307	82	0	82	882
Q4	321	58	0	58	941
Total	1255	270	0	270	3554

Sudden cardiac death	n	first events	following events	events total	person-years
Q1	321	40	0	40	884
Q2	306	36	0	36	847
Q3	307	49	0	49	882
Q4	321	35	0	35	941
Total	1255	160	0	160	3554

Non-fatal MI	n	first events	following events	events total	person-years
Q1	321	35	3	38	884
Q2	306	32	3	35	847
Q3	307	36	5	41	882
Q4	321	46	6	52	941
Total	1255	149	17	166	3554

All cardiac events	n	first events	following events	events total	person-years
Q1	321	111	36	147	884
Q2	306	98	28	126	847
Q3	307	126	37	163	882
Q4	321	116	33	149	941
Total	1255	451	134	585	3554

All cerebrovascular events	n	first events	following events	events total	person-years
Q1	321	41	10	51	884
Q2	306	42	4	46	847

Q3	307	30	7	37	882
Q4	321	36	6	42	941
Total	1255	149	27	176	3554

Death from all causes	n	first events	following events	events total	person-years
Q1	321	171	0	171	884
Q2	306	146	0	146	847
Q3	307	164	0	164	882
Q4	321	136	0	136	941
Total	1255	617	0	617	3554

Legend: Q1-Q4 quartile 1-4

Supplementary table 7

Title: Prognostic value of HDL cholesterol on risk of endpoint occurrence in subgroups of the 4th HDL cholesterol quartile

Endpoint	Quartile	HR ¹ (95% CI)	P-value ²
Combined vascular endpoint	Q4a	1.18 (0.81-1.70)	0.389
	Q4b	1.02 (0.79-1.33)	0.876
Cardiac death	Q4a	0.72 (0.38-1.36)	0.306
	Q4b	1.21 (0.84-1.72)	0.305
Sudden cardiac death	Q4a	0.61 (0.26-1.44)	0.259
	Q4b	1.20 (0.76-1.88)	0.439
Nonfatal myocardial infarction	Q4a	1.65 (0.89-3.07)	0.114
	Q4b	1.00 (0.60-1.65)	0.990
All cardiac events	Q4a	1.22 (0.85-1.75)	0.272
	Q4b	1.10 (0.85-1.43)	0.452
All cerebrovascular events	Q4a	0.98 (0.63-1.52)	0.914
	Q4b	1.05 (0.68-1.62)	0.819
Death from all causes	Q4a	1.10 (0.76-1.59)	0.619
	Q4b	0.98 (0.76-1.26)	0.871

Legend: ¹ hazard ratio vs. quartile 1; ²P-value calculated with Wald test; Q4a HDL cholesterol levels ≤ 50 mg/dl; Q4b HDL cholesterol levels > 50 mg/dl.

Supplementary table 8

Title: Associations of HDL cholesterol with endpoints adjusted for longitudinal measurements

