Vascular Aging Markers Predict Death and Cardiovascular Outcomes

A Systematic Review with Meta-analysis and Trial Sequential Analysis

Supplementary Material

Table of Contents

PRISMA 2020 checklist 3

Supplementary Methods 6

1 Search strategies 6

1.1 For MEDLINE 6

1.2 For Cochrane Central Register of Controlled Trials (CENTRAL) 9

1.3 For Embase 11

2 Criteria for inclusion and exclusion 14

3 Candidate biomarkers 15

3.1 Rationale for selection and categories 15

3.2 Detailed information 16

4 Definition of outcomes 17

5 Data transformation procedures of risk estimates 18

5.1 The approach used for converting raw risk estimate into the inverse direction 18

5.2 Records for data transformation in the meta-analyses 18

6 Multiple sensitivity analyses 20

Supplementary Tables 21

Supplementary Table 1. Detailed characteristics of included studies 21

Supplementary Table 2. Quality assessment of included studies by Newcastle-Ottawa Scale (NOS) 40

Supplementary Table 3. Excluded articles at full-text screening stage with rationale 50

Supplementary Table 4. Excluded articles but included in previous systematic reviews 109

Supplementary Table 5. Multiple sensitivity analyses for mortality based on pooled risk estimates. 113

Supplementary Table 6. Multiple sensitivity analyses for mortality based on pooled event counts. 114

Supplementary Table 7. Results of Egger test. 115

Supplementary Table 8. Qualitative review table of biomarkers not included in the meta-analysis 116

Supplementary Figures 120

Supplementary Figure 1. Publication bias for mortality outcomes based on pooled risk estimates. 120

Supplementary Figure 2. Publication bias for mortality outcomes based on pooled event counts. 121
Extended Results 122
1 Supplementary forest plots of meta-analyses 122
1.1 Pooled risk estimates 122
1.2 Pooled event counts 137
2 Supplementary results of trial sequence analysis 149
3 Supplementary results of subgroup analyses 167
3.1 Summary of subgroup analyeis based on pooled risk estimates 167
3.2 Summary of subgroup analyeis based on pooled event counts 186
3.3 Subgroup forest plots for substantial heterogeneity based on pooled risk estimates 201
3.4 Subgroup forest plots for substantial heterogeneity based on pooled event counts 208
4 Supplementary results of sensitivity analyses for mortality outcomes 215
4.1 Leave-one-out method based on pooled risk estimates. 215
4.2 Leave-one-out method based on pooled event counts. 223
5 Supplementary assessment of publication bias for mortality outcomes 228
5.1 Funnel plots for meta-analyses by pooling risk estimates 228
5.2 Funnel plots for meta-analyses by pooling event counts 240
The reference lists for the included studies 249
Supplementary Reference 262

PRISMA 2020 checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 2–3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 6–7
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Page 6–7
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 8; App. p14
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 7;
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	App. pp 6–13
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 7–8
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Page 8
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	App. p 17
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Page 8
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 9
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Page 9

Section and Topic	Item #	Checklist item	Location where item is reported
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Page 9–10
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Page 9–10
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page 9–10
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Page 9–10
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Page 9–10
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Page 10
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Page 9–10
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Page 10
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Page 10, Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Supplementary Table 3–4
Study characteristics	17	Cite each included study and present its characteristics.	Supplementary Table 1
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Supplementary Table 2
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Extended Results
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Extended Results
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Page 10–12, Figure 2–3

Section and Topic	Item #	Checklist item	Location where item is reported
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Page 13, Extended Results
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Page 13, Supplementary Table 6–7
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Page 13, Supplementary Figure 1–2, Supplementary Table 8
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Page 12, Figure 4
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Page 14–16
	23b	Discuss any limitations of the evidence included in the review.	Page 18
	23c	Discuss any limitations of the review processes used.	Page 18
	23d	Discuss implications of the results for practice, policy, and future research.	Page 17–18
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 7
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 7
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Page 7
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Page 21
Competing interests	26	Declare any competing interests of review authors.	Page 20
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Page 20

Supplementary Methods

1 Search strategies

1.1 For MEDLINE

No.	Searches
#1	Cardiovascular Diseases/
#2	Vascular Diseases/
#3	exp Myocardial Ischemia/
#4	exp Brain Ischemia/
#5	Cerebrovascular Disorders/
#6	exp Stroke/
#7	Mortality/
#8	(coronary adj3 disease*).tw.
#9	angina.tw.
#10	myocardial infarct*.tw.
#11	heart infarct*.tw.
#12	heart attack*.tw.
#13	(stroke or strokes).tw.
#14	((cerebr* or brain) adj3 (accident* or infarct*)).tw.
#15	apoplexy.tw.
#16	(cardiovascular adj2 (disease* or event*)).tw.
#17	mortality.tw.
#18	or/1-17
#19	Carotid Intima-Media Thickness/
#20	(carotid plaque* or carotid diastolic diameter).tw.
#21	(carotid adj (beta-stiff* or stiff* index* or stiff* indices)).tw.
#22	(coronary adj5 (agatston scor* or calcium scor* or calcification scor* or CAC scor* or CACS)).tw.
#23	Pulse Wave Analysis/ or Carotid-Femoral Pulse Wave Velocity/
#24	((pulse adj3 velocit*) or PWV or aPWV or baPWV or ba-PWV or cfPWV or cf-PWV or crPWV or cr-PWV).tw.
#25	((arter* or vascul* or aort*) adj3 (stiff* index* or stiff* indices or SI or ASI or AASI)).tw.

No.	Searches
#26	(wave reflection or augmentation index or AIx).tw.
#27	Ankle Brachial Index/
#28	Cardio Ankle Vascular Index/
#29	(flow-mediated dilatation or flow-mediated dilation or (FMD adj (techn* or test* or assess* or evaluat*))).tw.
#30	(peripheral arter* tonometry or peripheral arter* tone or (reactive hyper?emi* adj (index* or indices)) or RHI or RH-PAT).tw.
#31	(circulat* endotheli* cell? or circulat* endotheliocyte* or CECs).tw.
#32	Endothelial Progenitor Cells/
#33	E-Selectin/ or (soluble E-selectin or sE-selectin).tw.
#34	exp Telomere/ or Telomere Shortening/
#35	exp Extracellular Vesicles/ or exp Cell-Derived Microparticles/ or (microparticle* or micro-particle* or microvesicle* or micro-vesicle*).tw.
#36	endotheli*.tw.
#37	(circulat* or blood or peripheral).tw.
#38	and/35-37
#39	exp ophthalmoscopes/ or exp ophthalmoscopy/ or tomography, optical coherence/ or (optical coherence tomograph* or ophthalmoscop* or fundoscop* or funduscop*).tw.
#40	((fund#s or eye or retina*) adj3 (parameter* or photo* or imag*)).tw.
#41	and/39-40
#42	Multiparametric Magnetic Resonance Imaging/ or (perfusion weighted imaging or PWI or dynamic contrast-enhanced or dynamic susceptibility contrast or DSC or functional magnetic resonance imaging or functional MRI or fMRI).tw.
#43	Cerebral Blood Volume/ or (time-to-peak or TTP or cerebral blood volume or CBV or cerebral blood flow or CBF or mean transit time* or MTT).tw.
#44	and/42-43
#45	or/19-34,38,41,44
#46	randomized controlled trial.pt.
#47	controlled clinical trial.pt.
#48	placebo.ab.
#49	clinical trials as topic.sh.
#50	trial.ti.
#51	random*.mp.
#52	or/46-51
#53	Clinical Study/
#54	Observational Study/
#55	Clinical Studies as Topic/

No.	Searches
#56	Observational Studies as Topic/
#57	Epidemiologic Studies/
#58	exp Case Control Studies/
#59	exp Cohort Studies/
#60	Cross-sectional Studies/
#61	Case control.tw.
#62	(cohort adj (study or studies)).tw.
#63	Cohort analy*.tw.
#64	(follow up adj (study or studies)).tw.
#65	(observational adj (study or studies)).tw.
#66	Longitudinal.tw.
#67	Retrospective.tw.
#68	Prospective.tw.
#69	Cross sectional.tw.
#70	or/52-69
#71	exp Animals/ not humans.sh.
#72	exp Guideline/ or exp Historical Article/ or Comment/ or Editorial/ or Letter/ or News/ or Consensus/ or Case Reports/ or Clinical Conference/
#73	or/71-72
#74	70 not 73
#75	18 and 45 and 74

1.2 For Cochrane Central Register of Controlled Trials (CENTRAL)

No.	Searches
#1	[mh ^"Cardiovascular Diseases"]
#2	[mh ^"Vascular Diseases"]
#3	[mh "Myocardial Ischemia"]
#4	[mh "Brain Ischemia"]
#5	[mh ^"Cerebrovascular Disorders"]
#6	[mh Stroke]
#7	[mh ^Mortality]
#8	coronary NEAR/3 disease*
#9	angina
#10	myocardial NEXT infarct*
#11	heart NEXT infarct*
#12	heart NEXT attack*
#13	stroke OR strokes
#14	(cerebr* OR brain) NEAR/3 (accident* OR infarct*)
#15	apoplexy
#16	cardiovascular NEAR/2 (disease* OR event*)
#17	mortality
#18	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17
#19	[mh ^"Carotid Intima-Media Thickness"]
#20	(carotid NEXT plaque*) OR "carotid diastolic diameter"
#21	carotid NEXT (beta-stiff* OR (stiff* NEXT (index* OR indices)))
#22	coronary NEAR/5 (((agatston OR calcium OR calcification OR CAC) NEXT scor*) OR CACS)
#23	[mh ^"Pulse Wave Analysis"] OR [mh ^"Carotid-Femoral Pulse Wave Velocity"]
#24	(pulse NEAR/3 velocit*) OR PWV OR aPWV OR baPWV OR ba-PWV OR cfPWV OR cf-PWV OR crPWV OR cr-PWV
#25	(arter* OR vascul* OR aort*) NEAR/3 ((stiff* NEXT (index* OR indices)) OR SI OR ASI OR AASI)
#26	"wave reflection" OR "augmentation index" OR AIx
#27	[mh ^"Ankle Brachial Index"]
#28	[mh ^"Cardio Ankle Vascular Index"]
#29	"flow-mediated dilatation" OR "flow-mediated dilation" OR (FMD NEXT (techn* OR test* OR assess* OR evaluat*))

No.	Searches
#30	(peripheral NEXT arter* NEXT (tonometry OR tone)) OR (reactive NEXT hyper?emi* NEXT (index* OR indices)) OR RHI OR RH-PAT
#31	(circulat* NEXT endotheli* NEXT (cell OR cells)) OR (circulat* NEXT endotheliocyte*) OR CECs
#32	[mh ^"Endothelial Progenitor Cells"]
#33	[mh ^E-Selectin]
#34	"soluble E-selectin" OR sE-selectin
#35	[mh Telomere] OR [mh ^"Telomere Shortening"]
#36	[mh "Extracellular Vesicles"] OR [mh "Cell-Derived Microparticles"]
#37	microparticle* OR micro-particle* OR microvesicle* OR micro-vesicle*
#38	#36 OR #37
#39	endotheli*
#40	circulat* OR blood OR peripheral
#41	#38 AND #39 AND #40
#42	[mh ophthalmoscopes] OR [mh ophthalmoscopy] OR [mh ^"tomography, optical coherence"]
#43	("optical coherence" NEXT tomograph*) OR ophthalmoscop* OR fundoscop* OR funduscop*
#44	#42 OR #43
#45	(fundus OR fundos OR eye OR retina*) NEAR/3 (parameter* OR photo* OR imag*)
#46	#44 AND #45
#47	[mh ^"Multiparametric Magnetic Resonance Imaging"]
#48	"perfusion weighted imaging" OR PWI OR "dynamic contrast-enhanced" OR "dynamic susceptibility contrast" OR DSC OR "functional magnetic resonance imaging" OR "functional MRI" OR fMRI
#49	#47 OR #48
#50	[mh ^"Cerebral Blood Volume"]
#51	time-to-peak OR TTP OR "cerebral blood volume" OR CBV OR "cerebral blood flow" OR CBF OR ("mean transit" NEXT time*) OR MTT
#52	#50 OR #51
#53	#49 AND #52
#54	#19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #41 OR #46 OR #53
#55	#18 AND #54

1.3 For Embase

No.	Searches
#1	'cardiovascular disease'/de
#2	'ischemic heart disease'/exp
#3	'brain ischemia'/exp
#4	'cerebrovascular disease'/de
#5	'brain infarction'/exp
#6	'cerebrovascular accident'/exp
#7	'mortality'/de
#8	'all cause mortality'/de
#9	(coronary NEAR/3 disease*):ti,ab
#10	angina:ti,ab
#11	'myocardial infarct*':ti,ab
#12	'heart infarct*':ti,ab
#13	'heart attack*':ti,ab
#14	(stroke OR strokes):ti,ab
#15	((cerebr* OR brain) NEAR/3 (accident* OR infarct*)):ti,ab
#16	apoplexy:ti,ab
#17	(cardiovascular NEAR/2 (disease* OR event*)):ti,ab
#18	mortality:ti,ab
#19	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18
#20	'carotid intima-media thickness'/de
#21	('carotid plaque*' OR 'carotid diastolic diameter'):ti,ab
#22	(carotid NEAR/1 ('beta-stiff*' OR 'stiff* index*' OR 'stiff* indices')):ti,ab
#23	'coronary artery calcium score'/exp
#24	'pulse wave velocity'/exp
#25	'arterial stiffness index'/exp OR 'ambulatory arterial stiffness index'/exp OR ((arter* OR vascul* OR aort*) NEAR/3 ('stiff* index*' OR 'stiff* indices' OR SI OR ASI OR AASI)):ti,ab
#26	'wave reflection'/exp OR 'augmentation index'/exp
#27	'ankle brachial index'/de
#28	'cardio-ankle vascular index'/de

No.	Searches
#29	'flow-mediated dilation test'/de
#30	'peripheral arterial tonometry'/de OR 'reactive hyperemia index'/de OR 'reactive hyperemic index'/de OR 'reactive hyperaemia index'/de OR ('reactive hyper$emi*' NEAR/1 (index* OR indices)):ti,ab
#31	'circulating endothelial cell'/de
#32	'endothelial progenitor cell'/de
#33	'soluble e selectin'/exp OR ('soluble E-selectin' OR 'soluble e selectin' OR 'sE-selectin'):ti,ab
#34	'telomere length'/exp OR 'telomere shortening'/de
#35	'endothelial microparticle'/de
#36	'ophthalmoscope'/exp OR 'ophthalmoscopy'/de OR 'optical coherence tomography'/exp OR ('optical coherence tomograph*' OR ophthalmoscop* OR fundoscop* OR funduscop*):ti,ab
#37	((fund?s OR eye OR retina*) NEAR/3 (parameter* OR photo* OR imag*)):ti,ab
#38	#36 AND #37
#39	'multiparametric magnetic resonance imaging'/de OR 'perfusion weighted imaging'/de OR 'dynamic contrast-enhanced magnetic resonance imaging'/exp OR 'dynamic susceptibility contrast'/de OR 'functional magnetic resonance imaging'/de OR (PWI OR DSC OR 'functional MRI' OR fMRI):ti,ab
#40	'brain blood volume'/de OR 'mean transit time'/de OR ('time-to-peak' OR TTP OR 'cerebral blood volume' OR CBV OR 'cerebral blood flow' OR CBF OR MTT):ti,ab
#41	#39 AND #40
#42	#20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #38 OR #41
#43	'randomized controlled trial'/exp
#44	'controlled clinical trial'/exp
#45	placebo:ti,ab
#46	'clinical trials as topic'/de
#47	trial:ti,ab
#48	random*
#49	#43 OR #44 OR #45 OR #46 OR #47 OR #48
#50	'clinical study'/de
#51	'case control study'/de
#52	'longitudinal study'/de
#53	'retrospective study'/de
#54	'prospective study'/de
#55	'cohort analysis'/de
#56	cohort NEXT/1 (study or studies)

No.	Searches
#57	(('case-control' or 'case control' or 'follow up' or 'follow-up' or observational or epidemiologic* or 'cross sectional') NEXT/1 (study or studies)):ti,ab
#58	#49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #57
#59	('animal'/exp OR 'nonhuman'/exp) NOT 'human'/exp
#60	'conference paper'/exp OR 'editorial'/de OR 'letter'/de OR 'note'/de OR 'consensus'/exp OR 'case report'/de OR 'case study'/exp OR 'abstract report'/de
#61	#59 OR #60
#62	#58 NOT #61
#63	#19 AND #42 AND #62

2 Criteria for inclusion and exclusion

Elements	Criteria for Inclusion	Criteria for Exclusion
Populations	Adults of any type population, including the general population, patients with cardiovascular diseases, chronic kidney disease, or any other diseases	Single-sex populations, small sample sizes (N<50), participants aged <18 years, or in vitro or animal studies In cases of study population overlap, we retained only the cohort with the largest sample size or the longest follow-up.
Exposure	Studies measuring biomarkers of interest at baseline, including structural biomarkers (cIMT, CP, CACS, carotid diameter), functional biomarkers (baPWV, cfPWV, ABI, CAVI, AIx, FMD, RHI), and circulating biomarkers (CEPCs, EMPs, E-Selectin, LTL)	Studies investigating the association between inseparable biomarkers (ie. combinations of more than one biomarker) and outcomes
Outcomes	Primary outcomes: all-cause mortality, CV mortality. Secondary outcomes: stroke, MI, MACEs (defined as a composite of stroke, MI, or any death)	Studies not providing applicable data of effect measures (ie. hazard ratio, risk ratio or odds ratio and the corresponding 95% confidence interval, or the number of events and totality in both comparable groups (ie. groups divided according to a certain threshold of biomarkers) Impossible to extract outcomes of interest from mixed outcomes
Studies	Prospective studies with ≥6 months follow-up, including randomized controlled trials, case-control trials, and cohort studies in any setting and context	Cross-sectional studies, case series/case reports, narrative review, systematic review, meta-analysis, meeting abstract, news items, consensus statement, guidelines, and opinion/editorials

3 Candidate biomarkers

3.1 Rationale for selection and categories

Based on the aging-related traits of the blood vessels, the candidate biomarkers included 4 structural biomarkers, 8 functional biomarkers, and 4 circulating biomarkers. Structural biomarkers, including carotid intima-media thickness (cIMT)[1], the presence of carotid plaques (CPs)[2], coronary artery calcium score (CACS)[3], and carotid diameter[4], are used to assess the composition and structure of blood vessels. Another category includes functional biomarkers that can reflect the functional characteristics of arteries. Flow-mediated dilation (FMD) and reactive hyperaemia index (RHI) are considered indicators of endothelial function[5]. Arterial stiffness and compliance can be noninvasively quantified via brachial-ankle pulse wave velocity (baPWV)[6], carotid-femoral pulse wave velocity (cfPWV)[7], ankle-brachial index (ABI)[8], cardio-ankle vascular index (CAVI)[9], and augmentation index (AIx)[10]. In addition, given that aging can also cause detectable changes in cells and blood, circulating biomarkers, which encompass specific circulating cells or molecules, have also been suggested as surrogate markers for vascular aging, including leucocyte telomere length (LTL)[11], circulating endothelial progenitor cells (CEPCs)[12], endothelial-derived microparticles (EMPs)[13], and E-selectin[14]. High ABI refers an ABI value beyond the upper limit of the normal range and low ABI refers that lower than the lower limit of normal range. Given the U-shaped relationship between the ABI and mortality risk[8,15], the ABI was compared between the single abnormal range versus the normal range. For biomarkers evaluated as categorical variables, meta-analyses only considered studies involving dichotomous grouping based on a single cut-off value of biomarkers, excluding multiple between-group comparisons with more than one cut-off value.

3.2 Detailed information

Full name	Abbreviation	Definition	Measurement
Carotid intima-media thickness	cIMT	The thickness of tunica intima and tunica media	Ultrasound
Carotid plaque	CP	A focal wall thickening of the carotid artery	Ultrasound
Coronary artery calcium score	CACS	A measure of coronary calcification density	Computed tomography scan, by Agaston's method
Carotid diameter	-	Diameter of the carotid artery	Ultrasound
Brachial-ankle pulse wave velocity	baPWV	The velocity at which the blood pressure pulse propagates through the brachial-ankle length of arteries	An automatic waveform analyzer by an oscillometric method
Carotid-femoral pulse wave velocity	cfPWV	The velocity at which the blood pressure pulse propagates through the carotid-femoral length of arteries	Complior® method or Doppler ultrasound
Ankle brachial index	ABI	The ratio of the blood pressure at the ankle to the blood pressure at the brachium	A Doppler probe, and a sphygmomanometer
Cardio-ankle vascular index	CAVI	An index of the overall stiffness of the artery from the origin of the aorta to the ankle	A Vasera VS-1000 vascular screening system
Augmentation index	AIx	A measure of wave reflection and arterial stiffness calculated as the ratio from the blood pressure waveform	Applanation tonometry
Flow-mediated dilation	FMD	Dilation of an artery when blood flow increases in that artery, primarily caused by release of nitric oxide by endothelial cells	Ultrasound, usually measuring dilation of the brachial artery
Reactive hyperaemia index	RHI	A measure of endothelial function calculated as the ratio of hyperemic pressure to baseline pressure	Pulse amplitude tonometry
Circulating endothelial progenitor cells	CEPCs	Cell types that play roles in the regeneration of the endothelial lining of blood vessels	Flow cytometry
Endothelial-derived microparticles	EMPs	Small vesicles that are released from endothelial cells and can be found circulating in the blood	Flow cytometry
E-selectin	-	A selectin cell adhesion molecule expressed only on endothelial cells activated by cytokines.	Enzyme-linked immunosorbent assay, or other methods
Leucocyte telomere length	LTL	A complex trait associated with ageing and longevity	Quantitative polymerase chain reaction, or Southern blot method

4 Definition of outcomes

Cardiovascular mortality included fatal stroke, fatal myocardial infarction (MI), or other death (caused by heart failure, pulmonary embolism, sudden cardiac death, cardiovascular procedures, or any other death that could not be definitely attributed to a nonvascular cause)[16]. Stroke was defined as a new neurological deficit attributed to a vascular cause in the central nervous system (brain, retina, or spinal cord) supported by imaging evidence from computed tomography or magnetic resonance imaging[17]. MI was defined as an event of myocardial necrosis requiring evidence of ischemic symptoms, elevated levels of serum cardiac biomarkers, distinct electrocardiogram changes, and/or imaging evaluation[18]. Major adverse cardiovascular events (MACEs) were defined as a composite of stroke, MI, or any death.

5 Data transformation procedures of risk estimates

5.1 The approach used for converting raw risk estimate into the inverse direction

	RE	SE	LCI	UCI
Before transformation	RE_0	SE_0	LCI_0	UCI_0
After transformation	$1/RE_0$	SE_0	$1/UCI_0$	$1/LCI_0$

RE = risk estimate; SE = standard error; LCI = lower limit of confidence interval; UCI = Upper limit of confidence interval.

5.2 Records for data transformation in the meta-analyses

Study	Biomarkers and outcomes	Rationale reported in studies	Transformation	Rationale for meta-analysis
Berezin et al, 2015	CEPCs for All-cause mortality	RE high vs low CEPCs (per unit increase)	Inverse of the raw RE	RE low vs high CEPCs (per unit decrease)
Dean et al, 2017	LTL for All-cause mortality	RE long vs short LTL (per SD increase)	Inverse of the raw RE	RE short vs long LTL (per SD decrease)
Deelen et al, 2014	LTL for All-cause mortality	RE long vs short LTL (per 1 kb base pairs increase)	Inverse of the raw RE	RE short vs long LTL (per 1 kb base pairs decrease)
El Assar et al, 2021	LTL for All-cause mortality	RE long vs short LTL (Increase by 1 kilobase)	Inverse of the raw RE	RE short vs long LTL (decrease by 1 kilobase)
Giannitsi et al, 2021	FMD for All-cause mortality	RE high vs low FMD (per 1% increase)	Inverse of the raw RE	RE low vs high FMD (per 1% decrease)
Glei et al, 2015	LTL for All-cause mortality	RE long vs short LTL (per SD increase)	Inverse of the raw RE	RE short vs long LTL (per SD decrease)
Huang et al, 2019	LTL for All-cause mortality and CV mortality	RE long vs short LTL (per SD increase)	Inverse of the raw RE	RE short vs long LTL (per SD decrease)
Koller et al, 2016	CEPCs for All-cause mortality	RE high vs low CEPCs (per SD increase)	Inverse of the raw RE	RE low vs high CEPCs (per SD decrease)

Study	Biomarkers and outcomes	Rationale reported in studies	Transformation	Rationale for meta-analysis
Lu et al, 2016	CEPCs for All-cause mortality	RE high vs low CEPCs (per 1/uL increase)	Inverse of the raw RE	RE low vs high CEPCs (per 1/uL decrease)
Marioni et al, 2016	LTL for All-cause mortality	RE long vs short LTL (per SD increase)	Inverse of the raw RE	RE short vs long LTL (per SD decrease)
Mwasongwe et al, 2017	LTL for All-cause mortality	RE long vs short LTL (each 1 kb increase)	Inverse of the raw RE	RE short vs long LTL (each 1 kb decrease)
Pavanello et al, 2021	LTL for All-cause mortality	RE long vs short LTL (Per unit increase)	Inverse of the raw RE	RE short vs long LTL (Per unit decrease)
Pusceddu et al, 2018	LTL for All-cause mortality and CV mortality	RE long vs short LTL (RTL>0.8916 vs RTL<0.8915)	Inverse of the raw RE	RE short vs long LTL (RTL<0.8915 vs RTL>0.8916)
Samavat et al, 2021	LTL for All-cause mortality	RE long vs short LTL (per SD increase)	Inverse of the raw RE	RE short vs long LTL (per SD decrease)
Savic-Radojevic et al, 2013	FMD for All-cause mortality	RE high vs low FMD (per SD increase)	Inverse of the raw RE	RE low vs high FMD (per SD decrease)
Schnabel et al, 2022	FMD for All-cause mortality and CV mortality	RE high vs low FMD (per SD increase)	Inverse of the raw RE	RE low vs high FMD (per SD decrease)
Yang et al, 2017	CEPCs for All-cause mortality	RE high vs low CEPCs (Per SD of square root increase)	Inverse of the raw RE	RE low vs high CEPCs (Per SD of square root decrease)
Zobel et al, 2017	cIMT for All-cause mortality	RE low vs high cIMT (per SD decrease)	Inverse of the raw RE	RE high vs low cIMT (per SD increase)

6 Multiple sensitivity analyses

1. Leave-one-out method: We compared the pooled results of the remaining articles after eliminating every article one by one.

2. Reanalysis with fixed-effects models: This method is suitable for meta-analyses of studies with moderate heterogeneity (I^2<50%).

3. Trim-and-fill method: Based on the hypothesis that the funnel plot is asymmetrical due to publication bias, the meta-analysis was reperformed after some potential unpublished studies were added. If the combined effect size estimates changed significantly, publication bias may have impacted the robustness of the results.