Endpoint	Quartile	HR¹ (95% CI)	P-value²
Combined vascular endpoint	Q2	1.00 (0.79-1.28)	0.982
	Q3	1.02 (0.86-1.36)	0.874
	Q4	1.10 (0.81-1.31)	0.312
	Q4a	1.18 (0.81-1.70)	0.389
	Q4b	1.02 (0.79-1.33)	0.876
	Overall		0.865
Cardiac death	Q2	0.98 (0.70-1.38)	0.910
	Q3	0.87 (0.60-1.19)	0.447
	Q4	1.06 (0.75-1.49)	0.748
	Q4a	0.78 (0.44-1.42)	0.694
	Q4b	1.12 (0.75-1.63)	0.227
	Overall		0.601
Sudden cardiac death	Q2	1.15 (0.74-1.79)	0.540
	Q3	0.88 (0.41-1.90)	0.105
	Q4	1.33 (1.06-1.66)	0.219
	Q4a	0.66 (0.31-1.49)	0.413
	Q4b	1.27 (0.83-1.95)	0.356
	Overall		0.389
Nonfatal myocardial infarction	Q2	0.99 (0.79-1.24)	0.507
	Q3	1.05 (0.83-1.32)	0.846
	Q4	1.18 (0.77-1.81)	0.444
	Q4a	1.56 (0.51-1.56)	0.179
	Q4b	1.06 (0.66-1.71)	0.843
	Overall		0.632
All cardiac events	Q2	0.92 (0.73-1.16)	0.497
	Q3	1.15 (0.92-1.45)	0.220
	Q4	1.04 (0.82-1.32)	0.738
	Q4a	1.15 (0.78-1.68)	0.251
	Q4b	1.19 (0.94-1.52)	0.573
	Overall		0.307
All cerebrovascular events	Q2	0.96 (0.64-1.53)	0.945
	Q3	1.11 (1.05-1.15)	0.789
	Q4	1.19 (0.85-1.66)	0.698
	Q4a	1.63 (0.58-1.63)	0.111
	Q4b	1.10 (0.70-1.75)	0.873
	Overall		0.896
Death from all causes	Q2	1.05 (0.85-1.32)	0.636
	Q3	1.14 (0.91-1.43)	0.251

Q4	1.02 (0.81-1.28)	0.885
Q4a	1.20 (0.86-1.69)	0.723
Q4b	0.91 (0.69-1.19)	0.652
Overall		0.668

Legend: ¹HR hazard ratio vs. quartile 1; ²P-value of global test; Q4a HDL cholesterol levels ≤ 50 mg/dl; Q4b HDL cholesterol levels > 50 mg/dl.

Supplementary table 9

Title: Endpoints according to quartiles of ApoA2 in the propensity score matched subgroup

Endpoint	n	events	Quartile¹	HR² (95% CI)	P-value³
Combined vascular endpoint	188	100	Q1	1.00	
	269	109	Q2	0.71 (0.52-0.97)	0.034
	286	129	Q3	0.90 (0.67-1.20)	0.467
	312	114	Q4	0.71 (0.50-0.99)	0.046
			Overall	-	0.086
Cardiac death	188	55	Q1	1.00	
	269	57	Q2	0.71 (0.46-1.09)	0.120
	286	59	Q3	0.81 (0.55-1.20)	0.293
	320	52	Q4	0.64 (0.40-1.01)	0.053
			Overall	-	0.234
Sudden cardiac death	188	38	Q1	1.00	
	269	32	Q2	0.54 (0.31-0.92)	0.022
	286	33	Q3	0.61 (0.40-0.94)	0.024
	312	34	Q4	0.58 (0.34-0.99)	0.046
			Overall	-	0.065
Nonfatal myocardial infarction	188	31	Q1	1.00	
	269	31	Q2	0.62 (0.37-1.03)	0.066
	286	45	Q3	0.92 (0.58-1.46)	0.722
	312	34	Q4	0.60 (0.35-1.06)	0.080
			Overall	-	0.104
All cardiac events	188	109	Q1	1.00	
	269	119	Q2	0.71 (0.54-0.94)	0.020
	286	140	Q3	0.92 (0.71-1.18)	0.493
	312	121	Q4	0.70 (0.50-0.96)	0.029
			Overall	-	0.053
All cerebrovascular events	188	23	Q1	1.00	
	269	43	Q2	1.08 (0.64-1.82)	0.782
	286	34	Q3	0.77 (0.41-1.43)	0.406
	312	42	Q4	0.87 (0.52-1.46)	0.604
			Overall	-	0.632
Death from all causes	188	123	Q1	1.00	
	269	130	Q2	0.79 (0.61-1.03)	0.086
	286	119	Q3	0.78 (0.59-1.03)	0.076
	312	115	Q4	0.71 (0.52-0.96)	0.027
			Overall	-	0.139

Legend: ¹ Q1-Q4 quartile 1-4, ² HR hazard ratio vs. quartile 1; ³ P-value of global test;