4. Reanalysis with highest-quality studies (NOS scores of 9).

Supplementary Tables

Supplementary Table 1. Detailed characteristics of included studies

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Abe et al, 2022	Japan	2010–2012	624	Patients with CAD aged 30-88 y	64.1 (8.3)	84.6	93.8	36.9	FMD	45.5 (2.8–66.3)	CV mortality	9
											MACEs	90
Aiumtrakul et al, 2022a	Thailand	2011–2014	5543	Individuals with CVD or at least 3 CVD risk factors	66.0 (9.7)	54.2	95.9	61.6	ABI	60	All-cause mortality	201
Aiumtrakul et al, 2022b	Thailand	2011–2014	4898	Patients with CVD or high CVD risk aged ≥45 y	65.6 (9.6)	56	96.2	61.5	CAVI	60	All-cause mortality	135
											CV mortality	68
Akintoye et al, 2021	USA	1987–2002	22942	Participants free of ASCVD	58.7 (9.2)	44.4	NR	10.8	ABI	120	MACEs	1960
									CACS			
Aljizeeri et al, 2021	Saudi Arabia	2011–2018	4008	Patients with suspected CAD	59.7 (11.6)	45.1	77.6	58.1	CACS	22.8	MACEs	130
Al-Kindi et al, 2022	USA	2017–	12194	Patients with ≥1 risk factor for heart disease	59.8 (9.5)	50.1	NR	53	CACS	13.2	MACEs	458
Alzamora et al, 2013	Spain	2006–2012	3307	population-based cohort aged >49 y	64.2 (8.7)	43.7	43.9	14.6	ABI	46	All-cause mortality	124
Antonopoulos et al, 2021	Greece	2011–2014	414	Patients with T2DM	65.1 (9.7)	74.4	81.6	100	cfPWV	30 (1–60)	MACEs	42
Antwi et al, 2021	USA	2000–2016	642	Patients with pancreatic ductal adenocarcinoma	66.7 (10.3)	56.1	NR	29.1	LTL	10.8 (10.1–12.5)	All-cause mortality	605
Arbeev et al, 2020	International	NR	3259	Adult participants of European ancestry	69 (50–98)	28.1	14.8	NR	LTL	182.4 (64.8)	All-cause mortality	1525
											CV mortality	482
Avramovski et al, 2014	Macedonia	2009–2012	80	Patients on maintenance HD	59.3 (11.8)	66.3	46.2	20	cfPWV	30.69 (9.93)	All-cause mortality	23
											CV mortality	17
Ban et al, 2022	Japan	2015–2020	932	Patients with AMI	68.5 (12.3)	78.8	81.8	41.8	baPWV	18.0 (7.2–34.1)	All-cause mortality	64
											MI	56

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
											CV mortality	19
Bao et al, 2019	China	2005–2008	181	Patients with PD	57.6 (15.4)	51.9	29.8	35.9	cfPWV	45.8 (27.7–90)	All-cause mortality	102
											CV mortality	42
Baumann et al, 2014	Germany	2008–2009	135	Patients with CKD stages 2–4	59.2 (15.1)	46	NR	47	cfPWV	42 (30–50)	All-cause mortality	13
Bekwelem et al, 2016	USA	1987–1989	724	Patients with AF aged 45-64 y	63.3 (5.8)	59.9	51.8	23.1	cIMT	102	Stroke	81
									CP			
Berezin et al, 2015	Ukraine	2010–2012	136	Patients with CAD and acutely decompensated chronic HF	57.9 (7.0)	45.6	46.3	36	CEPCs	25.44	All-cause mortality	23
									EMPs/EMVs			
Blair et al, 2014	USA	2000–2003	228	Patients with or without CVD	72.2 (10.0)	73.7	46.1	6.1	CACS	108	CV mortality	57
Bosevski et al, 2013	Macedonia	2005–2008	265	Patients with T2DM and CAD	60.3 (8.3)	NR	NR	100	cIMT	36	CV mortality	23
Budoff et al, 2019	International	1983–1989	1187	Patients with T1DM	42.8 (6.8)	52.8	NR	100	CACS	120–156	MACEs	51
Cardoso et al, 2013	Brazil	2004–2008	565	High-risk type 2 diabetic patients	60.4 (9.5)	37.7	86.2	100	cfPWV	69	All-cause mortality	72
Cardoso et al, 2018	Brazil	2004–2008	668	Adult patients with T2DM aged ≤80 y	60.0 (9.6)	39.1	86.5	100	ABI	120 (68.4–140.4)	CV mortality	92
											All-cause mortality	191
Cardoso et al, 2019a	Brazil	NR	891	Patients with resistant hypertension	68.7 (11.5)	28.5	100	41.1	cfPWV	93.6	CV mortality	91
											All-cause mortality	142
Cardoso et al, 2019b	Brazil	2004–2017	478	patients with essential hypertension aged ≤80 y	60.0 (9.1)	36	85.8	100	cIMT	120 (104–144)	CV mortality	56
											All-cause mortality	115
Careri et al, 2013	Italy	2008–2009	60	Patients with non-ST-segment elevation ACS	62 (8)	73.3	80	28	FMD	32	CV mortality	3
Carr et al, 2017	USA	1985–1986	3980	Population-based cohort aged 32-46 y	40.3 (3.6)	45.4	19.9	4.4	CACS	150	All-cause mortality	107

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Chan et al, 2020	UK	NR	135	Patients with non-ST-elevation ACS aged ≥65 y	80.8 (4.1)	65.2	68.1	22.2	LTL	12	All-cause mortality	6
											MI	12
											Stroke	2
Chang et al, 2015	USA	1995–2006	946	Patients at risk of CAD aged 40-65 y	57.5 (9.3)	75.3	49.6	9.6	CACS	82.8 (56.4–105.6)	MACEs	33
Chen et al, 2016a	USA	2003–2008	3627	Patients with CKD aged 21-74 y	58.1 (11.1)	45.4	85.6	46.1	ABI	90	All-cause mortality	712
											MACEs	922
											MI	276
Chen et al, 2016b	China	1994–2000	1398	Community-based cohort aged ≥35 y	55.9 (10.5)	43.9	27.9	15.6	CP	156	Stroke	57
Chen et al, 2017	USA	2003–2008	1541	Patients with mild to moderate CKD	57.2 (11.9)	52.6	84	41.9	CACS	70.8	MI	60
											All-cause mortality	137
Chen et al, 2020	China	2011–2018	233	Patients on PD aged ≥18 y	56.4 (16.1)	60.5	NR	23.6	CP	36.3 (21.3–55.6)	CV mortality	29
											All-cause mortality	68
Cheng et al, 2021	China	1994–2007	5349	Patients with T2DM	57.5 (13.3)	45.2	NR	100	LTL	160.8 (66)	All-cause mortality	1925
Chisalita et al, 2020	Sweden	2005–2008	741	Patients with T2DM aged 55-65 y	60.7 (3.1)	45.6	62.1	100	cIMT	108	All-cause mortality	85
									CP			
									cfPWV			
Chiu et al, 2016	UK	2012–2014	198	Patients on HD aged ≥18 y	64.2 (52.8–72.9)	68.7	NR	39.4	cfPWV	27.6 (17.3–32.7)	All-cause mortality	48
Cho et al, 2017	International	2003–2011	6656	Patients without known CAD	59 (13)	59.3	52.2	14.6	CACS	61.2 (46.8–70.8)	All-cause mortality	437
Commandeur et al, 2020	USA	NR	1912	Community-based cohort of asymptomatic subjects	55.8 (9.1)	58.4	38.9	5.4	CACS	174 (25)	MACEs	76
Cooper et al, 2021	USA	2002–2008	3865	Population-based cohort	55 (14)	47.9	NR	7.8	RHI	110.4	MI	78

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Córdoba-Lanús et al, 2021	Spain	NR	263	Smokers with COPD aged >40 y	63.7 (9.5)	73.8	NR	NR	LTL	72	All-cause mortality	87
Corrales et al, 2020	Spain	2012–2013	327	Patients with RA	58.3 (13.9)	18.3	NR	0	cIMT	60	All-cause mortality	23
									CP			
Dean et al, 2017	Bangladesh	NR	1505	Population-based cohorts	48.4 (9.6)	68.2	NR	NR	LTL	6+	All-cause mortality	744
Deelen et al, 2014	Netherlands	NR	3164	Long-lived siblings of European descent	68.6 †	43.3	NR	NR	LTL	91	All-cause mortality	857
Delgado et al, 2020	Germany	NR	1926	Patients with suspected myocardial ischemia	62.3	70.3	72.6	37.8	E-selectin	127.2	All-cause mortality	626
											CV mortality	391
Desbiens et al, 2022	Canada	2009–2010	17561	Population-based cohort aged 40-69 y	53 (48–61)	49	NR	8.9	AIx	121.2	MACEs	2315
Dimkovic et al, 2018	Serbia	NR	220	Patients on HD	58.9 (11.0)	53.6	86.4	11.8	cfPWV	76	CV mortality	108
Doherty et al, 2018	USA	1994–1997	788	Smokers aged 50-69 y with lung cancer	64.2 (5.6)	65.4	NR	NR	LTL	94.8 (58.8)	All-cause mortality	722
Eikendal et al, 2015	Netherlands	NR	3067	Population-based cohort aged 18-45 y	37 (32-42)	59.6	9.8	0.7	cIMT	103.2	MACEs	55
El Assar et al, 2021	Spain	2014–2017	869	Older residents aged ≥65 y in TSHA cohort	75.2	42.2	69	24.2	LTL	42	All-cause mortality	60
Engbers et al, 2016	Netherlands	2009–2013	4897	Patients with suspected CAD	61 (11)	42.8	61.1	13.3	CACS	31.3 (19.4–45.9)	MI	31
											All-cause mortality	140
Fazzini et al, 2020	Germany	NR	4926	Patients with moderate CKD	60.2 (11.9)	60.2	NR	35.9	LTL	48	All-cause mortality	333
											CV mortality	113
Fortier et al, 2015	Canada	2006–2012	310	Patients on maintenance PD/HD aged >18 y	67 (56–76)	60	91	43	cfPWV	29 (12–51)	All-cause mortality	146
Fortier et al, 2019	Canada	2006–2014	260	Adult patients with ESRD treated by dialysis	70 (57–77)	59.6	93.1	44	AIx	32 (16–63)	All-cause mortality	171
									cfPWV		CV mortality	88

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Fritze et al, 2020	Germany	2002–2006	2751	Population-based cohort aged 20-79 y	53.4 (15.0)	47.7	NR	11.6	cIMT	178.8 (153.6–198)	All-cause mortality	506
Geisel et al, 2017	Germany	2000–2003	3108	Population-based cohort aged 45–74 y	59.2 (7.7)	47.1	NR	11.5	ABI	123.3 (33.6)	MACEs	223
									CACS			
									cIMT			
Giannitsi et al, 2021	Greece	2012–2013	100	Adult patients with acute HF	70 (11)	78	85	37	AIx	6	All-cause mortality	9
									FMD			
									cfPWV			
Gitsioudis et al, 2015	Germany	2008–2013	521	Patients with suspected or known CAD	62 (10)	49	76	11	CACS	27.6 (13.3)	MACEs	13
Glei et al, 2015	China	2000	942	Participants aged ≥54 y	66.3 (8.0)	56.5	NR	NR	LTL	128.4	All-cause mortality	282
Gohbara et al, 2016	Japan	2012–2014	288	Patients with ACS	71 (9)	82.3	59	38.5	CAVI	15 (9–24)	Stroke	11
											MACEs	19
Golledge et al, 2020	Australia	2002–2019	1533	Patients with PAD	median age at 69-70	75.2	74.6	34.8	ABI	39.6 (12.0–85.2)	All-cause mortality	389
											MACEs	330
											MI	172
											Stroke	78
Green et al, 2017	UK	NR	123	Patients with CKD stage 3-5	63 (11)	NR	NR	NR	AIx	46.8 (26.4)	All-cause mortality	32
									EMPs/EMVs			
Gronewold et al, 2014a	Germany	2000–2003	4299	Population-based cohort aged 45-75 y	59.2 (7.7)	47.3	37.9	6.8	ABI	109.0 (23.3)	Stroke	104
Gronewold et al, 2014b	Germany	NR	3289	Population-based cohort aged 45-75 y	59.4 (7.7)	48.8	37.4	7.3	cIMT	108 (22.8)	Stroke	84
Guaricci et al, 2018	Italy	2004–2010	517	Asymptomatic individuals	64 (10)	63.4	NR	18	CACS	52.8 (40.8–61.2)	MACEs	53
									cIMT			
									CP			

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Guney et al, 2014	Turkey	NR	72	Hemodialysis patients	44 (12)	45.8	NR	8	CACS	77 (24)	All-cause mortality	16
Günther et al, 2018	Norway	2005–2008	133	Heart transplant adult patients	56 (11)	88	65.4	16.5	CACS	90 (31.2)	MI	3
											Stroke	4
Hammadah et al, 2017	USA	2011–2014	566	Patients with CAD	63 (9)	76	76	32	LTL	36.0 (28.8–44.4)	MACEs	36
Han et al, 2016	China	2007–2009	1472	Community-based cohort	57.5	41	NR	NR	cfPWV	57.6	MI	11
											CV mortality	25
											All-cause mortality	52
											MACEs	99
Hanna et al, 2018	USA	2004–2006	3026	Individuals with or at risk for HIV infection	median age at 40-50	43.1	NR	10.7	CP	124 (119–127); 114 (52–124) ‡	All-cause mortality	343
Hartaigh et al, 2016	USA	1996–1999	9715	Asymptomatic individuals	53.4 (10.5)	59.3	43.4	8.3	CACS	175.2 (13.2)	All-cause mortality	936
Hendriks et al, 2016	Netherlands	1996–	7542	Patients with prevalent CVD or a high risk for CVD aged 18-79 y	55.6 (12.4)	67	57	20	ABI	82.8 (44.4–122.4)	MI	292
											Stroke	216
											CV mortality	302
											All-cause mortality	680
											MACEs	694
Hermann et al, 2013	Germany	NR	4180	Population-based cohort aged 45-75 y	59.2 (7.7)	47.1	38.4	7.4	CACS	94.9 (19.4)	Stroke	92
Hernández et al, 2015	Spain	2007–2010	115	CKD patients who received deceased kidney transplant	47.9 (12.8)	70.4	93.9	20	cIMT	68 (57–73)	All-cause mortality	15
											CV mortality	8
Herraiz-Adillo et al, 2019	Spain	2014–2018	203	Subjects with cardiovascular risk factors	71.0 (13.2)	55.7	68.5	37.4	ABI	36.1 (10)	All-cause mortality	17
Hoffmann et al, 2016	USA	1998–2005	3217	Community-based cohort	50 (10)	49.1	42.9	5.3	CACS	96	MACEs	107
											All-cause mortality	152
Hsu et al, 2020	Japan		941		62 (14)	55.6	71.4	28.2	ABI		CV mortality	87

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
		2010–2012		Patients undergoing echocardiography						93 (86–101)	All-cause mortality	228
Huang et al, 2019	USA	1999–2002	7827	Population-based cohort aged ≥18 y	median age at 45-65	48.2	30.7	11.1	LTL	158.26 (44.71)	CV mortality	243
											All-cause mortality	1876
Hughes-Austin et al, 2016	USA	2000–2003	651	Community-based cohort	68 (11)	63	38.7	4.5	CACS	96	All-cause mortality	157
Huo et al, 2021	Germany	2010–2013	571	Patients with first-ever ischemic stroke	NR	NR	NR	NR	EMPs/EMVs	36	MACEs	95
Hyun et al, 2014	USA	1990–1994	469	Individuals with clinically suspected PAD	68 (9)	89	77	36	ABI	84	CV mortality	158
Jagt et al, 2022	Netherlands	1996–2018	6901	Patients with CVD	60.2	75.1	NR	16.5	ABI	99.6 (92.4)	All-cause mortality	1352
Janda et al, 2014	Poland	NR	53	Patients treated with PD	52 (12)	47.2	86.8	22.6	CACS	72	All-cause mortality	24
											CV mortality	19
Jazayeri et al, 2019	USA	1999–2002	4614	Population-based cohort	56 (12)	48.4	NR	15	ABI	123.6 (111.6–136.8)	All-cause mortality	964
											CV mortality	166
Jeevarethinam et al, 2018	UK	NR	259	Asymptomatic patients with T2DM	62 (8.5)	58.3	74.1	100	CP	22.8	MACEs	9
Ji et al, 2020	China	2006–2007	98348	Community-based cohort aged 18-98 y	51.8 (12.6)	79.9	44.4	17.3	baPWV	123.84 (25.68)	MACEs	6967
											All-cause mortality	9780
Jin et al, 2018	Canada	NR	576	Patients with COPD aged ≥40 y	66.0 (8.5)	55.4	NR	NR	LTL	42	All-cause mortality	29
Jung et al, 2013	Korea	2004–2006	1388	Population-based cohort aged ≥60 y	69.2 (5.4)	42.7	53.5	25.6	cIMT	62.4 (12.4)	CV mortality	23
									CP		All-cause mortality	71
Jung et al, 2022	Korea	2011–2016	1579	Patients with CKD aged 20-75 y	52.2 (12.1)	57.4	95.8	30	CACS	61.2	MACEs	46
											All-cause mortality	59

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Kachuri et al, 2019	Canada	2006–2013	823	Adult patients with lung cancer	67	52.1	NR	NR	LTL	60	All-cause mortality	438
Kang et al, 2016	Korea	2012–2013	192	Patients with first ischemic stroke aged >50 y	70.1 (8.9)	51.6	62.5	35.4	ABI	12	All-cause mortality	16
											Stroke	4
Kawai et al, 2013	Japan	1998–2004	440	Patients with essential hypertension	61.0 (0.6)	56.1	100	19.6	baPWV	75.6 (1.2)	Stroke	35
											All-cause mortality	26
Kim et al, 2014	Korea	2006–2011	1765	Patients with acute ischemic stroke	65.1 (12.1)	62.2	75.9	33.1	baPWV	39.96 (18.84)	All-cause mortality	228
Kirigaya et al, 2020	Japan	2012–2016	387	Patients with ACS	64 (11)	83.7	58.4	40.6	CAVI	62 (60–64)	CV mortality	15
									baPWV			
Kojima et al, 2014	Japan	2002–2003	2954	Community-based cohort aged ≥40 y	60.0 (11.3)	42.7	41.4	17	ABI	85.2	Stroke	85
Kokubo et al, 2018	Japan	1994–2001	4724	Participants without CVD	59.7 (11.9)	45.7	7.9	4.5	cIMT	152.4	Stroke	221
Koller et al, 2016	Austria	2008–2013	185	Patients with chronic HF	64.6 (56.3–71.1)	82.2	78.9	39.5	CEPCs	32.4 (21.6–55.2)	All-cause mortality	63
Koo et al, 2020	Korea	NR	149	Patients with T2DM and albuminuria	61.8 (9.2)	53	89.9	100	RHI	49.7	Stroke	2
Krishnamoorthy et al, 2013	Italy	NR	423	Patients with nonvalvular AF	72.7 (8.4)	55.6	85.5	19.4	E-selectin	19 (9–31)	MACEs	94
Lamarche et al, 2019	Canada	2005–2007	178	Patients with dialysis-naive CKD Stages 3–5	61 (14)	61.8	18	44.4	CACS	120	All-cause mortality	54
Lankinen et al, 2020	Finland	2013–2017	174	Patients with CKD stage 4-5	60.9 (13.7)	69	NR	43	cIMT	42 (17)	All-cause mortality	36
Lee et al, 2014	Korea	2007–2007	**143**	Nondiabetic ESRD patients who underwent PD	49.5 (11.2)	48.3	NR	0	FMD	42.4 (21.6)	Stroke	5
Leigh et al, 2019	USA	2000–2002	3356	Smokers without CVD	62.1 (9.9)	56.5	NR	11.5	CACS	133.2 (34.8)	MACEs	445

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Li et al, 2020	China	2010–2011	6507	Community-based cohort	57.3 (11.9)	61	48.5	5.4	CP	54 (8.4)	All-cause mortality	210
											MACEs	157
											Stroke	113
											MI	44
Li et al, 2021	China	2010–2015	18944	Community-based cohort	48.56 (12.32)	70.15	38.3	9	baPWV	57.8 (23.0)	MI	88
											Stroke	285
											MACEs	371
Li et al, 2022a	China	NR	19217	Community-based cohort with hypertension	61.0 (54.0–67.0)	36.2	97.4	7.4	baPWV	36	Stroke	660
Li et al, 2022b	China	2010–2011	4899	Community-based cohort aged ≥40 y	51.60 (14.08)	59.7	NR	NR	CP	68.16 (7.92)	MI	40
									baPWV		All-cause mortality	204
Limpijankit et al, 2021	Thailand	2007–2008	3630	Adult employees	57.4 (7.3)	73.2	38	13	CAVI	148.8 (7.2)	MACEs	227
Lin et al, 2021	China	NR	4883	Community-based cohort aged ≥20 y	56.1 (15.8)	48.2	28.3	9.9	baPWV	99.6 (86.4)	All-cause mortality	456
											CV mortality	146
Lu et al, 2016	China	2009–2014	154	Patients on maintenance HD	69.4 (15.5)	46.8	68.8	55.8	CEPCs	45.36 (16.92)	All-cause mortality	79
											CV mortality	41
Lu et al, 2018	China	NR	4251	Community-based cohort	52.1 (12.1)	45.9	47.7	6.5	baPWV	52.8 (51.6–55.2)	All-cause mortality	59
											CV mortality	21
											Stroke	48
Maeda et al, 2014	Japan	2001–2003	5794	Patients with diabetes	61 (53–69)	60	51	100	baPWV	38.4 (26.4)	All-cause mortality	NR
Mäkelä et al, 2018	International	2009–2011	249	Patients on maintenance PD aged ≥18 y	61 (14)	66.5	NR	52.4	ABI	46	All-cause mortality	90
Margaritis et al, 2017	UK	NR	290	Patients with AMI	63.0 (12.7)	85.2	61.4	27.5	LTL	12	All-cause mortality	30
											CV mortality	26
Marioni et al, 2016	UK	NR	1334	Population-based cohort	73	NR	NR	NR	LTL	72, 156 §	All-cause mortality	415
	Japan		462	Patients with CAD	63.8 (8.7)	85.7	93.7	38.5	FMD		MI	10

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Maruhashi et al, 2018		2010–2012							baPWV	49.2 (43.2–56.1)	Stroke	4
Matschkal et al, 2019	Germany	2010–2014	344	Patients with ESRD on HD treatment	69.3 (55.7-77.2)	68	18	39.2	baPWV	36	All-cause mortality	89
											CV mortality	35
Matsuzawa et al, 2013	Japan	2006–2011	528	Patients who underwent PCI	67.2 (10.7)	69.1	81.3	47	RHI	33.6 (20.4)	CV mortality	1
											Stroke	7
Matsuzawa et al, 2015	Sweden	2006–2008	343	Patients with suspected stable angina	61 (9)	38.8	NR	9.9	cIMT	63.6	MACEs	18
									RHI			
Mehta et al, 2020	USA	2000–2002	7042	Population-based cohort	56.8 (12.3)	45.7	NR	10.9	CACS	147.6	Stroke	241
Mehta et al, 2021	USA	2000–2002	2673	Asymptomatic individuals aged 45-84 y	57.8 (9.0)	36.4	NR	8.7	CP	193.2	Stroke	80
Meireles et al, 2018	Brazil	2009–2013	644	Patients with ACS	61	61.6	73.9	36	cIMT	36	All-cause mortality	65
Miguel et al, 2017	Brazil	2006–2007	478	Patients on maintenance HD aged 18-75 y	54 (18-75)	56	60.9	16.9	ABI	60	All-cause mortality	158
Milionis et al, 2013	Greece	2006–2007	653	Patients with ischaemic stroke aged 23-95 y	69	67.4	68.7	25.4	ABI	60	Stroke	63
											MACEs	100
											All-cause mortality	55
Miname et al, 2019	Brazil	NR	206	Patients with familial hypercholesterolemia	45 (14)	36.4	32.5	9.2	CACS	44.4 (32.4–81.6)	MI	5
											Stroke	1
Mirbolouk et al, 2020	USA	1991–2010	53478	Current smokers	54.4	66	30	6	CACS	143 (122–160)	All-cause mortality	337
											CV mortality	102
Mitchell et al, 2018	USA	1997–2009	23637	Adult subjects without ASCVD	50.0 (8.5)	70.8	26.9	5.5	CACS	11.4 (8.5–13.8)	MACEs	1258
											Stroke	772
											MI	484
											All-cause mortality	628
											CV mortality	144

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Miyoshi et al, 2021	Japan	2013–2014	2932	Individuals at risk for CVD aged 40-74 y	63.2 (8.0)	68.3	88.6	75.3	CAVI	58.8 (55.2–62.4)	All-cause mortality	64
											CV mortality	13
											Stroke	44
											MI	25
											MACEs	82
Mordi et al, 2016	UK	2008–2012	232	Patients with acute chest pain	54.1 (10.9)	42.2	41.4	7.3	CACS	30 (10.8)	MACEs	6
Mortensen et al, 2020	Denmark	2008–2017	23759	Patients with suspected CAD aged >18 y	57.4 (49.7–65.1)	44.6	45.7	8.5	CACS	51.6 (28.8–73.2)	MACEs	1054
Mukai et al, 2019	Sweden	2008–2017	261	Patients with CKD stage 5	56 (29–75)	65.5	21.1	20	AIx	25	CV mortality	21
											All-cause mortality	46
Mwasongwe et al, 2017	USA	2000–2004	2518	Community-based cohort aged ≥21 y	55.3 (12.4)	38.7	NR	22.3	LTL	108	Stroke	84
											All-cause mortality	285
											MACEs	79
Natsuaki et al, 2014	Japan	2001–2003	3981	Patients with diabetes	61.0 (11.8)	59.2	NR	100	ABI	36 (12–61.2)	All-cause mortality	264
											CV mortality	130
Naya et al, 2013	USA	2006–2010	901	Patients with suspected CAD	61.4 (53.6–69.7)	32	73.5	30.5	CACS	18.4 (9.2–29.3)	All-cause mortality	30
											MI	21
Ninomiya et al, 2013	Japan	2002–2003	2916	Community residents without history of CVD	60 (12)	42.7	41.1	16.8	baPWV	85.2	Stroke	82
Novo et al, 2013	Italy	1985–1991	529	Stable patients at high-risk for cardiovascular events	62 (12.79)	48.6	58.8	47.6	cIMT	240	MI	60
											Stroke	47
											CV mortality	43
Orimoloye et al, 2018	USA	1991–2010	42224	Adults without CVD	54.7 (10.6)	65	29.9	6.3	CACS	140.4	All-cause mortality	1953
											CV mortality	608
Osawa et al, 2020	Japan	2012–2019	309	Patients with lung cancer resected aged 40–79 y	67.4 (8.2)	60.8	47.9	19.4	CACS	52 (20–63)	All-cause mortality	35
											MACEs	43

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Østhus et al, 2017	Norway	1995–1997	915	Healthy participants aged ≥65 y	70.9 (4.8)	48.3	NR	NR	LTL	13.0 (3.2)	MI	82
Padfield et al, 2013	UK	NR	201	Patients with suspected stable angina or ACS	61 (11)	83.6	52.2	14.9	CEPCs	89 (80.8–95.4)	All-cause mortality	6
											MI	15
Papa et al, 2013	Brazil	NR	100	Patients with CAD aged >65 y	77.4 (6.7)	43	97	39	ABI	28.9 (6.6)	All-cause mortality	11
											MI	13
											MACEs	17
											Stroke	3
Papaioannou et al, 2014	France	2000–2001	279	Patients with history of CVD aged >70 y	85.4 (7.0)	25.8	76	20.1	AIx	12.8 (6.3)	All-cause mortality	94
									cfPWV			
Park et al, 2013	Korea	2000–2007	1390	Patients with CAD	59.5 (10.6)	54.5	49.9	23.7	cIMT	50.4 (19)	All-cause mortality	22
											CV mortality	19
											MACEs	70
											MI	19
											Stroke	38
Park et al, 2017a	Korea	2013–2015	411	Patients with non-ST-elevation MI	63.8 (13.5)	75.2	40.6	21.9	baPWV	11.7	Stroke	1
Park et al, 2017b	Korea	2000–2007	1342	Patients with CAD	59.7 (10.5)	54.2	51.3	24.4	cIMT	87 (69–109)	MACEs	192
									CP		All-cause mortality	116
Park et al, 2020	Korea	2013–2015	889	Patients with acute MI	65.0 (13.0)	72.2	45.2	27.1	baPWV	11.6	MI	15
											CV mortality	26
Parma et al, 2016	Poland	NR	588	Patients with suspected CAD	61.1 (9.7)	36.1	76.2	15.3	CACS	23.6 (19.6–27.5)	CV mortality	1
											MI	14
Patel et al, 2015	USA	2006–2008	905	Patients with suspected or established CAD aged 20-90 y	62.7	64.9	80.6	31.9	CEPCs	24	All-cause mortality	71
											CV mortality	64
											MACEs	92
Pavanello et al, 2021	Italy	2013–2019	613	Community-based cohort aged >70 y	84.0 (8.0)	46	60.03	16.5	LTL	120	All-cause mortality	NR

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Peláez et al, 2015	Spain	NR	72	Nursing home residents	84.7	22.2	NR	NR	ABI	20	All-cause mortality	11
Pelliccia et al, 2013	Italy	2005–2006	155	Patients with stable angina treated with PCI	61 (10)	59.4	47.1	14.2	CEPCs	51 (10)	All-cause mortality	16
Pereira et al, 2013	Portugal	NR	1133	Patients with hypertension	51.1 (12.6)	52	100	12	cfPWV	24	Stroke	23
Pletsch-Borba et al, 2020	Germany	1994–1998	335	Patients with stroke	57.5 (35.4-65.4)	64.8	57.6	12.5	E-selectin	74.4	Stroke	335
Polak et al, 2013	USA	2000–2002	6562	Population-based cohort aged 45-84 y	61.1 (10.2)	47.4	NR	13.9	cIMT	93.6	Stroke	139
									CP			
Potier et al, 2015	International	2003–2004	6986	Population-based cohort aged 45-74 y	62.9 (7.7)	45.7	39	14.3	ABI	48	All-cause mortality	695
											CV mortality	452
Premaratne et al, 2017	Canada	NR	453	Patients who underwent cardiac CT	66.9 (9.5)	69.1	70.6	27.8	CACS	36	MACEs	62
Pusceddu et al, 2018	Germany	1997–2000	3316	Patients undergoing coronary angiography	62.7 (10.6)	NR	NR	NR	LTL	118.8 (102–128.4)	CV mortality	NR
											All-cause mortality	995
Radford et al, 2016	USA	1970	5933	Participants free of CVD	53.1 (9.5)	74.5	NR	NR	CACS	87.6	MACEs	55
Rantasalo et al, 2022	Finland	2012–2013	226	Patients with PAD	71.6 (9.7)	56.6	73.9	35	ABI	60	All-cause mortality	121
Regnault et al, 2014	France	NR	306	Patients with AMI and heart failure	61 (11)	73.5	59.8	28.4	cfPWV	16	All-cause mortality	28
											CV mortality	26
Rode et al, 2015	Denmark	1991–2009	64637	Population-based cohort	median age at 56-58	44	NR	NR	LTL	84	All-cause mortality	7607
											CV mortality	2633
Romaine et al, 2022	UK	2010–2014	3673	Patients with HF	71.0 (11.7)	70.4	61.5	33.2	LTL	22.2	All-cause mortality	1057
											CV mortality	677
Roumeliotis et al, 2019	Greece	NR	142	Patients with T2DM and CKD	68 (9)	54.2	89.4	100	cIMT	84	All-cause mortality	44
Ryliškytė et al, 2019	Lithuania	2009–2011	2728	Metabolic syndrome subjects	53.9 (6.2)	36.9	96.2	NR	AIx	46.8 (20.4)	MACEs	83
									cIMT		MI	49

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
									FMD		Stroke	34
									cfPWV			
Saito et al, 2019	Japan	2014–2016	195	Patients who underwent cardiovascular surgery	70.1 (10.8)	66	71	23	RHI	20	CV mortality	7
											Stroke	5
Saji et al, 2017	Japan	2003–2010	156	Patients with a first-ever ischemic stroke due to acute lacunar infarction	69.2 (11.3)	60.9	86.5	32.1	baPWV	70.8	All-cause mortality	28
											Stroke	29
Samara et al, 2022	Greece	2006–2010	552	Patients with first-ever acute stroke	66.1 (10.4)	70.7	69.7	25.7	cfPWV	68.4 (41.4)	All-cause mortality	74
Samavat et al, 2021	Singapore	1993–1998	28125	Population-based cohort aged 45-74 y	62.9 (7.7)	45.7	39	14.3	LTL	158.4	All-cause mortality	7609
Samba et al, 2019	Congo	NR	927	Populaiton-based cohort aged ≥65 y	73.8 (6.8)	38.6	68.1	11	ABI	24	All-cause mortality	83
Sanchez et al, 2022	International	1994–1995	260	Patients with T1DM	45 (12)	60	NR	100	LTL	144 (84)	All-cause mortality	103
Sarafidis et al, 2017	Greece	NR	170	Patients with ESRD aged ≥18 y	63.8 (14.3)	59.4	82.9	31.8	AIx	28.1 (11.2)	MACEs	48
Sartipy et al, 2018	Sweden	2004–2005	4940	Population-based cohort aged 60-90 y	71.0 (7.9)	45.5	37	10.4	ABI	120	All-cause mortality	1401
											CV mortality	469
											MI	122
											Stroke	127
Sato et al, 2021	Japan	2010–2019	557	Patients with decompensated HF	median age at 65.5-73	63.9	71.5	40.8	CAVI	47.2	Stroke	25
Savic-Radojevic et al, 2013	Serbia	2008–2009	120	Patients with chronic HF	59.1 (5.9)	61.7	NR	NR	FMD	13.1	All-cause mortality	NR
Schnabel et al, 2022	Germany	2007–2012	15010	Population-based cohort aged 35-74 y	55 (46–65)	50.5	49.8	9.3	FMD	108	All-cause mortality	992
									RHI		CV mortality	106
	UK		472432		56.5 (8.1)	45.8	NR	NR	LTL	144 (24)	CV mortality	6636

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Schneider et al, 2022		2006–2010		Community-based cohort aged 37-73 y							All-cause mortality	32491
Sedaghat et al, 2018	International	1990–	4887	Population-based and hospital-based cohorts	67.4 (9.1)	46.3	17.2	13.5	Carotid diameter	61.2–126 ||	Stroke	379
											All-cause mortality	1606
Shah et al, 2014	International	2005–2009	7200	Adult patients with nonobstructive CAD	median age at 50-59	52.6	48.4	11.9	CACS	25.2 (18–38.4)	All-cause mortality	76
Shalaeva et al, 2022	Uzbekistan	NR	199	Patients with T2DM and non-critical PAD	62.3 (7.2)	62.8	NR	100	CACS	12	All-cause mortality	35
Shechter et al, 2014	Israel	NR	618	Healthy subjects without heart disease	54 (11)	62.6	30.9	NR	FMD	55.2 (21.6)	MI	6
											Stroke	5
											MACEs	18
Sheng et al, 2014	China	2006–2011	3876	Community-based cohort aged ≥60 y	68.1 (7.3)	44.2	59.2	8.7	baPWV	70.8 (38.4–82.8)	All-cause mortality	316
											CV mortality	148
Shimoda et al, 2020	Japan	1996–2004	2943	Population-based cohort aged 40-75 y	65.1 (6.2)	75.6	NR	9	cIMT	181.2	Stroke	186
									CP			
Simonetto et al, 2020	Germany	1999–2001	2580	Population-based cohort aged 25-74 y	55.1 (12.9)	48	37	NR	cIMT	76.2	MACEs	153
Sirimarco et al, 2013	International	NR	23364	Patients with ≥3 risk factors for atherosclerosis or established CVD	68.5 (10.0)	64.6	82.4	41.6	CP	48	CV mortality	1406
											MI	1097
Skau et al, 2020	Sweden	2006–2011	436	Patients with PAD	70.1 (7.2)	58.9	77.6	25	E-selectin	123.6	All-cause mortality	195
Song et al, 2016	China	2008–2013	3310	Patients with hypertension aged 45-75 y	59.6 (7.5)	44	100	NR	baPWV	54	Stroke	111
Song et al, 2022	China	NR	6865	Patient with essential hypertension aged 60-80 y	66.14 (4.75)	46.45	100	19.6	baPWV	32.28 (8.04)	All-cause mortality	81
											Stroke	89
Su et al, 2022	China	2010–2012	1076	patient with normal ABI (1<ABI<1.4)	60.4 (13.2)	56	68.6	26.1	baPWV	95 (87–101)	CV mortality	88
											All-cause mortality	244

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Suwannasom et al, 2022	Thailand	2011–2014	4332	Patients aged ≥45 years with ASCVD or multiple risk factors	65.5 (9.6)	43	93.6	75.3	ABI	36	CV mortality	23
											MI	18
											Stroke	32
											MACEs	71
Tabata et al, 2016	Japan	2009–2012	434	Patients who underwent PCI	69.0 (10.3)	70.3	73.5	47.9	RHI	30.9 (30.8)	MI	4
											CV mortality	4
Takashima et al, 2014	Japan	2002–2009	4164	Population-based cohort aged ≥20 y	58.9 (13.0)	37.2	NR	NR	baPWV	78	Stroke	29
											MACEs	40
											MI	11
Thompson et al, 2015	USA	NR	374	Participants aged ≥60 y	73 (68–78)	40	50	NR	cIMT	132	All-cause mortality	93
Timoteo et al, 2019	Portugal	2008–2010	296	Individuals with high cardiovascular risk	65 (9)	54.7	NR	21.6	cIMT	82.8 (26.4)	All-cause mortality	30
											CV mortality	11
Tokitsu et al, 2018	Japan	2007–2013	502	Patients with HFpEF	71.8 (9.4)	56.2	78.8	40.5	baPWV	33.9	CV mortality	6
											Stroke	9
Tougaard et al, 2020	Denmark	2009–2011	633	Adult patients with T1DM	54 (13)	55	71.4	100	cfPWV	74.4 (69.6–80.4)	All-cause mortality	48
Tripepi et al, 2018	France	1996–1998	287	Patients on HD	53 (16)	61	55	10	cfPWV	24	All-cause mortality	77
											CV mortality	55
Tynjala et al, 2020	Finland	NR	906	Patients with T1DM aged >18 y	43.2 (12.2)	45.9	NR	100	AIx	98.4 (68.4–116.4)	All-cause mortality	67
											CV mortality	36
Valenti et al, 2015	USA	NR	9715	Asymptomatic individuals	53.4 (10.5)	59.3	43.4	8.3	CACS	175.2	All-cause mortality	936
Van Sloten et al, 2014	Netherlands	NR	579	Population-based cohort	69.7 (6.5)	53.9	61.8	21.2	AIx	91.2 (2.4–106.8)	All-cause mortality	96
									cfPWV			
Velescu et al, 2017	Spain	2003–2006	5679	Community-based cohort aged 35-79 y	55.6 (12.1)	46.1	43.5	13.9	ABI	74.4 (67.4–82.9)	CV mortality	59
											All-cause mortality	294
											Stroke	85

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Villines et al, 2017	USA	2000–2004	3801	Population-based cohort aged 21-94 y	54.2 (11.5)	35.2	46.7	16.9	cIMT	108	MACEs	171
Violi et al, 2016	Italy	2010–2012	2027	Patients with AF aged >18 y	73 (10)	54.4	82	23	ABI	34.7 (22.0–36.0)	CV mortality	70
											MI	56
von Scholten et al, 2015	Denmark	2007–2008	200	Patients with T2DM	60 (54–65)	76	NR	100	CACS	76.8	All-cause mortality	26
von Scholten et al, 2016	Denmark	2007–2008	200	Patients with T2DM and microalbuminuria	59 (9)	76	NR	100	E-selectin	73.2 (34.8–85.2)	All-cause mortality	26
Vriz et al, 2021	Italy	2011–2019	133	Patients with moderate to severe isolated AS	75.4 (8.6)	48.9	83.5	20.3	AIx	51.6 (39.4)	All-cause mortality	45
Wang et al, 2017	International	NR	536	Patients with acute leukemia	41	52.1	NR	NR	LTL	61.2 (4.8–99.6)	All-cause mortality	256
Wang et al, 2021	China	2010–2014	15297	Community-based cohort free of stroke or MI	50.0 (12.1)	61.93	NR	32.7	baPWV	70.56	Stroke	324
Watanabe et al, 2021	Japan	2010–2019	223	Patients with decompensated HF	NR	79.8	73.1	42.3	CAVI	135.3	All-cause mortality	39
Wei et al, 2022	Belgium	2005–2010	669	Family-based population	50.2 (15.6)	48.9	40.1	3.7	cfPWV	110.4	All-cause mortality	36
											CV mortality	10
											Stroke	13
Williams et al, 2014	USA	NR	672	Patients with COPD aged 40–75 y	63.2 (7.0)	63	41	10	CACS	36	All-cause mortality	63
Wu et al, 2014	China	2010–2011	130	Patients undergoing PCI for dysfunctional vascular access	66 (13)	36.2	58.5	36.9	CEPCs	12	All-cause mortality	6
											CV mortality	3
Xie et al, 2016	China	2006–2010	179	Patients with PD aged ≥18 y	63.5 (14.8)	48	2.2	38	CACS	30.6 (16.2)	All-cause mortality	70
											CV mortality	25
Xu et al, 2015	China	2012	59	Adult patients on PD	52.8 (14.3)	52.5	NR	NR	cfPWV	21.2 (4.9)	All-cause mortality	4
	Japan		1458		84.4 (5.0)	29.8	78.9	26.3	ABI	24	All-cause mortality	148

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
Yamawaki et al, 2018		2013–2016		Patients with severe aortic stenosis after replacement							CV mortality	59
Yang et al, 2017	USA	2006–2015	593	Patients with known or suspected CAD	61 (14)	58	56.5	21.2	CEPCs	40 (24–60)	All-cause mortality	45
Yang et al, 2020	China	2007	2956	Community-based cohort aged ≥30 y	55.6 (12.1)	46.4	26.8	10.4	CP	112.9	All-cause mortality	242
Ye et al, 2013	Canada	1995–1995	1917	Population-based cohort aged ≥18 y	46.6 (18.4)	49	NR	3.7	LTL	104.4	All-cause mortality	181
											CV mortality	23
Yeboah et al, 2014a	USA	2000–2002	5745	Individuals without known CVD aged 45-84 y	62.1 (10.2)	46.1	NR	0	CACS	90	All-cause mortality	321
Yeboah et al, 2014b	International	2000–2003	1343	Patients with T2DM but without clinical CVD	63 (9)	56	NR	100	ABI	102	MI	85
									CACS			
									cIMT			
Yokoyama et al, 2014	Japan	2001–2011	3004	Patients aged ≥20 y	59.2 (11.2)	35.1	48.2	86.5	ABI	52.8	All-cause mortality	93
Yoshitomi et al, 2014	Japan	2005–2012	320	Patients with CKD stages 3–5	72 (62–78)	68	94	51	ABI	30 (19–46)	CV mortality	20
											All-cause mortality	48
Zhan et al, 2018	Sweden	1992–1996	366	Twins	79.1	31.4	NR	NR	LTL	122.4	All-cause mortality	341
Zhang et al, 2013	China	NR	1662	Patients with stroke	60.3 (9.3)	63	62.7	12.2	LTL	54 (1.2–72)	Stroke	338
											All-cause mortality	312
Zhang et al, 2022	China	2014–2018	291	Patients with paroxysmal AF	66.34 (12.11)	67.7	35.4	32.6	FMD	33 (3.7)	MI	11
											CV mortality	6
											Stroke	24
Zhou et al, 2022	China	2017–2019	4207	Patients with stable chest pain	57.4 (9.5)	53	42.6	13.8	CACS	17 (12–22)	MACEs	82
											CV mortality	13
											MI	69
Zobel et al, 2017	Denmark		200		59 (9)	75.5	NR	100	ABI		All-cause mortality	26

Study	Region	Years of baseline	No. of participants	Type of population	Age*, year	Male (%)	Hyper-tension (%)	Diabetes (%)	Biomarker	Follow-up duration*, month	Outcome	No. of events
		2007–2008		Patients with T2DM and microalbuminuria.					cIMT	73.2 (70.8–79.2)		

***** Mean (SD) or median (IQR). † Including nonagenarians (n=870) and offspring + spouses (n=2294), and their mean ages were 93.3 (2.6) and 59.2 (6.8), respectively. ‡ The follow-up periods were 124 (119–127) for women and 114 (52–124) for men. § 156 months for LBC1921 and 72 months for LBC1936. || Including five cohorts: 126 (RS–I); 114 (RS–II); 66 (NEPHROTESTStudy); 92.4 (HoornStudy); 61.2 (Blacher). NR = not reported.

Supplementary Table 2. Quality assessment of included studies by Newcastle-Ottawa Scale (NOS)

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Abe et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Aiumtrakul et al, 2022a	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Aiumtrakul et al, 2022b	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Akintoye et al, 2021	☆	☆	☆	☆	-	-	☆	☆	☆	7
Aljizeeri et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Al-Kindi et al, 2022	☆	☆	☆	☆	-	-	☆	☆	☆	7
Alzamora et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Antonopoulos et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Antwi et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Arbeev et al, 2020	☆	☆	☆	☆	-	-	☆	☆	☆	7
Avramovski et al, 2014	☆	☆	☆	☆	-	-	☆	☆	-	6
Ban et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Bao et al, 2019	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Baumann et al, 2014	☆	☆	☆	☆	-	-	☆	☆	☆	7
Bekwelem et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Berezin et al, 2015	☆	☆	☆	☆	-	-	☆	☆	-	6
Blair et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Bosevski et al, 2013	☆	☆	☆	☆	-	-	☆	☆	☆	7
Budoff et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Cardoso et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Cardoso et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Cardoso et al, 2019a	☆	☆	☆	☆	☆	☆	☆	☆	-	8

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Cardoso et al, 2019b	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Careri et al, 2013	☆	☆	☆	☆	-	-	☆	☆	-	6
Carr et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Chan et al, 2020	☆	☆	☆	☆	-	-	☆	☆	☆	7
Chang et al, 2015	☆	☆	☆	☆	-	-	☆	☆	☆	7
Chen et al, 2016a	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Chen et al, 2016b	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Chen et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Chen et al, 2020	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Cheng et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Chisalita et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Chiu et al, 2016	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Cho et al, 2017	☆	☆	☆	☆	-	-	☆	☆	☆	7
Commandeur et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Cooper et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Córdoba-Lanús et al, 2021	☆	☆	☆	☆	☆	-	☆	☆	-	7
Corrales et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Dean et al, 2017	☆	☆	☆	☆	-	-	☆	☆	-	6
Deelen et al, 2014	☆	☆	☆	☆	-	-	☆	☆	-	6
Delgado et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Desbiens et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Dimkovic et al, 2018	☆	☆	☆	☆	-	-	☆	☆	☆	7
Doherty et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Eikendal et al, 2015	☆	☆	☆	☆	☆	☆	☆	☆	☆	9

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
El Assar et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Engbers et al, 2016	☆	☆	☆	☆	-	-	☆	☆	-	6
Fazzini et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Fortier et al, 2015	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Fortier et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Fritze et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Geisel et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Giannitsi et al, 2021	☆	☆	☆	☆	-	-	☆	☆	☆	7
Gitsioudis et al, 2015	☆	☆	☆	☆	-	-	☆	☆	☆	7
Glei et al, 2015	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Gohbara et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Golledge et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Green et al, 2017	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Gronewold et al, 2014a	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Gronewold et al, 2014b	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Guaricci et al, 2018	☆	☆	☆	☆	-	-	☆	☆	☆	7
Guney et al, 2014	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Günther et al, 2018	☆	☆	☆	☆	-	-	☆	☆	☆	7
Hammadah et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Han et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Hanna et al, 2018	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Hartaigh et al, 2016	☆	☆	☆	☆	-	☆	☆	☆	-	7
Hendriks et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Hermann et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	-	8

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Hernández et al, 2015	☆	☆	☆	☆	-	-	☆	☆	-	6
Herraiz-Adillo et al, 2019	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Hoffmann et al, 2016	☆	☆	☆	☆	-	-	☆	☆	☆	7
Hsu et al, 2020	☆	☆	☆	☆	☆	-	☆	☆	-	7
Huang et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Hughes-Austin et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Huo et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Hyun et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Jagt et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Janda et al, 2014	☆	☆	☆	☆	☆	-	☆	☆	-	7
Jazayeri et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Jeevarethinam et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Ji et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Jin et al, 2018	☆	☆	☆	☆	-	-	☆	☆	☆	7
Jung et al, 2013	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Jung et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Kachuri et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Kang et al, 2016	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Kawai et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Kim et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Kirigaya et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Kojima et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Kokubo et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Koller et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	-	8

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Koo et al, 2020	☆	☆	☆	☆	-	-	☆	☆	-	6
Krishnamoorthy et al, 2013	☆	☆	☆	-	☆	☆	-	☆	☆	7
Lamarche et al, 2019	☆	☆	☆	☆	-	-	☆	☆	☆	7
Lankinen et al, 2020	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Lee et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Leigh et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Li et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Li et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Li et al, 2022a	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Li et al, 2022b	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Limpijankit et al, 2021	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Lin et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Lu et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Lu et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Maeda et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Mäkelä et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Margaritis et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Marioni et al, 2016	☆	☆	☆	☆	-	-	☆	☆	-	6
Maruhashi et al, 2018	☆	☆	☆	☆	-	-	☆	☆	☆	7
Matschkal et al, 2019	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Matsuzawa et al, 2013	☆	☆	☆	☆	-	-	☆	☆	-	6
Matsuzawa et al, 2015	☆	☆	☆	☆	-	-	☆	☆	☆	7
Mehta et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Mehta et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Meireles et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Miguel et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Milionis et al, 2013	☆	☆	☆	-	☆	☆	☆	☆	☆	8
Miname et al, 2019	☆	☆	☆	☆	-	-	☆	☆	☆	7
Mirbolouk et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Mitchell et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Miyoshi et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Mordi et al, 2016	☆	☆	☆	☆	-	-	☆	☆	☆	7
Mortensen et al, 2020	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Mukai et al, 2019	☆	☆	☆	☆	-	-	☆	☆	☆	7
Mwasongwe et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Natsuaki et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Naya et al, 2013	☆	☆	☆	☆	-	-	☆	☆	☆	7
Ninomiya et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Novo et al, 2013	☆	☆	☆	☆	-	-	☆	☆	-	6
Orimoloye et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Osawa et al, 2020	☆	☆	☆	☆	☆	-	☆	☆	-	7
Østhus et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Padfield et al, 2013	☆	☆	☆	-	-	-	☆	☆	☆	6
Papa et al, 2013	☆	☆	☆	☆	-	☆	☆	☆	☆	8
Papaioannou et al, 2014	☆	☆	☆	☆	-	-	☆	☆	☆	7
Park et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Park et al, 2017a	☆	☆	☆	☆	-	-	☆	☆	☆	7
Park et al, 2017b	☆	☆	☆	☆	☆	☆	☆	☆	☆	9

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Park et al, 2020	☆	☆	☆	☆	-	-	☆	☆	-	6
Parma et al, 2016	☆	☆	☆	☆	-	-	☆	☆	☆	7
Patel et al, 2015	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Pavanello et al, 2021	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Peláez et al, 2015	☆	☆	☆	☆	-	-	☆	☆	☆	7
Pelliccia et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Pereira et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Pletsch-Borba et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Polak et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Potier et al, 2015	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Premaratne et al, 2017	☆	☆	☆	☆	-	-	☆	☆	☆	7
Pusceddu et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Radford et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Rantasalo et al, 2022	☆	☆	☆	☆	-	☆	☆	☆	☆	8
Regnault et al, 2014	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Rode et al, 2015	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Romaine et al, 2022	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Roumeliotis et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Ryliškytė et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Saito et al, 2019	☆	☆	☆	☆	-	-	☆	☆	☆	7
Saji et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Samara et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Samavat et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Samba et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Sanchez et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Sarafidis et al, 2017	☆	☆	☆	☆	☆	-	☆	☆	-	7
Sartipy et al, 2018	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Sato et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Savic-Radojevic et al, 2013	☆	☆	☆	☆	-	-	☆	☆	☆	7
Schnabel et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Schneider et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Sedaghat et al, 2018	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Shah et al, 2014	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Shalaeva et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Shechter et al, 2014	☆	☆	☆	☆	-	-	☆	☆	☆	7
Sheng et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Shimoda et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Simonetto et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Sirimarco et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Skau et al, 2020	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Song et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Song et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Su et al, 2022	☆	☆	☆	☆	☆	-	☆	☆	-	7
Suwannasom et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Tabata et al, 2016	☆	☆	☆	☆	☆	-	☆	☆	-	7
Takashima et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Thompson et al, 2015	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Timoteo et al, 2019	☆	☆	☆	☆	☆	☆	☆	☆	☆	9

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Tokitsu et al, 2018	☆	☆	☆	☆	-	-	☆	☆	☆	7
Tougaard et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Tripepi et al, 2018	☆	☆	☆	☆	-	-	☆	☆	☆	7
Tynjala et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Valenti et al, 2015	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Van Sloten et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Velescu et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Villines et al, 2017	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Violi et al, 2016	☆	☆	☆	☆	-	☆	☆	☆	☆	8
von Scholten et al, 2015	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
von Scholten et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Vriz et al, 2021	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Wang et al, 2017	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Wang et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Watanabe et al, 2021	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Wei et al, 2022	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Williams et al, 2014	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Wu et al, 2014	☆	☆	☆	☆	☆	-	☆	☆	☆	8
Xie et al, 2016	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Xu et al, 2015	☆	☆	☆	☆	-	-	☆	☆	-	6
Yamawaki et al, 2018	☆	☆	☆	☆	-	☆	☆	☆	☆	8
Yang et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Yang et al, 2020	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Ye et al, 2013	☆	☆	☆	☆	☆	☆	☆	☆	☆	9

Study (First author, Year)	Selection				Comparability		Outcomes			Total NOS Score
	Representativeness	Non-Exposed: Selection	Exposure: Ascertainment	Outcomes Not Present at Entry	Controls for: age	Control for: Sex, and other Cardiovascular risks	Assessment	Follow-up Long Enough	Adequacy of Follow-up	
Yeboah et al, 2014a	☆	☆	☆	☆	☆	☆	☆	☆	☆	9
Yeboah et al, 2014b	☆	☆	☆	☆	-	-	☆	☆	☆	7
Yokoyama et al, 2014	☆	☆	☆	☆	☆	☆	☆	☆	-	8
Yoshitomi et al, 2014	☆	☆	☆	☆	☆	-	☆	☆	-	7
Zhan et al, 2018	☆	☆	☆	☆	-	-	☆	☆	☆	7
Zhang et al, 2013	☆	☆	☆	-	-	-	☆	☆	☆	6
Zhang et al, 2022	☆	☆	☆	☆	-	-	☆	☆	☆	7
Zhou et al, 2022	☆	☆	☆	☆	-	-	☆	☆	☆	7
Zobel et al, 2017	☆	☆	☆	☆	☆	☆	☆	☆	☆	9

Supplementary Table 3. Excluded articles at full-text screening stage with rationale

Exclusion reason	Title	Source
No applicable data	Coronary calcium score predicts cardiovascular mortality in diabetes: Diabetes heart study	Agarwal et al, 2013
No applicable data	Predictive value of abnormal and borderline ankle-brachial index for coronary re-intervention and mortality in patients with coronary artery disease: An observational cohort study	Ahn et al, 2020
No applicable data	Traditional cardiovascular disease risk factors associated with one-year all-cause mortality among those with coronary artery calcium scores >=400	Al Rifai et al, 2015
No applicable data	Low ankle-brachial index predicts new vascular events and functional outcome after 1 year in patients with non-cardioembolic stroke: Our experience and review	Alvarez-Sabín et al, 2014
No applicable data	Low, borderline and normal ankle-brachial index as a predictor of incidents outcomes in the Mediterranean based-population ARTPER cohort after 9 years follow-up	Alzamora et al, 2019
No applicable data	Risk Factors for Mortality Among Individuals With Peripheral Arterial Disease	Amrock et al, 2017
No applicable data	Prevalence, impact, and predictive value of detecting subclinical coronary and carotid atherosclerosis in asymptomatic adults: The bioimage study	Baber et al, 2015
No applicable data	Prognostic value of coronary artery calcium in the PROMISE study (Prospective Multicenter Imaging Study for Evaluation of Chest Pain)	Budoff et al, 2017
No applicable data	Long-term all-cause mortality among asymptomatic individuals with 80th percentile of coronary calcium score based on age and gender in the St. Francis Heart Study	Chen et al, 2021
No applicable data	Incremental prognostic utility of coronary CT angiography for asymptomatic patients based upon extent and severity of coronary artery calcium: results from the COronary CT Angiography EvaluatioN For Clinical Outcomes InteRnational Multicenter (CONFIRM) study	Cho et al, 2015
No applicable data	Prognostic value of coronary computed tomographic angiography findings in asymptomatic individuals: a 6-year follow-up from the prospective multicentre international CONFIRM study	Cho et al, 2018
No applicable data	The prognostic value of automated coronary calcium derived by a deep learning approach on non-ECG gated CT images from 82Rb-PET/CT myocardial perfusion imaging	Dekker et al, 2021
No applicable data	The effect of previous strokes on the relationship between ankle-brachial index determinations and incident strokes: A population-based, longitudinal prospective study in older adults	Del Brutto et al, 2022
No applicable data	Incremental prognostic value of coronary artery calcium score for predicting all-cause mortality after transcatheter aortic valve replacement	Eberhard et al, 2021
No applicable data	Scoring of medial arterial calcification predicts cardiovascular events and mortality after kidney transplantation	Erlandsson et al, 2022

Exclusion reason	Title	Source
No applicable data	Inverse J-shaped relation between coronary arterial calcium density and mortality in advanced chronic kidney disease	H et al, 2020
No applicable data	Prognostic significance of subtle coronary calcification in patients with zero coronary artery calcium score: From the CONFIRM registry	Han et al, 2020
No applicable data	Usefulness of Ankle-Brachial Index Calculated Using Diastolic Blood Pressure and Mean Arterial Pressure in Predicting Overall and Cardiovascular Mortality in Hemodialysis Patients	Hsu et al, 2021
No applicable data	Short-Term Prognostic Impact of Arterial Stiffness in Older Adults Without Prevalent Cardiovascular Disease	Kim et al, 2019
No applicable data	Arterial stiffness is an independent predictor for risk of mortality in patients with type 2 diabetes mellitus: the REBOUND study	Kim et al, 2020
No applicable data	Coronary calcium scoring for long-term mortality prediction in patients with and without a family history of coronary disease	Knapper et al, 2016
No applicable data	Asymptomatic cerebral infarction is a predictor of long-term survival and vascular or limb events in peripheral arterial disease	Kumakura et al, 2019
No applicable data	Prevalence and clinical implications of newly revealed, asymptomatic abnormal ankle-brachial index in patients with significant coronary artery disease	Lee et al, 2013
No applicable data	Borderline ankle-brachial index is associated with poor short-term clinical outcome after coronary artery intervention	Lee et al, 2016
No applicable data	Long-Term (7-Year) Clinical Implications of Newly Unveiled Asymptomatic Abnormal Ankle-Brachial Index in Patients With Coronary Artery Disease	Lee et al, 2021
No applicable data	Individual and joint effects of borderline ankle-brachial index and high plasma total homocysteine on all-cause death in hypertensive adults	Li et al, 2022
No applicable data	Age-Related Differences in the Noninvasive Evaluation for Possible Coronary Artery Disease: Insights from the Prospective Multicenter Imaging Study for Evaluation of Chest Pain (PROMISE) Trial	Lowenstern et al, 2020
No applicable data	Subclinical atherosclerosis measures for cardiovascular prediction in CKD	Matsushita et al, 2015

Exclusion reason	Title	Source
No applicable data	Evaluation of Risk Factors for Limb-Specific Peripheral Vascular Events in Patients With Peripheral Artery Disease: A Post Hoc Analysis of the SEASON Prospective Observational Study	Miyata et al, 2019
No applicable data	Long-Term Prognostic Value of Coronary Computed Tomography Angiography in an Asymptomatic Elderly Population	Moon et al, 2019
No applicable data	Mortality rates at 10 years are higher in diabetic than in non-diabetic patients with chronic lower extremity peripheral arterial disease	Mueller et al, 2016
No applicable data	The heart matters in diabetes: 10-Year outcomes of peripheral artery disease	Mueller et al, 2017
No applicable data	All-cause mortality by age and gender based on coronary artery calcium scores	Nakanishi et al, 2016
No applicable data	Very High Coronary Artery Calcium (≥1000) and Association with Cardiovascular Disease Events, Non–Cardiovascular Disease Outcomes, and Mortality: Results from MESA	Peng et al, 2021
No applicable data	High ankle-brachial index predicts cardiovascular events and mortality in hemodialysis patients with severe secondary hyperparathyroidism	Pichone et al, 2021
No applicable data	Low short-term and long-term cardiovascular and all-cause mortality in absence of coronary artery calcium: A 22-year follow-up observational study from large cohort	Shaikh et al, 2019
No applicable data	Arterial stiffness as a risk factor for cardiovascular events and all-cause mortality in people with Type 2 diabetes	Sharif et al, 2019
No applicable data	Coronary artery calcium progresses rapidly and discriminates incident cardiovascular events in chronic kidney disease regardless of diabetes: The Multi-Ethnic Study of Atherosclerosis (MESA)	Shroff et al, 2020
No applicable data	Coronary and extra-coronary artery calcium scores as predictors of cardiovascular events and mortality in chronic kidney disease stages 1-5: a prospective cohort study	Sorensen et al, 2022
No applicable data	Using machine learning algorithms to review computed tomography scans and assess risk for cardiovascular disease: Retrospective analysis from the National Lung Screening Trial (NLST)	Stemmer et al, 2020
No applicable data	Combined assessment of pulmonary arterial enlargement and coronary calcification predicts the prognosis of patients with chronic obstructive pulmonary disease	Takei et al, 2021
No applicable data	Machine learning integration of circulating and imaging biomarkers for explainable patient-specific prediction of cardiac events: A prospective study	Tamarappoo et al, 2021

Exclusion reason	Title	Source
No applicable data	Association of coronary artery calcium and coronary heart disease events in young and elderly participants in the multi-ethnic study of atherosclerosis: A secondary analysis of a prospective, population-based cohort	Tota-Maharaj et al, 2014
No applicable data	Association of Pulse Wave Velocity With Chronic Kidney Disease Progression and Mortality: Findings From the CRIC Study (Chronic Renal Insufficiency Cohort)	Townsend et al, 2018
No applicable data	Absence of coronary artery calcium identifies asymptomatic diabetic individuals at low near-term but not long-term risk of mortality: A 15-year follow-up study of 9715 patients	Valenti et al, 2016
No applicable data	Abnormal ankle-brachial index (ABI) predicts primary and secondary cardiovascular risk and cancer mortality	Visonà et al, 2020
No applicable data	Coronary artery calcium and physical performance as determinants of mortality in older age: the AGES-Reykjavik Study	von Bonsdorff et al, 2013
No applicable data	Ankle-brachial index and subsequent risk of incident and recurrent cardiovascular events in older adults: The Atherosclerosis Risk in Communities (ARIC) study	Wang et al, 2021
No applicable data	Prognostic Value of Risk Factors, Calcium Score, Coronary CTA, Myocardial Perfusion Imaging, and Invasive Coronary Angiography in Kidney Transplantation Candidates	Winther et al, 2018
No applicable data	Visceral Fat Area Is a Better Predictor Than Coronary Artery Calcification Score for Cardiovascular Outcomes and All-Cause Death in Patients on Hemodialysis	Xiong et al, 2021
No applicable data	Utility of Nontraditional Risk Markers in Atherosclerotic Cardiovascular Disease Risk Assessment	Yeboah et al, 2016
Conference abstract	Ambulatory arterial stifness parameters predict cardiovascular and all-cause mortality better than office and ambulatory blood pressure in hemodialysis patients	Sarafidis et al, 2017
Conference abstract	Comparison of the prognostic performance of the framingham risk score, coronary artery calcium score and coronary computed tomography angiography	Camargo et al, 2015
Conference abstract	Predicting long-term risk in generally asymptomatic patients: Cardiac testing in a multimodality imaging world	Chang et al, 2015
Conference abstract	Simultaneous evaluation of myocardial perfusion imaging (MPI) and coronary calcium score (CCS) in patients with intermediate likelihood of CAD: A 5 year follow-up study	Cittanti et al, 2013
Conference abstract	The role of ankle-brachial index for predicting peripheral arterial disease and guiding the antiagregant regimen after acute coronary syndrome	Iliuta et al, 2014

Exclusion reason	Title	Source
Conference abstract	CAROTID INTIMA-MEDIA THICKNESS VERSUS CORONARY ARTERY CALCIUM SCORE IN PREDICTING INCIDENT CORONARY HEART DISEASE AND STROKE AMONG AFRICAN AMERICANS: THE JACKSON HEART STUDY	Effoe et al, 2018
Conference abstract	Coronary artery calcium scores on admission trauma CT scans and their Association with in-hospital survival	De'ath et al, 2013
Conference abstract	Patterns of carotid atheromatosis in stroke patients: Correlation with coronary arterial disease and embolic cardiopathy	Diaz De Terán et al, 2014
Conference abstract	CORONARY ARTERY CALCIFICATION HERALDS ADVERSE CLINICAL OUTCOMES IN PATIENTS HOSPITALIZED FOR COVID-19	Shabbir et al, 2021
Conference abstract	Aortic-brachial stiffness mismatch and mortality in dialysis patients	Fortier et al, 2013
Conference abstract	Biomarkers of ischemic outcomes in symptomatic intracranial stenosis (BIOSIS) - Preliminary results	Frankel et al, 2014
Conference abstract	Prognostic significance of peripheral endothelial dysfunction in heart failure with reduced left ventricular ejection fraction	Fujisue et al, 2013
Conference abstract	External validation of the cad consortium prediction models for the presence of coronary artery disease in patients with stable chest pain	Genders et al, 2016
Conference abstract	Absence of coronary calcium on non-contrast enhanced, non ecg-gated ct correlates with non-obstructive coronary artery disease. a retrospective data analysis of liver transplant recipients	Gonzalez-Bonilla et al, 2017
Conference abstract	Calcification of the splenic, internal and external iliac, and breast arteries and risk of all-cause mortality	Hendriks et al, 2016
Conference abstract	Telomere length is not associated with short-term mortality in HIV-infected and HIV-uninfected Ugandans with pneumonia	Huang et al, 2017
Conference abstract	Inflammatory burden predicts carotid plaque progression and subsequent cardiovascular events in rheumatoid arthritis: The 2-year prospective cohort study	Im et al, 2013
Conference abstract	Role of coronary artery calcium (CAC) score in identifying patients at risk for cardiac events within the 30 day postoperative period following deceased donor liver transplantation	James et al, 2015
Conference abstract	Prognostic value of ankle brachial index for future incident heart failure in patients without previous heart failure	Nishimura et al, 2016
Conference abstract	The relationship of absolute telomere length with quality of life, exacerbations, and mortality in chronic obstructive pulmonary disease (COPD)	Jin et al, 2017

Exclusion reason	Title	Source
Conference abstract	Role of plaque in predicting cardiovascular events in women with lupus over a 20 year followup	Joyce et al, 2017
Conference abstract	Abstract P706: Age and Elevated Coronary Artery Calcium Score as a Predictor of Cerebral Ischemic Events	Singh et al, 2021
Conference abstract	Machine learning algorithms and coronary calcium score for risk stratification in asymptomatic healthy population	Kolli et al, 2017
Conference abstract	Predictive value of noninvasive markers of atherosclerosis for cardiovascular morbidity and mortality in patients with coronary artery disease (4 years follow-up study)	Kostic et al, 2013
Conference abstract	Lung cancer screening with CT, coronary artery calcification and cardiovascular events	Lu et al, 2015
Conference abstract	Blood telomere length predicts clinical outcome after acute myocardial infarction: The role of oxidative stress	Margaritis et al, 2016
Conference abstract	Circulating Endothelial Progenitor Cells and the risk of stroke recurrence or vascular event after ischemic stroke	Martí-Fàbregas et al, 2014
Conference abstract	Elevated ankle brachial index is related to a high amputation rate and cardiovascular comorbidity in patients with critical limb ischemia	Spreen et al, 2016
Conference abstract	Can coronary artery calcium scoring in non-gated chest computed tomography be used to rule out ischemia on myocardial perfusion imaging?	McCulloch et al, 2016
Conference abstract	Prognostic significance of coronary artery calcium (CAC) score among current smokers and nonsmokers of coronary artery calcium consortium: A multicenter cohort study	Mirbolouk et al, 2017
Conference abstract	Leucocyte telomere length and cardiovascular disease in the jackson heart study	Mwasongwe et al, 2017
Conference abstract	Ankle-brachial index for prognosis of cardiovascular disease in patients with mild renal insufficiency	Nishimura et al, 2016
Conference abstract	Prognostic value of coronary artery calcium score for major perioperative cardiovascular complications in type 2 diabetic patients undergoing trans-femoral amputation	Shalaeva et al, 2015
Conference abstract	Prognostic value of ankle-brachial index for future amputation and critical limb ischemia in patients with peripheral artery disease	Nomi et al, 2017
Conference abstract	Prediction of cardiac events based on coronary calcium score in patients with symptoms suggestive of coronary artery disease	Parma et al, 2013
Conference abstract	Ambulatory pulse wave velocity and augmentation index predict cardiovascular events and allcause mortality better than office and ambulatory blood pressure in hemodialysis patient	Sarafidis et al, 2017

Exclusion reason	Title	Source
Conference abstract	Long-term mortality and major adverse cardiovascular events in patients with borderline ankle brachial index: A 15-year follow-up study	Yan et al, 2016
Conference abstract	Prognostic value of coronary computed tomography angiography and coronary calcium in the long-term follow-up of patients with suspected coronary artery disease	Schuhbaeck et al, 2015
Conference abstract	Ankle brachial index as a predictor for abnormal cardiovascular stress test and cardiovascular outcomes	Shakoor et al, 2016
Conference abstract	Pulse waves in the lower extremities as a diagnostic tool of peripheral arterial disease and predictor of mortality in elderly chinese	Sheng et al, 2015
Conference abstract	Coronary artery calcium score for cardiac risk stratification: A retrospective analysis of simultaneous liver-kidney, living-donor and cadaveric liver transplant recipients	Shay et al, 2017
Conference abstract	Coronary artery calcium score for cardiac risk stratification: A retrospective analysis of liver transplant recipients	Shay et al, 2017
Conference abstract	Endothelial function predicts 1-year adverse clinical outcome in patients hospitalized in chest pain unit	Shechter et al, 2016
Conference abstract	Migratory activity of circulating endothelial progenitor cells predicts mortality in patients with diabetic foot	Spinetti et al, 2013
Conference abstract	Telomeric g-tail length as a good predictor of cardiovascular events in hemodialysis patients	Shuma et al, 2014
Conference abstract	AGE AND ELEVATED CORONARY ARTERY CALCIUM SCORE AS A PREDICTOR OF CEREBROVASCULAR DISEASE	Singh et al, 2021
Conference abstract	Coronary artery calcium scores for atherosclerotic cardiovascular disease risk stratification in smokers: MESA	Leigh et al, 2017
Conference abstract	Peripheral endothelial dysfunction independently correlated with cardiovascular events in patients following coronary stent implantation	Tabata et al, 2014
Conference abstract	Carotid artery plaque burden and characteristics and subsequent risk of incident cardiovascular events: the atherosclerosis risk in communities (ARIC) carotid magnetic resonance imaging study	Virani et al, 2013
Conference abstract	Prognostic value of combined myocardial perfusion imaging (MPI) and coronary calcium score (CCS) assessment: A 5-year follow-up study in patients with intermediate likelihood of coronary artery disease (CAD)	Cittanti et al, 2013
Conference abstract	A prospective study of serum metabolites and risk of ischemic stroke	Yu et al, 2017

Exclusion reason	Title	Source
Conference abstract	Genetic association of arterial stiffness index with incident coronary artery disease and congestive heart failure	Zekavat et al, 2018
Conference abstract	A decrease of the ankle-brachial pressure index (ABI) is the important risk factors for mortality in long-term dialysis patients	Abe et al, 2016
Full text not found	Should an alternative ankle-brachial index method be adopted to evaluate risk in acute coronary syndrome patients?	Castro et al, 2014
Full text not found	Correlation increasing carotid intima-media thickness and cardiovascular events in patient with moderate cardiovascular risk factor	Mawarti et al, 2017
Full text not found	Prognostic importance of diagnosticated peripheral arterial disease through the ankle brachial index in spanish general population	Félix-Redondo et al, 2020
Full text not found	Isolated low toe-brachial index is associated with increased mortality and morbidity: A retrospective cohort study	Manu et al, 2021
Full text not found	Prognostic Value of Aortic Stiffness using Cardiovascular Magnetic Resonance in The Elderly with Known or Suspected Coronary Artery Disease	Kaolawanich et al, 2022
Full text not found	Prognostic value of ventricular-arterial coupling in patients with arterial hypertension and stable heart failure with reduced ejection fraction	Akhmetov et al, 2015
Full text not found	Telomeric g-tail length and hospitalization for cardiovascular events in hemodialysis patients	Hirashio et al, 2014
Full text not found	Endothelial dysfunction contributes to renal function-associated cardiovascular events in ST-elevation myocardial infarction Clinical cardiology: Original articles	Zhao et al, 2014
Full text not found	Carotid intima-media thickness in plaquefree area, carotid plaque and risk of ischemic Stroke in high-risk population of North China	Zhuang-Zhuang et al, 2017
No applicable data	Predictive value of coronary ct angiography and calcium scoring for coronary artery problems and adverse cardiac events in low-risk chest pain patients	Albakri et al, 2020
No applicable data	Cardiovascular Event Prediction by Machine Learning: The Multi-Ethnic Study of Atherosclerosis	Ambale-Venkatesh et al, 2017
No applicable data	Coronary artery calcification in CKD-5D patients is tied to adverse cardiac function and increased mortality	Anaya et al, 2016
No applicable data	Inflammation, But Not Telomere Length, Predicts Successful Ageing at Extreme Old Age: A Longitudinal Study of Semi-supercentenarians	Arai et al, 2015

Exclusion reason	Title	Source
No applicable data	Implications of coronary artery calcium testing on risk stratification for lipid-lowering therapy according to the 2016 European Society of Cardiology recommendations: The MESA study	Bittencourt et al, 2018
No applicable data	Predictors of mortality, myocardial infarction and stroke among BARI 2D patients with type 2 diabetes and stable ischemic heart disease	Brooks et al, 2013
No applicable data	Endothelial Dysfunction Is Associated with Cerebrovascular Events in Pre-Dialysis CKD Patients: A Prospective Study	Cerqueira et al, 2021
No applicable data	The coronary artery calcium score is superior to exercise treadmill testing in predicting cardiac outcome: Clinical implications in generally asymptomatic patients at risk for coronary artery disease	Chang et al, 2014
No applicable data	Deep learning predicts cardiovascular disease risks from lung cancer screening low dose computed tomography	Chao et al, 2021
No applicable data	High aortic augmentation index predicts mortality and cardiovascular events in men from a general population, but not in women	Janner et al, 2013
No applicable data	CD3+/CD45+ and SMA-alpha+ circulating microparticles are increased in individuals at high cardiovascular risk who will develop a major cardiovascular event	Chiva-Blanch et al, 2016
No applicable data	Competing cardiovascular outcomes associated with subclinical atherosclerosis (from the multi-ethnic study of atherosclerosis)	Desai et al, 2013
No applicable data	Coronary artery calcium as a synergistic tool for the age-and sex-specific risk of cardiovascular and cancer mortality: The coronary artery calcium consortium	Dzaye et al, 2020
No applicable data	Mean Versus Peak Coronary Calcium Density on Non-Contrast CT: Calcium Scoring and ASCVD Risk Prediction	Dzaye et al, 2022
No applicable data	Ankle-brachial index and arterial vascular events in systemic lupus erythematosus patients: A 5-year prospective cohort	Erdozain et al, 2020
No applicable data	COPART Risk Score, Endothelial Dysfunction, and Arterial Hypertension are Independent Risk Factors for Mortality in Claudicants	Hackl et al, 2016
No applicable data	Endothelial dysfunction and brachial intima-media thickness: long term cardiovascular risk with claudication related to peripheral arterial disease: a prospective analysis	Hafner et al, 2014
No applicable data	Machine learning based risk prediction model for asymptomatic individuals who underwent coronary artery calcium score: Comparison with traditional risk prediction approaches	Han et al, 2020

Exclusion reason	Title	Source
No applicable data	Ankle brachial index compared with different lipid ratios to predict coronary events in patients with coronary artery disease	Hatmi et al, 2014
No applicable data	The impact of selectins on mortality in stable carotid atherosclerosis	Hoke et al, 2015
No applicable data	Cognitive impairment, brain ischemia and shorter telomeres are predictors of mortality in the Japanese elderly: A 13-year prospective community-based study	Igari et al, 2019
No applicable data	Abdominal aortic calcium, coronary artery calcium, and cardiovascular morbidity and mortality in the multi-ethnic study of atherosclerosis	Criqui et al, 2014
No applicable data	Combination of physical tests predicts cerebral infarction in diabetic patients	Kajimoto et al, 2014
No applicable data	Prognostic impact of arterial stiffness in patients with symptomatic peripheral arterial disease	Kals et al, 2014
No applicable data	Carotid plaque score and intima media thickness as predictors of stroke and mortality in hypertensive patients	Kawai et al, 2013
No applicable data	Predicting risk of coronary events and all-cause mortality: role of B-type natriuretic peptide above traditional risk factors and coronary artery calcium scoring in the general population: the Heinz Nixdorf Recall Study	Kara et al, 2014
No applicable data	2-year natural history of lower limbs in patients with end-stage renal disease on hemodialysis due to diabetic nephropathy; from predict study	Kato et al, 2017
No applicable data	Long-Term Prognosis After Coronary Artery Calcium Scoring Among Low-Intermediate Risk Women and Men	Kelkar et al, 2016
No applicable data	Predicting Survival from Telomere Length versus Conventional Predictors: A Multinational Population-Based Cohort Study	Glei et al, 2016
No applicable data	Prediction of stroke using an algorithm to estimate arterial stiffness	Kostis et al, 2021
No applicable data	Subclinical Cardiovascular Disease and Death, Dementia, and Coronary Heart Disease in Patients 80+ Years	Kuller et al, 2016
No applicable data	Sex Differences in Coronary Artery and Thoracic Aorta Calcification and Their Association With Cardiovascular Mortality in Heavy Smokers	Lessmann et al, 2019
No applicable data	The association of arterial stiffness index with cerebrovascular and cardiometabolic disease: A Mendelian randomization study	Liu et al, 2022
No applicable data	Prognostic Value of Negative Coronary CT Angiography in Severely Obese Patients Prior to Bariatric Surgery: a Follow-Up After 6 Years	Messerli et al, 2017

Exclusion reason	Title	Source
No applicable data	Association of Coronary Plaque with Low-Density Lipoprotein Cholesterol Levels and Rates of Cardiovascular Disease Events among Symptomatic Adults	Mortensen et al, 2022
No applicable data	Alternative ankle-brachial index method identifies additional at-risk individuals	Nead et al, 2013
No applicable data	Proposed cutoff value of brachial-ankle pulse wave velocity for the management of hypertension	Ohkuma et al, 2017
No applicable data	Longitudinal Changes in Vascular Risk Markers and Mortality Rates among a Latino Population with Hypertension	Pflederer et al, 2016
No applicable data	Different circadian patterns of arterial stiffness are responsible for increased cardiovascular mortality in hemodialyzed patients	Premuzic et al, 2021
No applicable data	Long-term prognostic implication of coronary plaque characterization as detected by 64-multidetector computed tomography in Egyptian population	Sadaka et al, 2017
No applicable data	Long-term prognosis after coronary artery calcification testing in asymptomatic patients: A cohort study	Shaw et al, 2015
No applicable data	Sex differences in calcified plaque and long-term cardiovascular mortality: Observations from the CAC Consortium	Shaw et al, 2018
No applicable data	Longitudinal changes in leukocyte telomere length and mortality in humans	Bendix et al, 2014
No applicable data	Circulating microparticles are associated with clinical severity of persistent ST-segment elevation myocardial infarction complicated with cardiogenic shock	Sionis et al, 2018
No applicable data	Clinical Significance of Brachial-Ankle Pulse Wave Velocity in Patients with Heart Failure with Reduced Left Ventricular Ejection Fraction	Takae et al, 2019
No applicable data	Prognostic impact of regional arterial stiffness in hypertensive patients	Kawai et al, 2015
No applicable data	Asymptomatic Extracranial Artery Stenosis and the Risk of Cardiovascular and Cerebrovascular Diseases	Wang et al, 2016
No applicable data	Association between estimated glomerular filtration rate, ankle-brachial index, and recurrent ischemic stroke in a Chinese population of ischemic stroke patients	Wang et al, 2013
No applicable data	Vascular reactivity to mental stress is associated with poor cardiovascular disease outcomes in females following acute coronary syndrome	Widmer et al, 2020
No applicable data	Prediction of carotid intima-media thickness and its relation to cardiovascular events in persons with type 2 diabetes	Winckler et al, 2020

Exclusion reason	Title	Source
No applicable data	Carotid plaque rather than intima-media thickness as a predictor of recurrent vascular events in patients with acute ischemic stroke	Yoon et al, 2017
No assessment of relationship between biomarkers and outcomes	Beneficial effect of high dose statins on the vascular wall in patients with repaired aortic coarctation?	P et al, 2014
No assessment of relationship between biomarkers and outcomes	Increased carotid intima-media thickness associated with high hs-CRP levels is a predictor of unstable coronary artery disease	Abhashi et al, 2013
No assessment of relationship between biomarkers and outcomes	Biomarkers and degree of atherosclerosis are independently associated with incident atherosclerotic cardiovascular disease in a primary prevention cohort: The ARIC study	Agarwala et al, 2016
No assessment of relationship between biomarkers and outcomes	Head-to-head comparison of prognostic accuracy in patients undergoing noncardiac surgery of dobutamine stress echocardiography versus computed tomography coronary angiography (PANDA trial): A prospective observational study	Ahn et al, 2020
No assessment of relationship between biomarkers and outcomes	Effects of the Mean Amplitude of Glycemic Excursions and Vascular Endothelial Dysfunction on Cardiovascular Events in Nondiabetic Patients With Coronary Artery Disease	Akasaka et al, 2017
No assessment of relationship between biomarkers and outcomes	Carotid plaque detection improves the predictve value of CHA2DS2-VASc score in patients with non-valvular atrial fibrilation: The ARAPACIS Study	Basili et al, 2017
No assessment of relationship between biomarkers and outcomes	Comparing Risk Scores in the Prediction of Coronary and Cardiovascular Deaths: Coronary Artery Calcium Consortium	Blaha et al, 2021
No assessment of relationship between biomarkers and outcomes	Cadmium, carotid atherosclerosis, and incidence of ischemic stroke	Borné et al, 2017
No assessment of relationship between biomarkers and outcomes	Prognostic impact of changes in aortic stiffness for cardiovascular and mortality outcomes in individuals with type 2 diabetes: the Rio de Janeiro cohort study	Cardoso et al, 2022

Exclusion reason	Title	Source
No assessment of relationship between biomarkers and outcomes	Preoperative biomarker evaluation for the prediction of cardiovascular events after major vascular surgery	Chan et al, 2019
No assessment of relationship between biomarkers and outcomes	High soluble vascular cell adhesion molecule-1 concentrations predict long-term mortality in hemodialysis patients	Chang et al, 2013
No assessment of relationship between biomarkers and outcomes	Cognitive function in patients with peripheral artery disease: A prospective single-center cohort study	Hutter et al, 2015
No assessment of relationship between biomarkers and outcomes	Change in ankle-brachial index and mortality among individuals with chronic kidney disease: Findings from the Chronic Renal Insufficiency Cohort Study	Dorans et al, 2021
No assessment of relationship between biomarkers and outcomes	Changes in circulating progenitor cells are associated with outcome in heart failure patients: a longitudinal study	Ac et al, 2013
No assessment of relationship between biomarkers and outcomes	Calcification Biomarkers, Subclinical Vascular Disease, and Mortality Among Multiethnic Dialysis Patients	Fitzpatrick et al, 2020
No assessment of relationship between biomarkers and outcomes	Epicardial Adipose Tissue in Patients With Stable Chest Pain: insights From the PROMISE Trial	Foldyna et al, 2020
No assessment of relationship between biomarkers and outcomes	Prescription rate of anti-atherosclerotic drugs in german nursing homes and its impact on outcome	Galas et al, 2019
No assessment of relationship between biomarkers and outcomes	Relationship of Different Anthropometric Indices with Vascular Ageing in an Adult Population without Cardiovascular Disease-EVA Study	Gomez-Sanchez et al, 2022
No assessment of relationship between biomarkers and outcomes	Risk stratification for 2-year mortality in patients with chronic limb-threatening ischemia undergoing endovascular therapy	Hata et al, 2021

Exclusion reason	Title	Source
No assessment of relationship between biomarkers and outcomes	Pre-operative ankle-brachial index for cardiovascular risk assessment in simultaneous pancreas-kidney transplant recipients: a simple and elegant strategy!	Hau et al, 2021
No assessment of relationship between biomarkers and outcomes	N-terminal pro-brain natriuretic peptide improves the C-ACS risk score prediction of clinical outcomes in patients with ST-elevation myocardial infarction	He et al, 2016
No assessment of relationship between biomarkers and outcomes	Predictive value of combining the SYNTAX score with reactive hyperemia index in patients with acute coronary syndrome undergoing percutaneous coronary intervention	He et al, 2020
No assessment of relationship between biomarkers and outcomes	Distinct Longitudinal Associations of MBL, MASP-1, MASP-2, MASP-3, and MAp44 With Endothelial Dysfunction and Intima-Media Thickness: The Cohort on Diabetes and Atherosclerosis Maastricht (CODAM) Study	Hertle et al, 2016
No assessment of relationship between biomarkers and outcomes	Acute limb ischemia in peripheral artery disease insights from EUCLID	Hess et al, 2019
No assessment of relationship between biomarkers and outcomes	Cardiovascular risk in chronic kidney disease patients: intima-media thickness predicts the incidence and severity of histologically assessed medial calcification in radial arteries	Janda et al, 2015
No assessment of relationship between biomarkers and outcomes	Coronary artery calcification outperforms thoracic aortic calcification for the prediction of myocardial infarction and all-cause mortality: the Heinz Nixdorf Recall Study	Kalsch et al, 2014
No assessment of relationship between biomarkers and outcomes	Association of Ankle-Brachial and Toe-Brachial Indexes With Mortality in Patients With CKD	Kamath et al, 2020
No assessment of relationship between biomarkers and outcomes	Vascular ultrasound for cardiovascular risk stratification in asymptomatic patients with type-2 diabetes	Kenne Malaha et al, 2021
No assessment of relationship between biomarkers and outcomes	Prognostic Value of Blood Pressure Responsiveness in Hemodialysis for Cardiovascular Mortality, Development of A New Predictive Equation	Keshtkari et al, 2021

Exclusion reason	Title	Source
No assessment of relationship between biomarkers and outcomes	A prospective two-center study on the associations between microalbuminuria, coronary atherosclerosis and long-term clinical outcome in asymptomatic patients with type 2 diabetes mellitus: evaluation by coronary CT angiography	Kim et al, 2015
No assessment of relationship between biomarkers and outcomes	Influence of the cardio-ankle vascular index on chronic-phase left ventricular dysfunction after ST-segment elevation myocardial infarction	Kirigaya et al, 2022
No assessment of relationship between biomarkers and outcomes	Comparative effectiveness of coronary artery stenosis and atherosclerotic plaque burden assessment for predicting 30-day revascularization and 2-year major adverse cardiac events	Kishi et al, 2020
No assessment of relationship between biomarkers and outcomes	Rate of ankle-brachial index decline predicts cardiovascular mortality in hemodialysis patients	Kuwahara et al, 2014
No assessment of relationship between biomarkers and outcomes	Value of progression of coronary artery calcification for risk prediction of coronary and cardiovascular events: Result of the hnr study (heinz nixdorf recall)	Lehmann et al, 2018
No assessment of relationship between biomarkers and outcomes	Co-existing cerebrovascular atherosclerosis predicts subsequent vascular event: a multi-contrast cardiovascular magnetic resonance imaging study	Li et al, 2020
No assessment of relationship between biomarkers and outcomes	Association of interleg difference of ankle brachial index with overall and cardiovascular mortality in chronic hemodialysis patients	Lin et al, 2015
No assessment of relationship between biomarkers and outcomes	Cohort Profile: The Hong Kong Cardiovascular Risk Factor Prevalence Study (CRISPS) and the follow-up studies	Lui et al, 2021
No assessment of relationship between biomarkers and outcomes	Prognostic value of coronary computed tomography angiography during 5 years of follow-up in patients with suspected coronary artery disease	M et al, 2013
No assessment of relationship between biomarkers and outcomes	Association Between Uric Acid, Carotid Intima-Media Thickness, and Cardiovascular Events: Prospective Results From the IMPROVE Study	Mannarino et al, 2021

Exclusion reason	Title	Source
No assessment of relationship between biomarkers and outcomes	10-Year Coronary Heart Disease Risk Prediction Using Coronary Artery Calcium and Traditional Risk Factors Derivation in the MESA (Multi-Ethnic Study of Atherosclerosis) with Validation in the HNR (Heinz Nixdorf Recall) Study and the DHS (Dallas Heart Study)	McClelland et al, 2015
No assessment of relationship between biomarkers and outcomes	Prognostic value of coronary risk factors, exercise capacity and single photon emission computed tomography in liver transplantation candidates: A 5-year follow-up study	Moody et al, 2021
No assessment of relationship between biomarkers and outcomes	Flow-mediated-paradoxical vasoconstriction is independently associated with asymptomatic myocardial ischemia and coronary artery disease in type 2 diabetic patients	Nguyen et al, 2014
No assessment of relationship between biomarkers and outcomes	Prognostic Value of Subclinical Coronary Artery Disease in Atrial Fibrillation Patients Identified by Coronary Computed Tomography Angiography	Nous et al, 2020
No assessment of relationship between biomarkers and outcomes	The Impact of Perioperative Ankle-Brachial Index and Clinical Status on Outcomes following Lower Extremity Bypass	O'Donnell et al, 2018
No assessment of relationship between biomarkers and outcomes	Penultimate pulse wave velocity, better than baseline pulse wave velocity, predicted mortality in Italian ESRD cohort study - a case for daily hemodialysis for ESRD patients with accelerated pulse wave velocity changes	Onuigbo et al, 2013
No assessment of relationship between biomarkers and outcomes	Subclinical inflammation, telomere shortening, homocysteine, vitamin B6, and mortality: the Ludwigshafen Risk and Cardiovascular Health Study	Pusceddu et al, 2020
No assessment of relationship between biomarkers and outcomes	Relation of Diastolic Blood Pressure and Coronary Artery Calcium to Coronary Events and Outcomes (From the Multi-Ethnic Study of Atherosclerosis)	Rahman et al, 2017
No assessment of relationship between biomarkers and outcomes	Association between coronary atherosclerotic burden and all-cause mortality among patients undergoing exercise versus pharmacologic stress-rest SPECT myocardial perfusion imaging	Rozanski et al, 2020
No assessment of relationship between biomarkers and outcomes	Pro- And anti-inflammatory factors, vascular stiffness and outcomes in chronic hemodialysis patients	Sagi et al, 2020

Exclusion reason	Title	Source
No assessment of relationship between biomarkers and outcomes	Anti-Atherosclerotic Therapy Based on Botanicals	Orekhov et al, 2013
No assessment of relationship between biomarkers and outcomes	Mean corpuscular volume is associated with endothelial dysfunction and predicts composite cardiovascular events in patients with chronic kidney disease	Solak et al, 2013
No assessment of relationship between biomarkers and outcomes	Role of Pulse Wave Velocity in Patients with Chronic Kidney Disease Stages 3-5 on Long-Term Follow-Up	Suzuki et al, 2014
No assessment of relationship between biomarkers and outcomes	Patient Age at Diagnosis of Peripheral Artery Disease and Its Impact on Cardiovascular and Limb Outcomes	Sykora et al, 2022
No assessment of relationship between biomarkers and outcomes	High-risk Plaque and Calcification Detected by Coronary CT Angiography to Predict Future Cardiovascular Events After Percutaneous Coronary Intervention	Tomizawa et al, 2018
No assessment of relationship between biomarkers and outcomes	Added value of cardiovascular calcifications for prediction of recurrent cardiovascular events and cardiovascular interventions in patients with established cardiovascular disease	van ’t Klooster et al, 2021
No assessment of relationship between biomarkers and outcomes	Arteriosclerosis, Atherosclerosis, and Cardiovascular Health: Joint Relations to the Incidence of Cardiovascular Disease	Vasan et al, 2021
No assessment of relationship between biomarkers and outcomes	Does quantifying epicardial and intrathoracic fat with noncontrast computed tomography improve risk stratification beyond calcium scoring alone?	Forouzandeh et al, 2013
No assessment of relationship between biomarkers and outcomes	Low-Density Non-Calcified Plaque on Coronary Ct Angiography Is the Strongest Independent Predictor of Future Myocardial Infarction	Williams et al, 2020
No assessment of relationship between biomarkers and outcomes	Coronary Calcium Scoring Improves Risk Prediction in Patients With Suspected Obstructive Coronary Artery Disease	Winther et al, 2022

Exclusion reason	Title	Source
No assessment of relationship between biomarkers and outcomes	Multiterritory Atherosclerosis and Carotid Intima-Media Thickness as Cardiovascular Risk Predictors After Percutaneous Angioplasty of Symptomatic Subclavian Artery Stenosis	Wrotniak et al, 2016
No assessment of relationship between biomarkers and outcomes	Association between healthy vascular aging and the risk of the first stroke in a community-based Chinese cohort	Yang et al, 2019
No assessment of relationship between biomarkers and outcomes	Adult Height, Prevalent Coronary Artery Calcium Score, and Incident Cardiovascular Disease Outcomes in a Multiethnic Cohort	Yeboah et al, 2017
No assessment of relationship between biomarkers and outcomes	Decreased cardiovascular mortality in the ITALUNG lung cancer screening trial: Analysis of underlying factors	Puliti et al, 2019
No outcomes of interest	Pioglitazone Slows Progression of Atherosclerosis in Prediabetes Independent of Changes in Cardiovascular Risk Factors	Saremi et al, 2013
No outcomes of interest	Circulating progenitor cells in hypertensive patients with different degrees of cardiovascular involvement	G et al, 2014
No outcomes of interest	Pulmonary Artery Stiffness by Cardiac Magnetic Resonance Imaging Predicts Major Adverse Cardiovascular Events in patients with Chronic Obstructive Pulmonary Disease	Agoston-Coldea et al, 2018
No outcomes of interest	Association of worsening arterial stiffness with incident heart failure in asymptomatic patients with cardiovascular risk factors	Aisu et al, 2017
No outcomes of interest	Association of renal resistance index and arterial stiffness on clinical outcomes in patients with mild-to-moderate renal dysfunction and presence or absence of heart failure with preserved ejection fraction	Aizawa et al, 2020
No outcomes of interest	Value of coronary artery calcium scanning in association with the net benefit of aspirin in primary prevention of atherosclerotic cardiovascular disease	Ajufo et al, 2021
No outcomes of interest	Comparison of the Relation of Carotid Intima-Media Thickness With Incident Heart Failure With Reduced Versus Preserved Ejection Fraction (from the Multi-Ethnic Study of Atherosclerosis MESA)	Aladin et al, 2021
No outcomes of interest	The Prognostic Value of Coronary Arteries Calcium Scoring in a Primary Health Care Setting in Riyadh, Saudi Arabia: A Retrospective Cohort Study	Alalem et al, 2022

Exclusion reason	Title	Source
No outcomes of interest	Machine learning of clinical variables and coronary artery calcium scoring for the prediction of obstructive coronary artery disease on coronary computed tomography angiography: analysis from the CONFIRM registry	Al'Aref et al, 2020
No outcomes of interest	The value of coronary artery calcium score assessed by dual-source computed tomography coronary angiography for predicting presence and severity of coronary artery disease	Almasi et al, 2014
No outcomes of interest	Vascular calcification on plain radiographs is associated with carotid intima media thickness, malnutrition and cardiovascular events in dialysis patients: a prospective observational study	An et al, 2013
No outcomes of interest	Flow-mediated dilation normalization predicts outcome in chronic heart failure patients	F et al, 2013
No outcomes of interest	Left ventricular mass versus pulse wave velocity as predictors of coronary artery disease in hypertensive patients: data from a 6-year-follow-up study	Andrikou et al, 2022
No outcomes of interest	Abnormal ankle-brachial index, cardiovascular risk factors and healthy lifestyle factors in hypertensive patients: prospective cohort study from a primary care urban population	Armas-Padron et al, 2022
No outcomes of interest	Endothelial dysfunction and the risk of heart failure in a community-based study: the Multi-Ethnic Study of Atherosclerosis	Ärnlöv et al, 2020
No outcomes of interest	Prognostic value of atherosclerotic burden and coronary vascular function in patients with suspected coronary artery disease	Assante et al, 2017
No outcomes of interest	Prediction of cardiac and vascular events in systemic sclerosis: Input from endothelin-1 type a receptor antibodies	Avouac et al, 2014
No outcomes of interest	Associations of microvascular dysfunction with cardiovascular outcomes: The cardiac, endothelial function and arterial stiffness in ESRD (CERES) cohort	Ayer et al, 2019
No outcomes of interest	Prediction of cardiovascular events in patients with chronic myeloid leukaemia using baseline risk factors and coronary artery calcium scoring	Baggio et al, 2021
No outcomes of interest	Increased risk of cardiovascular disease in patients with systemic lupus erythematosus who have asymptomatic plaque on vascular ultrasound: A 5 year follow-up study	Bakshi et al, 2017
No outcomes of interest	Progression of carotid intima-media thickness as predictor of vascular events: results from the IMPROVE study	Baldassarre et al, 2013
No outcomes of interest	Red Blood Cell Distribution Width, Vascular Aging Biomarkers, and Endothelial Progenitor Cells for Predicting Vascular Aging and Diagnosing/Prognosing Age-Related Degenerative Arterial Diseases	Balistreri et al, 2019
No outcomes of interest	Telomere shortening over 6 years is associated with increased subclinical carotid vascular damage and worse cardiovascular prognosis in the general population	Baragetti et al, 2015

Exclusion reason	Title	Source
No outcomes of interest	Prognostic value of coronary artery calcium score for cardiac adverse events in patients with mild-moderate perfusion defects by myocardial perfusion scintigraphy	Barros et al, 2014
No outcomes of interest	Role of coronary artery calcium score for risk stratification in patients with non significant perfusion defects by myocardial perfusion single photon emission computed tomography	Barros et al, 2015
No outcomes of interest	Evaluating the Coronary Artery Disease Consortium Model and the Coronary Artery Calcium Score in Predicting Obstructive Coronary Artery Disease in a Symptomatic Mixed Asian Cohort	Baskaran et al, 2022
No outcomes of interest	Association Between the Presence of Carotid Artery Plaque and Cardiovascular Events in Patients With Genetic Hypercholesterolemia	Bea et al, 2017
No outcomes of interest	Increased aortic pulse wave velocity is associated with the presence of angiographic coronary artery disease in overweight and obese patients	Bechlioulis et al, 2013
No outcomes of interest	Coronary artery calcium and cardiovascular disease prediction by scanner type: the multi-ethnic study of atherosclerosis	Bhatia et al, 2022
No outcomes of interest	Visual Estimate of Coronary Artery Calcium Predicts Cardiovascular Disease in COPD	Bhatt et al, 2018
No outcomes of interest	Neutralizing the adverse prognosis of coronary artery calcium	Bhatti et al, 2013
No outcomes of interest	Relationship between cardio-ankle vascular index and obstructive coronary artery disease	Birudaraju et al, 2020
No outcomes of interest	Prognostic Value of Coronary CTA in Stable Chest Pain: CAD-RADS, CAC, and Cardiovascular Events in PROMISE	Bittner et al, 2020
No outcomes of interest	Role of Coronary Artery Calcium Score of Zero and Other Negative Risk Markers for Cardiovascular Disease: The Multi-Ethnic Study of Atherosclerosis (MESA)	Blaha et al, 2016
No outcomes of interest	Independent prognostic value of coronary artery calcium score and coronary computed tomography angiography in an outpatient cohort of low to intermediate risk chest pain patients	Bom et al, 2016
No outcomes of interest	The relationship between ambulatory arterial stiffness, inflammation, blood pressure dipping and cardiovascular outcomes	Boos et al, 2021
No outcomes of interest	Progression of coronary calcium and incident coronary heart disease events: MESA (Multi-Ethnic Study of Atherosclerosis)	Budoff et al, 2013
No outcomes of interest	Ten-year association of coronary artery calcium with atherosclerotic cardiovascular disease (ASCVD) events: the multi-ethnic study of atherosclerosis (MESA)	Budoff et al, 2018
No outcomes of interest	Preliminary study of carotid variables under ultrasound analysis as predictors for the risk of coronary arterial atherosclerosis	Cai et al, 2022
No outcomes of interest	Long-Term Prognostic Implications and Role of Further Testing in Adults Aged <=55 Years With a Coronary Calcium Score of Zero (from the Multi-Ethnic Study of Atherosclerosis)	Cainzos-Achirica et al, 2021

Exclusion reason	Title	Source
No outcomes of interest	Coronary Artery Calcium Score to Refine the Use of PCSK9i in Asymptomatic Individuals: A Multicohort Study	Cainzos-Achirica et al, 2022
No outcomes of interest	CAC for Risk Stratification Among Individuals With Hypertriglyceridemia Free of Clinical Atherosclerotic Cardiovascular Disease	Cainzos-Achirica et al, 2022
No outcomes of interest	Aortic stiffness measurement improves the prediction of asymptomatic coronary artery disease in stroke/transient ischemic attack patients	Calvet et al, 2014
No outcomes of interest	Coronary artery calcium progression is associated with cardiovascular events among asymptomatic individuals: From the north Texas primary care practice-based research network (NorTex-PBRN)	Cardarelli et al, 2017
No outcomes of interest	Relationship between asymptomatic intra-cranial lesions and brachial-ankle pulse wave velocity in coronary artery disease patients without stroke	Tabata et al, 2017
No outcomes of interest	Additive prognostic value of coronary artery calcium score and renal function in patients with acute chest pain without known coronary artery disease: up to 5-year follow-up	Chaikriangkrai et al, 2015
No outcomes of interest	Additive prognostic value of coronary artery calcium score over coronary computed tomographic angiography stenosis assessment in symptomatic patients without known coronary artery disease	Chaikriangkrai et al, 2015
No outcomes of interest	Relationship between heart rate variability and pulse wave velocity and their association with patient outcomes in chronic kidney disease	Chandra et al, 2014
No outcomes of interest	Carotid intima-media thickness and plaque occurrence in predicting stable angiographic coronary artery disease	Chang et al, 2013
No outcomes of interest	Association of Brachial-Ankle Pulse Wave Velocity With Cardiovascular Events in Atrial Fibrillation	Chen et al, 2016
No outcomes of interest	Marital status, telomere length and cardiovascular disease risk in a Swedish prospective cohort	Chen et al, 2020
No outcomes of interest	Shortened Relative Leukocyte Telomere Length Is Associated With Prevalent and Incident Cardiovascular Complications in Type 2 Diabetes: Analysis From the Hong Kong Diabetes Register	Cheng et al, 2020
No outcomes of interest	Low Carotid Artery Wall Shear Stress is Associated with Significant Coronary Artery Disease in Patients with Chest Pain	Cho et al, 2016
No outcomes of interest	Augmentation index is associated with coronary revascularization in patients with high Framingham risk scores: a hospital-based observational study	Choi et al, 2015

Exclusion reason	Title	Source
No outcomes of interest	Coronary Calcium Score for the Prediction of Asymptomatic Coronary Artery Disease in Patients With Ischemic Stroke	Choi et al, 2020
No outcomes of interest	Microparticles during long-term follow-up after acute myocardial infarction. Association to atherosclerotic burden and risk of cardiovascular events	Christersson et al, 2017
No outcomes of interest	Dual imaging stress echocardiography versus computed tomography coronary angiography for risk stratification of patients with chest pain of unknown origin	Ciampi et al, 2015
No outcomes of interest	Aortic calcifications and arterial stiffness as predictors of cardiovascular events in incident renal transplant recipients	Claes et al, 2013
No outcomes of interest	Long-term prognostic performance of low-dose coronary computed tomography angiography with prospective electrocardiogram triggering	Clerc et al, 2017
No outcomes of interest	Components of hemodynamic load and cardiovascular events: the Framingham Heart Study	Cooper et al, 2015
No outcomes of interest	Zero calcium score as a filter for further testing in patients admitted to the coronary care unit with chest pain	Correia et al, 2017
No outcomes of interest	The significance of micro- and macrovascular biomarkers on cardiovascular outcome in chronic kidney disease: a prospective cohort study	Cseprekal et al, 2016
No outcomes of interest	Endothelial progenitor cells predict cardiovascular events after atherothrombotic stroke and acute myocardial infarction. A PROCELL substudy	Cuadrado-Godia et al, 2015
No outcomes of interest	Lack of causal relationship between leukocyte telomere length and coronary heart disease	Cui et al, 2014
No outcomes of interest	Visit-to-Visit Blood Pressure Variability and Arterial Stiffness Independently Predict Cardiovascular Risk Category in a General Population: Results from the SEPHAR II Study	Darabont et al, 2015
No outcomes of interest	Prognostic Value of Coronary Computed Tomography Imaging in Patients at High Risk Without Symptoms of Coronary Artery Disease	Dedic et al, 2016
No outcomes of interest	Prevalence of asymptomatic peripheral arterial disease by ankle brachial index and its correlation to atherosclerotic cardiovascular disease (ASCVD) risk estimate among patients in a private tertiary hospital in Pasay City, Philippines: A prospective analytical study	Dela Cruz et al, 2017
No outcomes of interest	Usefulness of coronary artery calcium for detecting significant coronary artery disease in asymptomatic individuals	Descalzo et al, 2014
No outcomes of interest	Diagnostic and Prognostic Value of Coronary Computed Tomography Angiography in Patients with Severe Calcification	Diaz-Anton et al, 2021
No outcomes of interest	Early detection of subjects at risk for vascular remodelling - results from the Swiss population-based study SAPALDIA	Dratva et al, 2014

Exclusion reason	Title	Source
No outcomes of interest	Agatston score of the descending aorta is independently associated with coronary events in a low-risk population	Dudink et al, 2018
No outcomes of interest	Importance of arterial stiffness in predicting cardiovascular events	Ecobici et al, 2017
No outcomes of interest	Telomere Length, Traditional Risk Factors, Factors Related to Human Immunodeficiency Virus (HIV) and Coronary Artery Disease Events in Swiss Persons Living With HIV	Engel et al, 2021
No outcomes of interest	Endothelial Dysfunction and Racial Disparities in Mortality and Adverse Cardiovascular Disease Outcomes	Erqou et al, 2016
No outcomes of interest	Impact of Framingham Risk Score, Flow-Mediated Dilation, Pulse Wave Velocity, and Biomarkers for Cardiovascular Events in Stable Angina	Park et al, 2014
No outcomes of interest	Cardiovascular diseases and mortality are independently influenced by carotid plaque presence in rheumatoid arthritis: The 5-year prospective study	Eun et al, 2016
No outcomes of interest	Can cardiac computed tomography predict cardiovascular events in asymptomatic type-2 diabetics?: Results of a long term follow-up	Faustino et al, 2014
No outcomes of interest	Prognostic Value of Aortic Stiffness in Patients After ST-Elevation Myocardial Infarction	Feistritzer et al, 2017
No outcomes of interest	Coronary Atherosclerosis, Cardiac Troponin, and Interleukin-6 in Patients With Chest Pain: the PROMISE Trial Results	Ferencik et al, 2022
No outcomes of interest	Cardiovascular risk prediction using physical performance measures in COPD: results from a multicentre observational study	Fermont et al, 2020
No outcomes of interest	Effect of magnesium supplementation on carotid intima-media thickness and flow-mediated dilatation among hemodialysis patients: a double-blind, randomized, placebo-controlled trial	M et al, 2013
No outcomes of interest	Contribution of the ankle-brachial index to improve the prediction of coronary risk: The ARTPER cohort	Forés et al, 2018
No outcomes of interest	Development and validation of risk prediction models for cardiovascular events in black adults: The Jackson heart study cohort	Fox et al, 2016
No outcomes of interest	Carotid plaque is a predictor of major adverse cardiac and cerebrovascular events in patients undergoing coronary angiography	Franco-Gutiérrez et al, 2019
No outcomes of interest	Prognostic Value of Coronary Computed Tomography (CT) Angiography and Coronary Artery Calcium Score Performed Before Revascularization	Fujimoto et al, 2015
No outcomes of interest	Prospective study on the prognostic value of repeated carotid intima-media thickness assessment in patients with coronary and extra coronary steno-occlusive arterial disease	Gacon et al, 2019

Exclusion reason	Title	Source
No outcomes of interest	Ultrasound carotid intima-media thickness, carotid plaque and cardiac calcium incrementally add to the Framingham Risk Score for the prediction of angiographic coronary artery disease: A multicenter prospective study	Gaibazzi et al, 2014
No outcomes of interest	Equivocal tests after contrast stress-echocardiography compared with invasive coronary angiography or with CT angiography: CT calcium score in mildly positive tests may spare unnecessary coronary angiograms	Gaibazzi et al, 2018
No outcomes of interest	Coronary artery calcification, epicardial fat burden, and cardiovascular events in chronic obstructive pulmonary disease	Gaisl et al, 2015
No outcomes of interest	The risk of cardiovascular disease in irradiated breast cancer patients: The role of cardiac calcifications and adjuvant treatment	Gal et al, 2020
No outcomes of interest	The Added Value of Coronary Calcium Score in Predicting Cardiovascular Events in Familial Hypercholesterolemia	Gallo et al, 2021
No outcomes of interest	Pulse Wave Velocity and Machine Learning to Predict Cardiovascular Outcomes in Prediabetic and Diabetic Populations	Garcia-Carretero et al, 2019
No outcomes of interest	Transcutaneous oxygen tension as a potential predictor of cardiovascular events in type 2 diabetes: Comparison with ankle-brachial index	Gazzaruso et al, 2013
No outcomes of interest	The prognostic value of various carotid ultrasound parameters in patients at high and very high cardiovascular risk	Genkel et al, 2019
No outcomes of interest	Age-dependent association of pulse wave velocity with coronary artery disease and myocardial aging in high-risk patients	Georgiopoulos et al, 2019
No outcomes of interest	Comparison of coronary artery calcium presence, carotid plaque presence, and carotid intima-media thickness for cardiovascular disease prediction in the Multi-Ethnic Study of Atherosclerosis	Gepner et al, 2015
No outcomes of interest	Comparison of carotid plaque score and coronary artery calcium score for predicting cardiovascular disease events: The multi-ethnic study of atherosclerosis	Gepner et al, 2017
No outcomes of interest	Comparison of conventional scoring systems to machine learning models for the prediction of major adverse cardiovascular events in patients undergoing coronary computed tomography angiography	Ghorashi et al, 2022
No outcomes of interest	Coronary and total thoracic calcium scores predict mortality and provides pathophysiologic insights in COVID-19 patients	Giannini et al, 2021

Exclusion reason	Title	Source
No outcomes of interest	Coronary artery calcium and incident cerebrovascular events in an asymptomatic cohort the MESA study	Gibson et al, 2014
No outcomes of interest	Estimated carotid-femoral pulse wave velocity has similar predictive value as measured carotid-femoral pulse wave velocity	Greve et al, 2016
No outcomes of interest	External validity of a cardiovascular screening including a coronary artery calcium examination in middle-aged individuals from the general population	Gronhoj et al, 2018
No outcomes of interest	Prognostic Value of Atherosclerosis Progression for Prediction of Cardiovascular Events in Patients with Nonobstructive Coronary Artery Disease	Gu et al, 2021
No outcomes of interest	Carotid plaque is strongly associated with coronary artery calcium and predicts incident coronary heart disease in a population-based cohort	Gudmundsson et al, 2022
No outcomes of interest	Heart Failure Risk Across the SpectrumofAnkle-Brachial Index. The ARIC Study (Atherosclerosis RiskInCommunities)	Gupta et al, 2014
No outcomes of interest	A carotid extra-media thickness, PATIMA combined index and coronary artery disease: Comparison with well-established indexes of carotid artery and fat depots	Haberka et al, 2015
No outcomes of interest	Cardiac Computed Tomography Angiographic Findings as Predictors of Late Heart Failure in an Asymptomatic Diabetic Cohort: An 8-Year Prospective Follow-Up Study	Halon et al, 2017
No outcomes of interest	Aortic Pulse Wave Velocity Predicts Cardiovascular Events and Mortality in Patients Undergoing Coronary Angiography: A Comparison of Invasive Measurements and Noninvasive Estimates	Hametner et al, 2021
No outcomes of interest	Predictive value of brachial-ankle pulse wave velocity for cardiovascular events	Han et al, 2013
No outcomes of interest	Ankle-brachial index as a prognostic factor and screening tool in coronary artery disease: Does it work?	Hatmi et al, 2014
No outcomes of interest	Prognostic value of myocardial perfusion imaging and coronary artery calcium measurements in patients with end-stage renal disease	Havel et al, 2015
No outcomes of interest	Assessment of arterial stiffness in renal transplant recipients	Heleniak et al, 2019
No outcomes of interest	Association of carotid intima-media thickness with cardiovascular risk factors and patient outcomes in advanced chronic kidney disease: the RRI-CKD study	Hinderliter et al, 2015
No outcomes of interest	Endothelial function and cardiovascular events in chronic kidney disease	Hirata et al, 2014
No outcomes of interest	The Added Value of a High CT Coronary Artery Calcium Score in the Management of Patients Presenting with Acute Chest Pain vs. Stable Chest Pain	Hitter et al, 2022

Exclusion reason	Title	Source
No outcomes of interest	Using a machine learning-based risk prediction model to analyze the coronary artery calcification score and predict coronary heart disease and risk assessment	Huang et al, 2022
No outcomes of interest	Serum metabolomic profiles associated with subclinical and clinical cardiovascular phenotypes in people with type 2 diabetes	Huang et al, 2022
No outcomes of interest	Incremental prognostic value of coronary artery calcium score versus CT angiography among symptomatic patients without known coronary artery disease	Hulten et al, 2014
No outcomes of interest	Prognostic value of coronary computed tomography angiography in stroke patients	Hur et al, 2015
No outcomes of interest	Carotid intima-media thickness predicted the presence but not the severity or complexity of coronary artery disease in a South Asian population	Verma et al, 2022
No outcomes of interest	Additional prognostic value of brachial-ankle pulse wave velocity to coronary computed tomography angiography in patients with suspected coronary artery disease	Hwang et al, 2018
No outcomes of interest	Influence of arterial stiffness on cardiovascular outcome in patients without high blood pressure	Ichikawa et al, 2018
No outcomes of interest	Prognostic value of non-alcoholic fatty liver disease for predicting cardiovascular events in patients with diabetes mellitus with suspected coronary artery disease: a prospective cohort study	Ichikawa et al, 2021
No outcomes of interest	Comparison of utility of arterial stiffness parameters for predicting cardiovascular events in the general population	Ishisone et al, 2013
No outcomes of interest	Common carotid artery kinking is a predictor of cardiovascular events: A long-term follow-up study using carotid ultrasonography	Iwai-Takano et al, 2019
No outcomes of interest	Significance of coronary calcification for prediction of coronary artery disease and cardiac events based on 64-slice coronary computed tomography angiography	Yc et al, 2013
No outcomes of interest	Relationship of Endothelial Microparticles to Obesity and Cardiovascular Disease Risk in Children and Adolescents	Jang et al, 2022
No outcomes of interest	Carotid plaque is predictive of cardio vascular events in asymptomatic diabetes: A prospective study	Jeevarethinam et al, 2017
No outcomes of interest	Predictive value of cardio-ankle vascular index for the risk of end-stage renal disease	Jeong et al, 2021
No outcomes of interest	Silent brain infarcts, peripheral vascular disease and the risk of cardiovascular events in patients with hypertension	Jiménez-Balado et al, 2022
No outcomes of interest	Ankle brachial index most important to identify polyvascular disease in patients with non-ST elevation or ST-elevation myocardial infarction	Jönelid et al, 2016

Exclusion reason	Title	Source
No outcomes of interest	Association of Abdominal Aorta Calcium and Coronary Artery Calcium with Incident Cardiovascular and Coronary Heart Disease Events in Black and White Middle-Aged People: The Coronary Artery Risk Development in Young Adults Study	Jurgens et al, 2021
No outcomes of interest	Effect of Platelet Reactivity, Endothelial Function, and Inflammatory Status on Outcomes in Patients With Stable Angina Pectoris on Clopidogrel Therapy	Woo et al, 2014
No outcomes of interest	The relationship between pulse waveform analysis indices, endothelial function and clinical outcomes in patients with peripheral artery disease treated using percutaneous transluminal angioplasty during a one-year follow-up period	Kaczmarczyk et al, 2020
No outcomes of interest	Endothelial Dysfunction After ST-segment Elevation Myocardial Infarction and Long-term Outcome: a Study With Reactive Hyperemia Peripheral Artery Tonometry	Kandhai-Ragunath et al, 2016
No outcomes of interest	Role of arterial stiffness and impaired renal function in the progression of new coronary lesions after percutaneous coronary intervention	Kaneko et al, 2013
No outcomes of interest	Endothelial function estimated by digital reactive hyperemia in patients with atherosclerotic risk factors or coronary artery disease	Kang et al, 2018
No outcomes of interest	Clinical utility of brachial-ankle pulse wave velocity in the prediction of cardiovascular events in diabetic patients	Katakami et al, 2014
No outcomes of interest	Clinical Utility of Carotid Ultrasonography in the Prediction of Cardiovascular Events in Patients with Diabetes: A Combined Analysis of Data Obtained in Five Longitudinal Studies	Katakami et al, 2018
No outcomes of interest	The role of coronary calcium score in the risk assessment of liver transplant candidates	Kemmer et al, 2014
No outcomes of interest	The significance of coronary artery calcium score as a predictor of coronary artery stenosis in individuals referred for CT angiography	Kiani et al, 2020
No outcomes of interest	Brachial-ankle pulse wave velocity for the prediction of the presence and severity of coronary artery disease	Kim et al, 2014
No outcomes of interest	High brachial ankle pulse wave velocity as a marker for predicting coronary artery stenosis in patients with type 2 diabetes	Kim et al, 2018
No outcomes of interest	Prediction of cardiovascular events using brachial-ankle pulse wave velocity in hypertensive patients	Kim et al, 2020
No outcomes of interest	Improved prognostic value in predicting long-term cardiovascular events by a combination of high-sensitivity c-reactive protein and brachial–ankle pulse wave velocity	Kim et al, 2021
No outcomes of interest	Prognostic value of arterial stiffness according to the cardiovascular risk profiles	Kim et al, 2021

Exclusion reason	Title	Source
No outcomes of interest	Role of arterial stiffness in the association between hand grip strength and cardiovascular events: The Korean Genome and Epidemiology Study	Kim et al, 2021
No outcomes of interest	Integrated approach of brachial-ankle pulse wave velocity and cardiovascular risk scores for predicting the risk of cardiovascular events	Kim et al, 2022
No outcomes of interest	Progostic value of coronary artery calcium scores from 1.5 mm slice reconstructions of electrocardiogram-gated computed tomography scans in asymptomatic individuals	Kim et al, 2022
No outcomes of interest	Brachial-ankle pulse wave velocity as a predictor of long-term cardiovascular events in 2174 subjects with type 2 diabetes mellitus: A retrospective cohort study	Kim et al, 2022
No outcomes of interest	Aortic pulse wave velocity predicts incident cardiovascular events in patients with type 2 diabetes treated in primary care	Wijkman et al, 2016
No outcomes of interest	Preoperative coronary calcium score is predictive of early postoperative cardiovascular complications in liver transplant recipients	Kong et al, 2015
No outcomes of interest	Endothelial function of healthy adults from 20 to 91 years of age: Prediction of cardiovascular risk by vasoactive range	Königstein et al, 2021
No outcomes of interest	Change in Pulse Wave Velocity and Short-Term Development of Cardiovascular Events in the Hemodialysis Population	Korjian et al, 2016
No outcomes of interest	Clinical risk factors alone are inadequate for predicting significant coronary artery disease	Korley et al, 2017
No outcomes of interest	Radial artery pulse wave analysis for non-invasive assessment of coronary artery disease	Kotecha et al, 2013
No outcomes of interest	Prognostic value of coronary artery calcium and epicardial adipose tissue assessed by non-contrast cardiac computed tomography	Kunita et al, 2014
No outcomes of interest	Prognostic implications of non-invasive vascular function tests in high-risk atherosclerosis patients	Kusunose et al, 2016
No outcomes of interest	Determinants and prognostic relevance of aortic stiffness in patients with recent ST-elevation myocardial infarction	Lechner et al, 2022
No outcomes of interest	Common carotid intima-media thickness as a risk factor for outcomes in Asian patients with acute ST-elevation myocardial infarction	Lee et al, 2014
No outcomes of interest	Incremental Prognostic Value of Brachial-Ankle Pulse Wave Velocity to Single-Photon Emission Computed Tomography in Patients with Suspected Coronary Artery Disease	Lee et al, 2015
No outcomes of interest	Circulating Endothelial Progenitor Cell Levels Predict Cardiovascular Events in End-Stage Renal Disease Patients on Maintenance Hemodialysis	Lee et al, 2015

Exclusion reason	Title	Source
No outcomes of interest	The Incremental Prognostic Value of Cardiac Computed Tomography in Comparison with Single-Photon Emission Computed Tomography in Patients with Suspected Coronary Artery Disease	Lee et al, 2016
No outcomes of interest	Prognosis of anatomic coronary artery disease without myocardial ischemia: Coronary computed tomography angiography detects high-risk patients even in cases of negative single-photon emission computed tomography findings	Lee et al, 2018
No outcomes of interest	Relationships between chronic comorbidities and the atherosclerosis indicators ankle-brachial index and brachial-ankle pulse wave velocity in patients with type 2 diabetes mellitus	Lee et al, 2018
No outcomes of interest	The Predictive Value of Coronary Artery Calcium Scoring for Major Adverse Cardiac Events According to Renal Function (from the Coronary Computed Tomography Angiography Evaluation for Clinical Outcomes: An International Multicenter CONFIRM Registry)	Lee et al, 2019
No outcomes of interest	Coronary CT angiography CAD-RADS versus coronary artery calcium score in patients with acute chest pain	Lee et al, 2021
No outcomes of interest	Arterial stiffness predicts risk for long-term recurrence in patients with type 2 diabetes admitted for acute coronary event	Levisianou et al, 2013
No outcomes of interest	High ankle-brachial index indicates cardiovascular and peripheral arterial disease in patients with type 2 diabetes	Li et al, 2015
No outcomes of interest	The addition of vascular calcification scores to traditional risk factors improves cardiovascular risk assessment in patients with chronic kidney disease	Liabeuf et al, 2015
No outcomes of interest	Coronary calcium characteristics as predictors of major adverse cardiac events in symptomatic patients: Insights from the CORE320 multinational study	Lo-Kioeng-Shioe et al, 2017
No outcomes of interest	Increased carotid intima-media thickness predicts cardiovascular events in aortic coarctation	Luijendijk et al, 2014
No outcomes of interest	Prognostic value of coronary CT angiography on long-term follow-up of 6.9 years	S et al, 2014
No outcomes of interest	Effect of periodontal therapy on arterial structure and function among aboriginal australians: a randomized, controlled trial	K et al, 2014
No outcomes of interest	Hypertension attenuates the prognostic value of coronary artery calcification scoring in low-risk patients	Maclean et al, 2021
No outcomes of interest	CT multivessel aggregate stenosis score: A novel point-of-care tool for predicting major adverse cardiac events	Maclean et al, 2022

Exclusion reason	Title	Source
No outcomes of interest	Qualitative coronary artery calcium assessment on CT lung screening exam helps predict first cardiac events	Malcolm et al, 2018
No outcomes of interest	Coronary artery calcium score for long-term risk classification in individuals with type 2 diabetes and metabolic syndrome from the multi-ethnic study of atherosclerosis	Malik et al, 2017
No outcomes of interest	Circulating endothelial progenitor cells and the risk of vascular events after ischemic stroke	Martí-Fàbregas et al, 2015
No outcomes of interest	Dyslipidemia, coronary artery calcium, and incident atherosclerotic cardiovascular disease: Implications for statin therapy from the multi-ethnic study of atherosclerosis	Martin et al, 2014
No outcomes of interest	Increased arterial stiffness and cardiovascular risk prediction in controlled hypertensive patients with coronary artery disease: post hoc analysis of FMD-J (Flow-mediated Dilation Japan) Study A	Maruhashi et al, 2020
No outcomes of interest	Predictive value of ankle-brachial index and PAI-1 in symptomatic intracranial atherosclerotic disease recurrence	Massot et al, 2014
No outcomes of interest	Peripheral microvascular dysfunction predicts residual risk in coronary artery disease patients on statin therapy	Matsue et al, 2014
No outcomes of interest	The role of endothelial progenitor cells in transient ischemic attack patients for future cerebrovascular events	Meamar et al, 2016
No outcomes of interest	Arterial stiffness predicts amputation and death in patients with chronic limb-threatening ischemia	Mendes-Pinto et al, 2021
No outcomes of interest	Carotid intima-media thickness and the risk of sudden cardiac death: The ARIC study and the CHS	Suzuki et al, 2020
No outcomes of interest	Incremental prognostic value of coronary computed tomographic angiography over coronary artery calcium score for risk prediction of major adverse cardiac events in asymptomatic diabetic individuals	Min et al, 2014
No outcomes of interest	Prognostic implications of myocardial perfusion imaging and coronary calcium score in a Macedonian cohort of asymptomatic patients with type 2 diabetes	Mitevska et al, 2017
No outcomes of interest	Endothelial dysfunction as predictor of angina recurrence after successful percutaneous coronary intervention using second generation drug eluting stents	Montone et al, 2018
No outcomes of interest	Handgrip strength is an independent predictor of cardiovascular outcomes in diabetes mellitus	Morikawa et al, 2021
No outcomes of interest	Negative Risk Markers for Cardiovascular Events in the Elderly	Mortensen et al, 2019
No outcomes of interest	Reduction of circulating endothelial progenitor cell level is associated with contrast-induced nephropathy in patients undergoing percutaneous coronary and peripheral interventions	Ch et al, 2014

Exclusion reason	Title	Source
No outcomes of interest	Prognostic value of coronary CT angiography in diabetic patients: a 5-year follow up study	Nadjiri et al, 2016
No outcomes of interest	Efficacy of combined use of three non-invasive atherosclerosis tests to predict vascular events in the elderly; carotid intima-media thickness, flow-mediated dilation of brachial artery and pulse wave velocity	Nagai et al, 2013
No outcomes of interest	Telomere length, antioxidant status and incidence of ischaemic heart disease in type 2 diabetes	Masi et al, 2016
No outcomes of interest	Vascular Function and Uric Acid-Lowering in Stage 3 CKD	Jalal et al, 2017
No outcomes of interest	Association of vascular indices with novel circulating biomarkers as prognostic factors for cardiovascular complications in patients with type 2 diabetes mellitus	Naka et al, 2018
No outcomes of interest	Ultrasound assessment of brachial endothelial vasomotor function in addition to carotid plaque echolucency for predicting cardiovascular events in patients with coronary artery disease	Nakamura et al, 2013
No outcomes of interest	Pulmonary Vascular Resistance Is Associated With Brachial-Ankle Pulse-Wave Velocity and Adverse Clinical Outcomes in Patients With Heart Failure With Preserved Ejection Fraction	Nakamura et al, 2019
No outcomes of interest	Improvement in Brachial Endothelial Vasomotor Function and Brachial-Ankle Pulse Wave Velocity Reduces the Residual Risk for Cardiovascular Events after Optimal Medical Treatment in Patients with Coronary Artery Disease	Nakamura et al, 2021
No outcomes of interest	Prognostic value of coronary artery disease-reporting and data system (CAD-RADS) score for cardiovascular events in ischemic stroke	Nam et al, 2019
No outcomes of interest	Integrated central blood pressure-aortic stiffness risk score for cardiovascular risk stratification in chronic kidney disease	Nemcsik et al, 2018
No outcomes of interest	Sleep apnea, coronary artery calcium density, and cardiovascular events: Results from the Multi-Ethnic Study of Atherosclerosis	Newman et al, 2021
No outcomes of interest	Relative Contributions of Arterial Stiffness and Hypertension to Cardiovascular Disease: The Framingham Heart Study	Niiranen et al, 2016
No outcomes of interest	Aortic-Brachial Arterial Stiffness Gradient and Cardiovascular Risk in the Community: The Framingham Heart Study	Niiranen et al, 2017
No outcomes of interest	Relative Contributions of Pulse Pressure and Arterial Stiffness to Cardiovascular Disease	Niiranen et al, 2019
No outcomes of interest	A Vascular Aging Index as Independent Predictor of Cardiovascular Events and Total Mortality in an Elderly Urban Population	Nilsson Wadstrom et al, 2019
No outcomes of interest	Aortic Stiffness, Inflammation, and Incidence of Cardiovascular Events in Elderly Participants From the General Population	Nilsson Wadström et al, 2022

Exclusion reason	Title	Source
No outcomes of interest	Prognostic value of ankle brachial index for future incident heart failure in patients without previous heart failure: data from the impressive predictive value of ankle brachial index for clinical long term outcome in patients with cardiovascular disease examined by ABI study	Nishimura et al, 2017
No outcomes of interest	Aortic Arch Pulse Wave Velocity Assessed by Magnetic Resonance Imaging as a Predictor of Incident Cardiovascular Events: The MESA (Multi-Ethnic Study of Atherosclerosis)	Ohyama et al, 2017
No outcomes of interest	Cardio-Ankle Vascular Index as an Arterial Stiffness Marker Improves the Prediction of Cardiovascular Events in Patients without Cardiovascular Diseases	Okamoto et al, 2022
No outcomes of interest	Carotid intima-media thickness progression predicts cardiovascular events in Japanese patients with type 2 diabetes	Okayama et al, 2013
No outcomes of interest	Association of cardio-ankle vascular index with cardiovascular risk factors and cardiovascular events in metabolic syndrome patients	A et al, 2015
No outcomes of interest	Association between Self-rated Health, Coronary Artery Calcium Scores, and Atherosclerotic Cardiovascular Disease Risk: The Multi-Ethnic Study of Atherosclerosis (MESA)	Orimoloye et al, 2019
No outcomes of interest	Coronary artery calcium and carotid artery intima-media thickness for the prediction of stroke and benefit from statins	Osawa et al, 2018
No outcomes of interest	Serial assessment of arterial stiffness by cardio-ankle vascular index for prediction of future cardiovascular events in patients with coronary artery disease	Otsuka et al, 2014
No outcomes of interest	Ankle-brachial index, arterial stiffness, and biomarkers in the prediction of mortality and outcomes in patients with end-stage kidney disease	Otsuka et al, 2019
No outcomes of interest	Peripheral microvascular dysfunction is associated with plaque progression and adverse long-term outcomes in heart transplant patients	Ozcan et al, 2021
No outcomes of interest	Calcification of the thoracic aorta on low-dose chest CT predicts severe COVID-19	Fervers et al, 2020
No outcomes of interest	Coronary artery calcium improves risk classification in younger populations	Paixao et al, 2015
No outcomes of interest	Epicardial fat attenuation, not volume, predicts obstructive coronary artery disease and high risk plaque features in patients with atypical chest pain	Pandey et al, 2020
No outcomes of interest	Clinical and imaging parameters to predict cardiovascular outcome in asymptomatic subjects	Park et al, 2013
No outcomes of interest	Levels of circulating CD34+/KDR+ cells do not predict coronary in-stent restenosis	Se et al, 2014
No outcomes of interest	Abdominal aorta plaques are better in predicting future cardiovascular events compared to carotid intima-media thickness: A 20-year prospective study	Parkkila et al, 2021

Exclusion reason	Title	Source
No outcomes of interest	Relationship of peripheral and coronary artery disease to cardiovascular events in patients with atrial fibrillation	Pastori et al, 2018
No outcomes of interest	Coronary Artery Calcium Improves Risk Assessment in Adults With a Family History of Premature Coronary Heart Disease: Results From Multiethnic Study of Atherosclerosis	Patel et al, 2015
No outcomes of interest	Assessment of coronary artery calcium scoring to guide statin therapy allocation according to risk-enhancing factors: The multi-ethnic study of atherosclerosis	Patel et al, 2021
No outcomes of interest	Computed tomography coronary angiography is an appropriate modality to investigate chest pain in patients with low to intermediate risk of coronary artery disease	Paymard et al, 2014
No outcomes of interest	Endothelial progenitor cells predict long-term outcome in patients with coronary artery disease: Ten-year follow-up of the PROCREATION extended study	Pelliccia et al, 2020
No outcomes of interest	Aortic pulse wave velocity and heart SCORE: Improving cardiovascular risk stratification. a sub-analysis of the EDIVA (Estudo de DIstensibilidade VAscular) project	Pereira et al, 2014
No outcomes of interest	Impact of Ankle Brachial Index Calculations on Peripheral Arterial Disease Prevalence and as a Predictor of Cardiovascular Risk	Pereira Filho et al, 2022
No outcomes of interest	Flow-mediated dilation is associated with cardiovascular events in non-valvular atrial fibrillation patients	Perri et al, 2015
No outcomes of interest	Conventional risk factors, telomere length, and ischemic heart disease: Insights into the mediation analysis	Piplani et al, 2021
No outcomes of interest	Associations of Coronary Heart Disease with Common Carotid Artery Near and Far Wall Intima-Media Thickness: The Multi-Ethnic Study of Atherosclerosis	Polak et al, 2015
No outcomes of interest	Coronary Artery Disease Events and Carotid Intima-Media Thickness in Type 1 Diabetes in the DCCT/EDIC Cohort	Polak et al, 2021
No outcomes of interest	Telomere length and risk of major adverse cardiac events and cancer in obstructive sleep apnea patients	Polonis et al, 2019
No outcomes of interest	Quantification of epicardial and intrathoracic fat volume does not provide an added prognostic value as an adjunct to coronary artery calcium score and myocardial perfusion single-photon emission computed tomography	Possner et al, 2016
No outcomes of interest	Ankle–brachial index and incident heart failure with reduced versus preserved ejection fraction: The Multi-Ethnic Study of Atherosclerosis	Prasada et al, 2019

Exclusion reason	Title	Source
No outcomes of interest	Comparison of non-traditional biomarkers, and combinations of biomarkers, for vascular risk prediction in people with type 2 diabetes: The Edinburgh Type 2 Diabetes Study	Price et al, 2017
No outcomes of interest	Radial Artery Tonometry is Associated With Major Adverse Cardiac Events in Patients With Peripheral Artery Disease	Ramirez et al, 2019
No outcomes of interest	Coronary artery calcium score versus a multiple biomarker approach for coronary heart disease risk assessment: Multi-ethnic study of at herosclerosis	Rana et al, 2013
No outcomes of interest	Coronary Artery Calcification, Statin Use and Long-Term Risk of Atherosclerotic Cardiovascular Disease Events (from the Multi-Ethnic Study of Atherosclerosis)	Rifai et al, 2020
No outcomes of interest	Comparison of guidelines for diagnosing suspected stable angina and the additional value of the calcium score	Rijlaarsdam-Hermsen et al, 2021
No outcomes of interest	Left ventricular ejection fraction and aortic stiffness are independent predictors of neurological outcome in acute ischemic stroke	Rojek et al, 2016
No outcomes of interest	Radial augmentation index is a surrogate marker of atherosclerotic burden in a primary prevention cohort	Rosenbaum et al, 2013
No outcomes of interest	Predictors of cardiovascular prognosis in patients receiving optimized secondary prevention measures after acute coronary syndrome	M et al, 2013
No outcomes of interest	Factors associated with incidence of stroke and heart failure among people living with HIV in Ghana: Evaluating Vascular Event Risk while on Long-Term Antiretroviral Suppressive Therapy (EVERLAST) Study	Sarfo et al, 2021
No outcomes of interest	The Role of Arterial Stiffness in the Estimation of Cardiovascular Risk in Liver Transplant Recipients	Sastre et al, 2022
No outcomes of interest	Cardio-ankle vascular index is independently associated with future cardiovascular events in outpatients with metabolic disorders	Sato et al, 2016
No outcomes of interest	Cardio-ankle vascular index predicts for the incidence of cardiovascular events in obese patients: A multicenter prospective cohort study (Japan Obesity and Metabolic Syndrome Study: JOMS)	Satoh-Asahara et al, 2015
No outcomes of interest	Impact of non-invasive cardiovascular screening programs as a predictor of cardiovascular events among asymptomatic chronic kidney disease patients	Sawai et al, 2016
No outcomes of interest	Prediction of cardiovascular events after renal transplantation	Seibert et al, 2015

Exclusion reason	Title	Source
No outcomes of interest	Brachial-ankle pulse wave velocity and mean platelet volume as predictive values after percutaneous coronary intervention for long-term clinical outcomes in Korea: A comparable and additive study	Seo et al, 2015
No outcomes of interest	The ARTICO study: identification of patients at high risk of vascular recurrence after a first non-cardioembolic stroke	Serena et al, 2015
No outcomes of interest	Coronary artery calcification progression and long-term cardiovascular outcomes in renal transplant recipients: an analysis by the joint model	Seyahi et al, 2022
No outcomes of interest	Coronary artery calcium score and coronary computed tomographic angiography for major perioperative cardiovascular complications in symptomatic diabetic patients undergoing trans-femoral amputation	Shalaeva et al, 2016
No outcomes of interest	Association of Aortic Compliance and Brachial Endothelial Function with Cerebral Small Vessel Disease in Type 2 Diabetes Mellitus Patients: Assessment with High-Resolution MRI	Shan et al, 2016
No outcomes of interest	The Relationship between Telomere Length and Cancer Mortality: Data from the 1999–2002 National Healthy and Nutrition Examination Survey (NHANES)	Shen et al, 2020
No outcomes of interest	A Coronary Artery Calcium Score of Zero in Patients Who Have Undergone Coronary Computed Tomography Angiography Is Associated With Freedom From Major Adverse Cardiovascular Events	Shiga et al, 2020
No outcomes of interest	Use of vascular assessments and novel biomarkers to predict cardiovascular events in type 2 diabetes: The Summit VIP study	Shore et al, 2018
No outcomes of interest	Prognostic significance of arterial stiffness and osteoprotegerin in patients with stable coronary artery disease	Siasos et al, 2018
No outcomes of interest	Cerebrovascular Risk-Factors of Prevalent and Incident Brain Infarcts in the General Population: The AGES-Reykjavik Study	Sigurdsson et al, 2022
No outcomes of interest	Machine learning derived ECG risk score improves cardiovascular risk assessment in conjunction with coronary artery calcium scoring	Siva Kumar et al, 2022
No outcomes of interest	Value of Carotid Ultrasound in Cardiovascular Risk Stratification in Patients With Psoriatic Disease	Sobchak et al, 2019
No outcomes of interest	Ankle-brachial index is a predictor of future incident chronic kidney disease in a general Japanese population	Sonoda et al, 2019
No outcomes of interest	Major adverse cardiovascular events in bulgarian patients with chronic coronary syndrome	Stoimenov et al, 2022

Exclusion reason	Title	Source
No outcomes of interest	Associations of lower-limb atherosclerosis and arteriosclerosis with cardiovascular risk factors and disease in older adults: The Atherosclerosis Risk in Communities (ARIC) study	Stone et al, 2022
No outcomes of interest	Subclinical markers of cardiovascular disease predict adverse outcomes in chronic kidney disease patients with normal left ventricular ejection fraction	Sulemane et al, 2017
No outcomes of interest	Stroke and cardio-ankle vascular stiffness index	Suzuki et al, 2013
No outcomes of interest	Associations between coronary and carotid artery atherosclerosis in patients with inflammatory joint diseases	Svanteson et al, 2017
No outcomes of interest	Differential impact of peripheral endothelial dysfunction on subsequent cardiovascular events following percutaneous coronary intervention between chronic kidney disease (CKD) and non-CKD patients	Tabata et al, 2016
No outcomes of interest	Short leukocyte telomere length predicts risk of diabetes in american indians: the strong heart family study	J et al, 2014
No outcomes of interest	A retrospective study of arterial stiffness and subsequent clinical outcomes in cancer patients undergoing percutaneous coronary intervention	Tabata et al, 2019
No outcomes of interest	Incremental Prognostic Value of Coronary Computed Tomography Angiography: High-Risk Plaque Characteristics in Asymptomatic Patients	Takamura et al, 2017
No outcomes of interest	A calcium score of zero has a high negative predictive value for excluding severe coronary artery stenosis in symptomatic patients in an asian population	Tay et al, 2013
No outcomes of interest	Association Between Telomere Length and Risk of Cancer and Non-Neoplastic Diseases: A Mendelian Randomization Study	Telomeres Mendelian Randomization et al, 2017
No outcomes of interest	Carotid plaque burden as a measure of subclinical coronary artery disease in patients with heterozygous familial hypercholesterolemia	ten Kate et al, 2013
No outcomes of interest	Correlation and predictive value of aortic root calcification markers with coronary artery calcification and obstructive coronary artery disease	Tesche et al, 2017
No outcomes of interest	Brachial-ankle pulse wave velocity versus its stiffness index β-transformed value as risk marker for cardiovascular disease	Tomiyama et al, 2019
No outcomes of interest	Usefulness of regional distribution of coronary artery calcium to improve the prediction of all-cause mortality	Tota-Maharaj et al, 2015
No outcomes of interest	Vascular aging detected by peripheral endothelial dysfunction is associated with ecg-derived physiological aging	Toya et al, 2021

Exclusion reason	Title	Source
No outcomes of interest	Relation of central arterial stiffness to incident heart failure in the community	Tsao et al, 2015
No outcomes of interest	Association between plaque localization in proximal coronary segments and MACE outcomes in patients with mild CAC: Results from the EISNER study	Tummala et al, 2022
No outcomes of interest	Aortic Pulse Wave Velocity as Adjunct Risk Marker for Assessing Cardiovascular Disease Risk: Prospective Study	Valencia-Hernández et al, 2022
No outcomes of interest	Added value of aortic pulse wave velocity index for the detection of coronary heart disease by elective coronary angiography	Vallee et al, 2019
No outcomes of interest	Prognostic value of coronary computed tomography angiography in diabetic patients without chest pain syndrome	van den Hoogen et al, 2016
No outcomes of interest	Multifocal cardiovascular calcification in patients with established cardiovascular disease; prevalence, risk factors, and relation with recurrent cardiovascular disease	van 't Klooster et al, 2020
No outcomes of interest	Interrelations Between Arterial Stiffness, Target Organ Damage, and Cardiovascular Disease Outcomes	Vasan et al, 2019
No outcomes of interest	Aortic Root Diameter and Arterial Stiffness: Conjoint Relations to the Incidence of Cardiovascular Disease in the Framingham Heart Study	Vasan et al, 2021
No outcomes of interest	Adding low ankle brachial index to classical risk factors improves the prediction of major cardiovascular events: The REGICOR study	Velescu et al, 2015
No outcomes of interest	Predicting Severity of Coronary Artery Disease in Patients With Diabetes Using Endothelial Function Measured With Peripheral Arterial Tonometry: PROCEED Study	Venuraju et al, 2019
No outcomes of interest	Carotid Intima-media Thickness/Diameter Ratio and Peak Systolic Velocity as Risk Factors for Neurological Severe Ischemic Events in Takayasu Arteritis	Wang et al, 2022
No outcomes of interest	Combined use of exercise electrocardiography, coronary calcium score and cardiac CT angiography for the prediction of major cardiovascular events in patients presenting with stable chest pain	Versteylen et al, 2013
No outcomes of interest	Endothelial dysfunction and cardiovascular outcome in asymptomatic patients with type 2 diabetes: A pilot study	Villano et al, 2020
No outcomes of interest	Central Haemodynamics and Prediction of Cardiovascular Events in Patients With Erectile Dysfunction	Vlachopoulos et al, 2017
No outcomes of interest	Coronary calcium score improves the estimation for pretest probability of obstructive coronary artery disease and avoids unnecessary testing in individuals at low extreme of traditional risk factor burden: Validation and comparison of CONFIRM score and genders extended model	Wang et al, 2018

Exclusion reason	Title	Source
No outcomes of interest	A zero coronary artery calcium score in patients with stable chest pain is associated with a good prognosis, despite risk of non-calcified plaques	Wang et al, 2019
No outcomes of interest	Predictors of coronary artery calcification and its association with cardiovascular events in patients with chronic kidney disease	Wang et al, 2021
No outcomes of interest	Shorter leukocyte telomere length is associated with adverse COVID-19 outcomes: A cohort study in UK Biobank	Wang et al, 2021
No outcomes of interest	Coronary Calcium Score May Replace Cardiovascular Risk Factors as Primary Risk Stratification Tool before Kidney Transplantation	Winther et al, 2016
No outcomes of interest	Elevation of HDL-C in response to statin treatment is involved in the regression of carotid atherosclerosis	Y et al, 2014
No outcomes of interest	Dose-Dependent Arterial Destiffening and Inward Remodeling After Olmesartan in Hypertensives With Metabolic Syndrome	Laurent et al, 2014
No outcomes of interest	Relations between subclinical disease markers and type 2 diabetes,metabolic syndrome, and incident cardiovascular disease: The Jackson heart study	Xanthakis et al, 2015
No outcomes of interest	Serum Sortilin Is Associated with Coronary Artery Calcification and Cardiovascular and Cerebrovascular Events in Maintenance Hemodialysis Patients	Xu et al, 2021
No outcomes of interest	Examining the effects of uric acid-lowering on markers vascular of calcification and CKD-MBD; A post-hoc analysis of a randomized clinical trial	Andrews et al, 2018
No outcomes of interest	Endothelial dysfunction measured by peripheral arterial tonometry predicts prognosis in patients with heart failure with preserved ejection fraction	Y et al, 2013
No outcomes of interest	Predictive value of the coronary artery calcium score and advanced plaque characteristics: Post hoc analysis of the PREDICT registry	Yamamoto et al, 2021
No outcomes of interest	Progression of coronary atherosclerotic plaque burden and relationship with adverse cardiovascular event in asymptomatic diabetic patients	Yang et al, 2019
No outcomes of interest	Nongated Computed Tomography Predicts Perioperative Cardiovascular Risk in Lung Cancer Surgery	Yang et al, 2022
No outcomes of interest	Brachial-ankle pulse wave velocity and cardio-ankle vascular index are associated with future cardiovascular events in a general population: The Nagahama Study	Yasuharu et al, 2021
No outcomes of interest	The atherosclerosis burden score (ABS): a convenient ultrasound-based score of peripheral atherosclerosis for coronary artery disease prediction	Yerly et al, 2015

Exclusion reason	Title	Source
No outcomes of interest	Diagnostic role of coronary calcium scoring in the rapid access chest pain clinic: Prospective evaluation of NICE guidance	Yerramasu et al, 2014
No outcomes of interest	Brachial-ankle pulse wave velocity predicts decline in renal function and cardiovascular events in early stages of chronic kidney disease	Yoon et al, 2013
No outcomes of interest	The Value of Elastic Modulus Index as a Novel Surrogate Marker for Cardiovascular Risk Stratification by Dimensional Speckle-Tracking Carotid Ultrasonography	Yoon et al, 2016
No outcomes of interest	Prognostic value of coronary ct angiography for predicting poor cardiac outcome in stroke patients without known cardiac disease or chest pain: The assessment of coronary artery disease in stroke patients study	Yoon et al, 2020
No outcomes of interest	Calcium density of coronary artery plaque and risk of incident cardiovascular events	Criqui et al, 2014
No outcomes of interest	Prospective comparison of non-invasive risk markers of major cardiovascular events in COPD patients	Zagaceta et al, 2017
No outcomes of interest	Combined evaluation of regional coronary artery calcium and myocardial perfusion by 82Rb PET/CT in predicting lesion-related outcome	Zampella et al, 2020
No outcomes of interest	Genetic Association of Finger Photoplethysmography-Derived Arterial Stiffness Index with Blood Pressure and Coronary Artery Disease	Zekavat et al, 2019
No outcomes of interest	Exploring the Causal Pathway from Telomere Length to Coronary Heart Disease: A Network Mendelian Randomization Study	Zhan et al, 2017
No outcomes of interest	Combining Pulse Wave Velocity With Galectin-3 to Predict Mortality and Cerebrovascular and Cardiovascular Events in Hemodialysis Patients	Zhang et al, 2020
No outcomes of interest	Predictive value of coronary calcifications for future cardiac events in asymptomatic patients: underestimation of risk in asymptomatic smokers	Zimmermann et al, 2019
No relevant biomarkers	Chest CT-assessed comorbidities and all-cause mortality risk in COPD patients in the BODE cohort	Ezponda et al, 2022
No relevant biomarkers	Haemostatic factors, lipoproteins and long-term mortality in a multi-ethnic population of Gujarati, African-Caribbean and European origin	Anderson et al, 2014
No relevant biomarkers	Construction and validation of a 14-year cardiovascular risk score for use in the general population: The puras-GEVA chart	Artigao-Rodenas et al, 2015
No relevant biomarkers	The Japan Statin Treatment Against Recurrent Stroke (J-STARS): A Multicenter, Randomized, Open-label, Parallel-group Study	N et al, 2015

Exclusion reason	Title	Source
No relevant biomarkers	Combined aortic valve and coronary artery calcifications in lung cancer screening as predictors of death from cardiovascular disease	Zhu et al, 2020
No relevant biomarkers	Aorto-iliac artery calcification prior to kidney transplantation	Benjamens et al, 2020
No relevant biomarkers	Extracranial carotid artery stenosis and outcomes of patients undergoing transcatheter aortic valve replacement	Ben-Shoshan et al, 2017
No relevant biomarkers	Aortic stiffness and plasma brain natriuretic peptide predicts mortality in acute ischemic stroke	Biteker et al, 2015
No relevant biomarkers	Focused carotid ultrasound to predict major adverse cardiac events among emergency department patients with chest pain	Brooks et al, 2023
No relevant biomarkers	Prognostic Value of Changes in Aortic Stiffness for Cardiovascular Outcomes and Mortality in Resistant Hypertension: a Cohort Study	Cardoso et al, 2022
No relevant biomarkers	The CHADS2 and CHA2DS2-VASc scores predict adverse vascular function, ischemic stroke and cardiovascular death in high-risk patients without atrial fibrillation: role of incorporating PR prolongation	Chan et al, 2014
No relevant biomarkers	Abdominal aortic calcification score can predict future coronary artery disease in hemodialysis patients: a 5-year prospective cohort study	Chen et al, 2018
No relevant biomarkers	Abdominal aortic calcification score predicts the occurrence of coronary artery disease in middle-aged peritoneal dialysis patients	Chen et al, 2019
No relevant biomarkers	Establishment of a diagnostic model of coronary heart disease for patients with diabetic foot	Chen et al, 2020
No relevant biomarkers	Diurnal Blood Pressure and Heart Rate Variability in Hypertensive Patients with Cerebral Small Vessel Disease: A Case-Control Study	Chen et al, 2021
No relevant biomarkers	Prognostic significance of mechanical biomarkers derived from pulse wave analysis for predicting long-term cardiovascular mortality in two population-based cohorts	Cheng et al, 2016
No relevant biomarkers	CD142+/CD61+, CD146+ and CD45+ microparticles predict cardiovascular events in high risk patients following a Mediterranean diet supplemented with nuts	Chiva-Blanch et al, 2016
No relevant biomarkers	Editor's Choice – Calcification of Thoracic and Abdominal Aneurysms is Associated with Mortality and Morbidity	Chowdhury et al, 2018
No relevant biomarkers	Abdominal Aortic Intima-Media Thickness Predicts Coronary Artery Disease Severity in Patients With Stable Angina Pectoris: A Prospective Study	Cirakoglu et al, 2021
No relevant biomarkers	Inter-arm blood pressure difference and mortality: A cohort study in an asymptomatic primary care population at elevated cardiovascular risk	Clark et al, 2016

Exclusion reason	Title	Source
No relevant biomarkers	Association of Cardiac Biomarkers With Cardiovascular Outcomes in Patients With Psoriatic Arthritis and Psoriasis: A Longitudinal Cohort Study	Colaco et al, 2022
No relevant biomarkers	Diastolic blood pressure, aortic atheroma, and prognosis in hypertension: new insights into a complex association	Courand et al, 2014
No relevant biomarkers	Contemporary cardiovascular risk assessment for type 2 diabetes including heart failure as an outcome: The fremantle diabetes study phase ii	Davis et al, 2020
No relevant biomarkers	Digital arterial pressure pulse wave analysis and cardiovascular events in the general population: the Prevention of Renal and Vascular End-stage Disease study	De Jong et al, 2020
No relevant biomarkers	Carotid plaque calcification predicts future cardiovascular events in type 2 diabetes	De Kreutzenberg et al, 2015
No relevant biomarkers	Glycated hemoglobin predicts overall and cardiovascular mortality in non-diabetic hemodialysis patients	Es et al, 2014
No relevant biomarkers	Estimated Pulse Wave Velocity Is Associated With All-Cause Mortality During 8.5 Years Follow-up in Patients Undergoing Elective Coronary Angiography	Laugesen et al, 2022
No relevant biomarkers	Joint Effect of Carotid Plaque and C-Reactive Protein on First-Ever Ischemic Stroke and Myocardial Infarction?	Eltoft et al, 2018
No relevant biomarkers	Coronary artery calcifications and 6-month mortality in patients with COVID-19 without known atheromatous disease	Le Hir et al, 2022
No relevant biomarkers	Visual Ordinal Scoring of Coronary Artery Calcium on Contrast-Enhanced and Noncontrast Chest CT: A Retrospective Study of Diagnostic Performance and Prognostic Utility	Fresno et al, 2022
No relevant biomarkers	Visual Coronary and Aortic Calcium Scoring on Chest Computed Tomography Predict Mortality in Patients With Low-Density Lipoprotein-Cholesterol >=190 mg/dL	Castagna et al, 2022
No relevant biomarkers	Circulating GDF-15 levels predict future secondary manifestations of cardiovascular disease explicitly in women but not men with atherosclerosis	Gohar et al, 2017
No relevant biomarkers	Transcatheter aortic valve replacement with the balloon-expandable SAPIEN 3 valve: Impact of calcium score on valve performance and clinical outcomes	Guimarães et al, 2020
No relevant biomarkers	Prognostic value of an increase in post-exercise ankle-brachial index	Hammad et al, 2017
No relevant biomarkers	Predicting stroke outcomes using Ankle-Brachial index and inter-ankle blood pressure difference	Han et al, 2020
No relevant biomarkers	Prognostic significance of aortic valve calcium in relation to coronary artery calcification for long-term, cause-specific mortality: Results from the CAC Consortium	Han et al, 2021

Exclusion reason	Title	Source
No relevant biomarkers	Usefulness of Estimated Pulse Wave Velocity in Prediction of Cardiovascular Mortality in Patients With Acute Myocardial Infarction	Hsu et al, 2021
No relevant biomarkers	Association of lower extremity arterial calcification with amputation and mortality in patients with symptomatic peripheral artery disease	Huang et al, 2014
No relevant biomarkers	In HCV-related liver cirrhosis, local pulse wave velocity increases and in decompensated patients correlates with poorer survival	Huang et al, 2019
No relevant biomarkers	Clinical and radiological characteristics of acute pulmonary embolus in relation to 28-day and 6-month mortality	Norton et al, 2021
No relevant biomarkers	Impact of estimated pulse wave velocity and socioeconomic status on the risk of stroke in men: a prospective cohort study	Jae et al, 2022
No relevant biomarkers	Integrated flow-mediated vasodilation response predicts cardiovascular events in elderly patients with cardiovascular risk factors: the Japan Morning Surge–Home Blood Pressure study	Kabutoya et al, 2018
No relevant biomarkers	Biochemical and clinical correlation of intraplaque neovascularization using contrast-enhanced ultrasound of the carotid artery	Kim et al, 2014
No relevant biomarkers	Clinical, biochemical and genetic risk factors for 30-day and 5-year mortality in 518 adult patients subjected to cardiopulmonary bypass during cardiac surgery - the INFLACOR study	Kowalik et al, 2018
No relevant biomarkers	Compliance Index, a Marker of Peripheral Arterial Stiffness, may Predict Renal Function Decline in Patients with Chronic Kidney Disease	Kuo et al, 2015
No relevant biomarkers	The association between left main coronary artery calcium and cardiovascular-specific and total mortality: The Coronary Artery Calcium Consortium	Lahti et al, 2019
No relevant biomarkers	Dyspnea predicts mortality among patients undergoing coronary computed tomographic angiography	R et al, 2016
No relevant biomarkers	One-Year Outcomes After Primary Percutaneous Coronary Intervention for ST-Segment Elevation Myocardial Infarction With Varying Quantities of Coronary Artery Calcium (from a 13-Year Registry)	Vaduganathan et al, 2016
No relevant biomarkers	Early Exclusion of Major Adverse Cardiac Events in Emergency Department Chest Pain Patients: A Prospective Observational Study	Leung et al, 2017
No relevant biomarkers	Association of Estimated Pulse Wave Velocity and the Dynamic Changes in Estimated Pulse Wave Velocity with All-Cause Mortality among Middle-Aged and Elderly Chinese	Liu et al, 2022

Exclusion reason	Title	Source
No relevant biomarkers	Association of Thoracic Aorta Calcium Score With Exercise Blood Pressure Response and Clinical Outcomes in Elderly Individuals: Differential Impact of Aorta Calcification Compared With Coronary Artery Calcification	Cho et al, 2016
No relevant biomarkers	Airway Telomere Length in Lung Transplant Recipients	Mackintosh et al, 2021
No relevant biomarkers	Estimated pulse-wave velocity predicts survival in patients requiring extracorporeal membrane oxygenation	Malik et al, 2022
No relevant biomarkers	Qualitative coronary artery calcification scores and risk of all cause, COPD and pneumonia hospital admission in a large CT lung cancer screening cohort	Gazourian et al, 2021
No relevant biomarkers	Endothelial Dysfunction is Associated With Early-Onset Cryptogenic Ischemic Stroke in Men and With Increasing Age	Martinez-Majander et al, 2021
No relevant biomarkers	Vascular calcification by conventional X-ray and mortality in a cohort of predominantly African descent hemodialysis patients	Martins et al, 2021
No relevant biomarkers	The Impact of Membrane Permeability and Dialysate Purity on Cardiovascular Outcomes	Asci et al, 2013
No relevant biomarkers	Calcium Score Predicts Mortality After Revascularization in Critical Limb Ischemia	Megale et al, 2022
No relevant biomarkers	Change in leukocyte telomere length predicts mortality in patients with stable coronary heart disease from the heart and soul study	Goglin et al, 2016
No relevant biomarkers	Ultrasound carotid plaque features, cardiovascular disease risk factors and events: The Multi-Ethnic Study of Atherosclerosis	Mitchell et al, 2018
No relevant biomarkers	Carotid artery echolucency, texture features, and incident cardiovascular disease events: The mesa study	Mitchell et al, 2019
No relevant biomarkers	Association between coronary artery calcifications and 6-month mortality in hospitalized patients with COVID-19	Mousseaux et al, 2021
No relevant biomarkers	Utility of visual coronary artery calcification on non-cardiac gated thoracic CT in predicting clinical severity and outcome in COVID-19	Nair et al, 2021
No relevant biomarkers	Bilateral low systolic toe pressure and toe-brachial index are associated with long-term mortality in patients with peripheral artery disease	Wickström et al, 2019
No relevant biomarkers	Comparing different calcification scores to detect outcomes in chronic kidney disease patients with vascular calcification	NasrAllah et al, 2016
No relevant biomarkers	Carotid Plaque Features and Inflammatory Biomarkers as Predictors of Restenosis and Mortality Following Carotid Endarterectomy	Niculescu et al, 2022

Exclusion reason	Title	Source
No relevant biomarkers	Trajectories of arterial stiffness and all-cause mortality among community-dwelling older Japanese	Taniguchi et al, 2018
No relevant biomarkers	Accuracy and clinical outcomes of computed tomography coronary angiography in the presence of a high coronary calcium score	Otton et al, 2013
No relevant biomarkers	Arterial Wave Reflection and Aortic Valve Stenosis: Diagnostic Challenges and Prognostic Significance	Pagoulatou et al, 2022
No relevant biomarkers	Early Conversion to Prednisolone/Everolimus as an Alternative Weaning Regimen Associates With Beneficial Renal Transplant Histology and Function: The Randomized-Controlled MECANO Trial	Fj et al, 2017
No relevant biomarkers	Association of vascular endothelial factors with cardiovascular outcome and mortality in chronic kidney disease patients: a 4-year cohort study	Rambod et al, 2014
No relevant biomarkers	Prognostic value of nonobstructive and obstructive coronary artery disease detected by coronary computed tomography angiography to identify cardiovascular events	Ms et al, 2014
No relevant biomarkers	Risk of cardiovascular mortality predicted by the serum calcium level and calcification score at the initiation of dialysis	Sato et al, 2018
No relevant biomarkers	Morning and Evening Home Blood Pressure and Risks of Incident Stroke and Coronary Artery Disease in the Japanese General Practice Population: The Japan Morning Surge-Home Blood Pressure Study	S et al, 2016
No relevant biomarkers	Association of the prognosis of ankle-brachial index improvement one year following endovascular therapy in patients with peripheral artery disease: Data from the I-PAD NAGANO registry	Senda et al, 2021
No relevant biomarkers	Osteoprotegerin Is a Better Predictor for Cardiovascular and All-Cause Mortality than Vascular Calcifications in a Multicenter Cohort of Patients on Peritoneal Dialysis	Ávila et al, 2022
No relevant biomarkers	Cardiovascular and Metabolic Diseases Etiology Research Center (CMERC) cohort: study protocol and results of the first 3 years of enrollment	Shim et al, 2017
No relevant biomarkers	Toe Pressure and Toe Brachial Index are Predictive of Cardiovascular Mortality, Overall Mortality, and Amputation Free Survival in Patients with Peripheral Artery Disease	Wickström et al, 2017
No relevant biomarkers	An echocardiography-derived calcium score as a predictor of major adverse cardiovascular events in peritoneal dialysis patients—A prospective cohort study	Sin et al, 2022
No relevant biomarkers	The use of overnight pulse wave analysis for recognition of cardiovascular risk factors and risk: a multicentric evaluation	Sommermeyer et al, 2014

Exclusion reason	Title	Source
No relevant biomarkers	Estimated pulse wave velocity improves risk stratification for all-cause mortality in patients with COVID-19	Stamatelopoulos et al, 2021
No relevant biomarkers	Cortical Cerebral Microinfarcts on 3T Magnetic Resonance Imaging in Patients With Carotid Artery Stenosis	Takasugi et al, 2019
No relevant biomarkers	Visually assessed coronary and cardiac calcium outperforms perfusion data during scintigraphy in the prediction of adverse outcomes	Gaibazzi et al, 2020
No relevant biomarkers	Comparing the modified history, electrocardiogram, age, risk factors, and troponin score and coronary artery disease consortium model for predicting obstructive coronary artery disease and cardiovascular events in patients with acute chest pain	Teressa et al, 2019
No relevant biomarkers	Does coronary calcium score zero reliably rule out coronary artery disease in low-to-intermediate risk patients? A coronary CTA study	Senoner et al, 2020
No relevant biomarkers	18FDG PET/CT & arterial inflammation: Predicting cardiovascular events in lung cancer	Villena García et al, 2019
No relevant biomarkers	Does Estimated Pulse Wave Velocity Add Prognostic Information?: MORGAM Prospective Cohort Project	Vishram-Nielsen et al, 2020
No relevant biomarkers	Association of Estimated Pulse Wave Velocity With Survival: a Secondary Analysis of SPRINT	Vlachopoulos et al, 2019
No relevant biomarkers	Association of the Estimated Pulse Wave Velocity with Cardio-Vascular Disease Outcomes among Men and Women Aged 40-69 Years in the Korean Population: An 18-Year Follow-Up Report on the Ansung-Ansan Cohort in the Korean Genome Environment Study	Kim et al, 2022
No relevant biomarkers	Aortic valve and aortic root calcifications for predicting major adverse cardiovascular events: NADESICO study	Wada et al, 2022
No relevant biomarkers	Lipoprotein-Associated Phospholipase A2 and Risk of Carotid Atherosclerosis and Cardiovascular Events in Community-Based Older Adults in China	Wang et al, 2018
No relevant biomarkers	The value of noncoronary atherosclerosis for identifying coronary artery disease: results of the Leipzig LIFE Heart Study	Weissgerber et al, 2016
No relevant biomarkers	Crural Index and extensive atherosclerosis of crural vessels are associated with long-term cardiovascular mortality in patients with symptomatic peripheral artery disease	Wickström et al, 2017
No relevant biomarkers	Low Toe–Brachial Index Is Associated With Stroke Outcome Despite Normal Ankle–Brachial Index	Han et al, 2021
No relevant biomarkers	Coronary Artery Calcification on Thoracic Computed Tomography Is an Independent Predictor of Mortality in Patients with Bronchiectasis	Williams et al, 2021

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No relevant biomarkers	Construction of Novel Gene Signature-Based Predictive Model for the Diagnosis of Acute Myocardial Infarction by Combining Random Forest With Artificial Neural Network	Wu et al, 2022
No relevant biomarkers	Abnormal digital brachial index prior to hemodialysis access construction and cardiovascular mortality	Yadav et al, 2020
Not prospective study with a follow-up period ≥6 months	Coronary Artery Calcification and Complications in Patients With COVID-19	Dillinger et al, 2020
Not prospective study with a follow-up period ≥6 months	Is there a role for routine use of calcium scoring in predicting cardiovascular event in asymptomatic adults in primary care?	Abdul Rahman et al, 2014
Not prospective study with a follow-up period ≥6 months	Composite carotid intima-media thickness as a risk predictor of coronary heart disease in a selected population in Sri Lanka	Abeysuriya et al, 2022
Not prospective study with a follow-up period ≥6 months	Prognostic significance of systemic arterial stiffness evaluated by cardio-ankle vascular index in patients with idiopathic pulmonary hypertension	Radchenko et al, 2021
Not prospective study with a follow-up period ≥6 months	Evaluation of arterial stiffness for predicting future cardiovascular events in patients with ST segment elevation and non-ST segment elevation myocardial infarction	Akkus et al, 2013
Not prospective study with a follow-up period ≥6 months	Coronary artery calcium score in predicting periprocedural myocardial infarction in patients undergoing an elective percutaneous coronary intervention	Kang et al, 2018
Not prospective study with a follow-up period ≥6 months	Hypertension, Arterial Stiffness, and Clinical Outcomes: A Cohort Study of Chinese Community-Based Population	Zhou et al, 2021
Not prospective study with a follow-up period ≥6 months	In-hospital prognostic role of coronary atherosclerotic burden in COVID-19 patients	Fazzari et al, 2021
Not prospective study with a follow-up period ≥6 months	From arterial stiffness to kidney graft microvasculature: Mortality and graft survival within a cohort of 220 kidney transplant recipients	Cheddani et al, 2018
Not prospective study with a follow-up period ≥6 months	Comparison of Three Atherosclerotic Cardiovascular Disease Risk Scores With and Without Coronary Calcium for Predicting Revascularization and Major Adverse Coronary Events in Symptomatic Patients Undergoing Positron Emission Tomography-Stress Testing	Anderson et al, 2020
Not prospective study with a follow-up period ≥6 months	Use of the ankle-brachial index combined with the percentage of mean arterial pressure at the ankle to improve prediction of all-cause mortality in type 2 diabetes mellitus: an observational study	Li et al, 2020
Not prospective study with a follow-up period ≥6 months	Incremental benefit of coronary artery calcium score above traditional risk factors for all-cause mortality in asymptomatic Korean adults	Han et al, 2015

Exclusion reason	Title	Source
Not prospective study with a follow-up period ≥6 months	Lymphocyte telomere length predicts clinical outcomes of HPV-positive oropharyngeal cancer patients after definitive radiotherapy	Luo et al, 2019
Not prospective study with a follow-up period ≥6 months	Coronary calcium score as a predictor of outcomes in the hypertensive Covid-19 population: results from the Italian (S) Core-Covid-19 Registry	Cereda et al, 2022
Not prospective study with a follow-up period ≥6 months	The combination of the ankle brachial index and brachial ankle pulse wave velocity exhibits a superior association with outcomes in diabetic patients	Chang et al, 2014
Not prospective study with a follow-up period ≥6 months	Brachial-ankle PWV for predicting clinical outcomes in patients with acute stroke	Ahn et al, 2017
Not prospective study with a follow-up period ≥6 months	Sex-specific associations of brachial^ankle pulse wave velocity with adverse cardiac remodeling and long-term cardiovascular outcome	Kwak et al, 2022
Not prospective study with a follow-up period ≥6 months	Telomere Length, Telomerase Activity, Heart Rate Variability, or Oxidative Stress: Which One Is Most Associated with the Atherothrombotic Stroke in the Elderly?	Cherska et al, 2020
Not prospective study with a follow-up period ≥6 months	Impact of the Coronary Artery Calcium Score on Mid- to Long-Term Cardiovascular Mortality and Morbidity Measured With Coronary Computed Tomography Angiography	Yamamoto et al, 2018
Not prospective study with a follow-up period ≥6 months	Levels of ankle-brachial index and the risk of diabetes mellitus complications	Alves-Cabratosa et al, 2020
Not prospective study with a follow-up period ≥6 months	Coronary Artery Calcium Score Compared with Cardio-Ankle Vascular Index in the Prediction of Cardiovascular Events in Asymptomatic Patients with Type 2 Diabetes	Chung et al, 2015
Not prospective study with a follow-up period ≥6 months	Clinical associations of vascular stiffness, microvascular dysfunction, and prevalent cardiovascular disease in a black cohort: The jackson heart study	Cooper et al, 2020
Not prospective study with a follow-up period ≥6 months	The Ankle Brachial Index Exhibits Better Association of Cardiovascular Prognosis Than Non-High-Density Lipoprotein Cholesterol in Type 2 Diabetes	Chang et al, 2016
Not prospective study with a follow-up period ≥6 months	Coronary calcium scoring assessed on native screening chest CT imaging as predictor for outcome in COVID-19: An analysis of a hospitalized German cohort	Zimmermann et al, 2020
Not prospective study with a follow-up period ≥6 months	Association between Low Ankle-Brachial Index and Poor Outcomes in Patients with Embolic Stroke of Undetermined Source	Han et al, 2022
Not prospective study with a follow-up period ≥6 months	Prevalence and extent of atherosclerotic coronary artery disease and related outcome based on coronary computed tomographic angiography in asymptomatic elderly patients: retrospective cohort study	Hj et al, 2014
Not prospective study with a follow-up period ≥6 months	Significance of an abnormal ankle-brachial index in patients with established coronary artery disease with and without associated diabetes mellitus	Banerjee et al, 2014

Exclusion reason	Title	Source
Not prospective study with a follow-up period ≥6 months	Telomere Length and Risk of Myocardial Infarction in a MultiEthnic Population the INTERHEART Study	D'Mello et al, 2016
Not prospective study with a follow-up period ≥6 months	Low Ankle-Brachial Index Is Associated With Stroke Recurrence in Ischemic Stroke Patients With Atrial Fibrillation	Han et al, 2021
Not prospective study with a follow-up period ≥6 months	The association between peri-dialytic pulse wave velocity measurements and hemodialysis patient mortality	Vongsanim et al, 2021
Not prospective study with a follow-up period ≥6 months	Cardiovascular event rates in patients with ST-elevation myocardial infarction were lower with early increases in mobilization of Oct4(high)Nanog(high) stem cells into the peripheral circulation during a 4-year follow-up	Cw et al, 2013
Not prospective study with a follow-up period ≥6 months	Telomere length and outcomes in ischaemic heart failure: data from the COntrolled ROsuvastatin multiNAtional Trial in Heart Failure (CORONA)	Haver et al, 2015
Not prospective study with a follow-up period ≥6 months	Usefulness of four-limb blood pressure measurement in prediction of overall and cardiovascular mortality in acute myocardial infarction	Hsu et al, 2020
Not prospective study with a follow-up period ≥6 months	Circulating endothelial cells as predictor of long-term mortality and adverse cardiovascular outcomes in hemodialysis patients	Mohandas et al, 2021
Not prospective study with a follow-up period ≥6 months	Coronary Calcium Score in COVID-19 Hospitalized Patients	Cosyns et al, 2020
Not prospective study with a follow-up period ≥6 months	Effects of the ankle-brachial blood pressure index and skin perfusion pressure on mortality in hemodialysis patients	Otani et al, 2013
Not prospective study with a follow-up period ≥6 months	Relationship between percentage of mean arterial pressure at the ankle and mortality in participants with normal ankle-brachial index: an observational study	Li et al, 2016
Not prospective study with a follow-up period ≥6 months	Additional prognostic value of toe-brachial index beyond ankle-brachial index in hemodialysis patients	Hishida et al, 2020
Not prospective study with a follow-up period ≥6 months	Ultrasound Measurement of Carotid Intima–Media Thickness and Plaques in Predicting Coronary Artery Disease	Hensley et al, 2020
Not prospective study with a follow-up period ≥6 months	Association of Coronary Artery Calcification and Mortality in the National Lung Screening Trial: a Comparison of Three Scoring Methods	Chiles et al, 2015
Not prospective study with a follow-up period ≥6 months	Prognostic value of visually detected coronary artery calcification on unenhanced non-gated thoracic computed tomography for prediction of non-fatal myocardial infarction and all-cause mortality	Shao et al, 2017

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Not prospective study with a follow-up period ≥6 months	Predictive value of brachial–ankle pulse wave velocity for long-term clinical outcomes after percutaneous coronary intervention in a Korean cohort	Ki et al, 2014
Not prospective study with a follow-up period ≥6 months	Incremental prognostic value of aortic stiffness in addition to myocardial ischemia by cardiac magnetic resonance imaging	Kaolawanich et al, 2020
Not prospective study with a follow-up period ≥6 months	The additive prognostic value of coronary calcium score (CCS) to single photon emission computed tomography myocardial perfusion imaging (SPECT-MPI)-real world data from a single center	Sharma et al, 2021
Not prospective study with a follow-up period ≥6 months	Association between increased arterial stiffness and clinical outcomes in patients with early sepsis: a prospective observational cohort study	Kazune et al, 2019
Not prospective study with a follow-up period ≥6 months	Long-Term All-Cause and Cause-Specific Mortality in Asymptomatic Patients With CAC ≥1,000: Results From the CAC Consortium	Peng et al, 2020
Not prospective study with a follow-up period ≥6 months	Discordant Values in Lower Extremity Physiologic Studies Predict Increased Cardiovascular Risk	Firth et al, 2020
Not prospective study with a follow-up period ≥6 months	Clinical outcomes after infrainguinal bypass grafting for critical limb ischaemia in patients with dialysis-dependent end-stage renal failure	Kodama et al, 2014
Not prospective study with a follow-up period ≥6 months	Toe pressure and toe brachial index are predictive of cardiovascular mortality regardless of the most diseased arterial segment in symptomatic lower-extremity artery disease-A retrospective cohort study	Koivunen et al, 2021
Not prospective study with a follow-up period ≥6 months	Prognostic value of the cha2ds2-vasc score after endovascular therapy for femoral popliteal artery lesions	Tomoi et al, 2021
Not prospective study with a follow-up period ≥6 months	Diagnostic and Prognostic Role of the Modified Diamond-Forrester Model in Combination With Coronary Calcium Score in Acute Chest Pain Patients	Lavenburg et al, 2019
Not prospective study with a follow-up period ≥6 months	Influence of endothelial function and arterial stiffness on the behavior of cervicocephalic arterial dissections: An observational study	Lee et al, 2022
Not prospective study with a follow-up period ≥6 months	Warranty period of zero coronary artery calcium score for predicting all-cause mortality according to cardiac risk burden in asymptomatic Korean adults	Lee et al, 2016
Not prospective study with a follow-up period ≥6 months	Impact of carotid atherosclerosis in cha2ds2-vasc-based risk score on predicting ischemic stroke in patients with atrial fibrillation	Cho et al, 2021
Not prospective study with a follow-up period ≥6 months	Outcome of patients with reduced ankle brachial index undergoing open heart surgery with cardiopulmonary bypass	Meyborg et al, 2016

Exclusion reason	Title	Source
Not prospective study with a follow-up period ≥6 months	Telomere length associated with the risks of high-risk and ischemic stroke in southern Chinese Han population	Luo et al, 2017
Not prospective study with a follow-up period ≥6 months	Coronary artery calcification and risk of mortality and adverse outcomes in patients with COVID-19: a Chinese multicenter retrospective cohort study	Luo et al, 2022
Not prospective study with a follow-up period ≥6 months	Prediction of all-cause and cardiovascular mortality using ankle-brachial index and brachial-ankle pulse wave velocity in patients with type 2 diabetes	Lin et al, 2022
Not prospective study with a follow-up period ≥6 months	Association between coronary artery calcium and all-cause mortality: A large single-center retrospective cohort study	Wang et al, 2022
Not prospective study with a follow-up period ≥6 months	Predictive value of the ankle brachial index in patients with acute ischemic stroke	Tziomalos et al, 2014
Not prospective study with a follow-up period ≥6 months	Telomere length predicts clinical outcomes post-revascularization procedures: Its role as a novel biomarker of systemic oxidative stress and cardiovascular ageing	Margaritis et al, 2015
Not prospective study with a follow-up period ≥6 months	Ability of the Ankle Brachial Index and Brachial-Ankle Pulse Wave Velocity to Predict the 3-Month Outcome in Patients with Non-Cardioembolic Stroke	Matsushima et al, 2017
Not prospective study with a follow-up period ≥6 months	Impact of decreased ankle-brachial index on 30-day bleeding complications and long-term mortality in patients with acute coronary syndrome after percutaneous coronary intervention	Nakahashi et al, 2019
Not prospective study with a follow-up period ≥6 months	Pulse wave velocity and short-term outcome in patients requiring intravascular volume expansion: A pilot study	Milan et al, 2020
Not prospective study with a follow-up period ≥6 months	The relationship between coronary artery calcium score and the long-term mortality among patients with minimal or absent coronary artery risk factors	Nakanishi et al, 2015
Not prospective study with a follow-up period ≥6 months	Impact of aortic stiffness by velocity-encoded magnetic resonance imaging on late gadolinium enhancement to predict cardiovascular events	Kaolawanich et al, 2020
Not prospective study with a follow-up period ≥6 months	Transcutaneous oxygen pressure as a predictor for short-term survival in patients with type 2 diabetes and foot ulcers: a comparison with ankle–brachial index and toe blood pressure	Fagher et al, 2018
Not prospective study with a follow-up period ≥6 months	Endothelial function provides early prognostic information in patients with COVID-19: A cohort study	Oliveira et al, 2021
Not prospective study with a follow-up period ≥6 months	Leucocyte Telomere Length and Risk of Cardiovascular Disease in a Cohort of 1,397 Danish Men and Women	Ellehoj et al, 2016
Not prospective study with a follow-up period ≥6 months	Carotid intima-media thickness and flow-mediated dilation do not predict acute in-hospital outcomes in patients hospitalized with COVID-19	Cristina-Oliveira et al, 2022

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Not prospective study with a follow-up period ≥6 months	Augmentation index as an early marker of in-hospital mortality in patients with acute ischemic stroke	Papazafiropoulou et al, 2019
Not prospective study with a follow-up period ≥6 months	Non-compressible ABIs are associated with an increased risk of major amputation and major adverse cardiovascular events in patients with critical limb ischemia	Singh et al, 2017
Not prospective study with a follow-up period ≥6 months	Circulating endothelial progenitor cells and clinical outcome in patients with aortic stenosis	Shimoni et al, 2016
Not prospective study with a follow-up period ≥6 months	Coronary Artery Calcification and Mortality Risk in Patients With Severe Mental Illness: A Retrospective Multicenter Cohort Study	Kugathasan et al, 2019
Not prospective study with a follow-up period ≥6 months	Prognostic impact of arterial stiffness following transcatheter aortic valve replacement	Tanaka et al, 2021
Not prospective study with a follow-up period ≥6 months	Decreased leukocyte telomere length (LTL) is associated with stroke but unlikely to be causative	X et al, 2013
Not prospective study with a follow-up period ≥6 months	Clinical Impact of the Ankle-Brachial Index in Patients Undergoing Successful Percutaneous Coronary Intervention	S et al, 2018
Not prospective study with a follow-up period ≥6 months	Association of relative telomere length with cardiovascular disease in a large chronic kidney disease cohort: the GCKD study	Raschenberger et al, 2015
Not prospective study with a follow-up period ≥6 months	The predictive value of the borderline ankle-brachial index for long-term clinical outcomes: An observational cohort study	Tanaka et al, 2016
Not prospective study with a follow-up period ≥6 months	Hypertension and high ankle brachial index: The overlooked combination	Alves-Cabratosa et al, 2019
Not prospective study with a follow-up period ≥6 months	Incremental Accuracy of Blood Biomarkers for Predicting Clinical Outcomes After Intracerebral Hemorrhage	Sagar et al, 2021
Not prospective study with a follow-up period ≥6 months	Preoperative Assessment of Endothelial Function for Prediction of Adverse Events After Cardiovascular Surgery	Saito et al, 2017
Not prospective study with a follow-up period ≥6 months	Brachial-ankle pulse wave velocity, but not ankle-brachial index, predicts all-cause mortality in patients with diabetes after lower extremity amputation	Ikura et al, 2017
Not prospective study with a follow-up period ≥6 months	Brachial-Ankle Pulse Wave Velocity Could Be a Predictor of Mortality in Patients on Peritoneal Dialysis	Wang et al, 2018
Not prospective study with a follow-up period ≥6 months	Prognostic Relationship Between Coronary Artery Calcium Score, Perfusion Defects, and Myocardial Blood Flow Reserve in Patients With Suspected Coronary Artery Disease	Patel et al, 2022

Exclusion reason	Title	Source
Not prospective study with a follow-up period ≥6 months	Leukocyte telomere length and epigenetic-based mortality risk score: associations with all-cause mortality among older adults	Gao et al, 2018
Not prospective study with a follow-up period ≥6 months	Impact of clinical and subclinical coronary artery disease as assessed by coronary artery calcium in COVID-19	Scoccia et al, 2021
Not prospective study with a follow-up period ≥6 months	Coronary artery calcification in COVID-19 patients: an imaging biomarker for adverse clinical outcomes	Gupta et al, 2021
Not prospective study with a follow-up period ≥6 months	Coronary artery calcium scoring in low risk patients with family history of coronary heart disease: Validation of the SCCT guideline approach in the coronary artery calcium consortium	Dudum et al, 2019
Not prospective study with a follow-up period ≥6 months	Serum zinc values, ankle brachial index and mortality in hemodialysis patients	Maša et al, 2022
Not prospective study with a follow-up period ≥6 months	Coronary artery calcification and epicardial adipose tissue as independent predictors of mortality in COVID-19	Slipczuk et al, 2021
Not prospective study with a follow-up period ≥6 months	Subclinical carotid atherosclerosis predicts all-cause mortality and cardiovascular events in obese patients with negative exercise echocardiography	Vidal-Perez et al, 2019
Not prospective study with a follow-up period ≥6 months	Predictive value of ankle-brachial index for long-term events of ischemic stroke in hemodialysis patients	Lee et al, 2021
Not prospective study with a follow-up period ≥6 months	Presence, Characteristics, and Prognostic Associations of Carotid Plaque among People Living with HIV	Janjua et al, 2017
Not prospective study with a follow-up period ≥6 months	Usefulness of the ratio of brachial pre-ejection period to brachial ejection time in prediction of cardiovascular and overall mortality in patients with acute myocardial infarction	Su et al, 2021
Not prospective study with a follow-up period ≥6 months	Impressive predictive value of ankle-brachial index for very long-term outcomes in patients with cardiovascular disease: IMPACT-ABI study	Miura et al, 2017
Not prospective study with a follow-up period ≥6 months	The ankle brachial index exhibits better association with cardiovascular outcomes than interarm systolic blood pressure difference in patients with type 2 diabetes	Lin et al, 2019
Not prospective study with a follow-up period ≥6 months	Iron, coronary artery calcification, and mortality in patients undergoing hemodialysis	Mizuiri et al, 2021
Not prospective study with a follow-up period ≥6 months	Increased augmentation index is paradoxically associated with lower in-hospital mortality in patients with acute ischemic stroke	Tziomalos et al, 2014
Not prospective study with a follow-up period ≥6 months	All-cause and cause-specific mortality in individuals with zero and minimal coronary artery calcium: A long-term, competing risk analysis in the Coronary Artery Calcium Consortium	Blaha et al, 2020

Exclusion reason	Title	Source
Not prospective study with a follow-up period ≥6 months	Association of Asymptomatic Low Ankle–Brachial Index with Long-Term Clinical Outcomes in Patients after Acute Myocardial Infarction	Ban et al, 2022
Not prospective study with a follow-up period ≥6 months	Coronary artery calcium and the competing long-term risk of cardiovascular vs. cancer mortality: The CAC Consortium	Whelton et al, 2019
Not prospective study with a follow-up period ≥6 months	Association of Ankle-Brachial Index and Aortic Arch Calcification with Overall and Cardiovascular Mortality in Hemodialysis	Chen et al, 2016
Not prospective study with a follow-up period ≥6 months	Low ankle brachial index predicts poor outcomes including target lesion revascularization during the long-term follow up after drug-eluting stent implantation for coronary artery disease	Sasaki et al, 2020
Not prospective study with a follow-up period ≥6 months	Peripheral arterial disease preoperatively may predict graft failure and mortality in kidney transplant recipients	Patel et al, 2017
Not prospective study with a follow-up period ≥6 months	Carotid artery intima-media thickness associated with prognosis of intracranial branch atheromatous disease	Duan et al, 2017
Not prospective study with a follow-up period ≥6 months	Prognostic Value of Ankle-Brachial Index in Patients Undergoing Percutaneous Coronary Intervention: In-Hospital and 1-Year Outcomes from the SHINANO Registry	Hashizume et al, 2017
Not prospective study with a follow-up period ≥6 months	Prognostic significance of coronary artery calcium scoring and single-photon emission computed tomographic myocardial perfusion imaging on major adverse cardiac events in patients at low risk for suspected coronary artery disease	Huang et al, 2019
Not prospective study with a follow-up period ≥6 months	Visual scoring of coronary artery calcification in lung cancer screening computed tomography: Association with all-cause and cardiovascular mortality risk	Watts et al, 2015
Not prospective study with a follow-up period ≥6 months	Clinical characteristics and outcomes of patients with high ankle-brachial index from the IMPACT-ABI study	Nishimura et al, 2016
Not prospective study with a follow-up period ≥6 months	Toe pressure should be part of a vascular surgeon's first-line investigation in the assessment of lower extremity artery disease and cardiovascular risk of a patient	Laivuori et al, 2021
Not prospective study with a follow-up period ≥6 months	Ankle-Brachial Index Is Independently Associated With Cardiovascular Outcomes and Foot Ulcers in Asian Patients With Type 2 Diabetes Mellitus	Yang et al, 2021
Not prospective study with a follow-up period ≥6 months	Incremental prognostic impact of peripheral microvascular endothelial dysfunction on the development of ischemic stroke	Toya et al, 2020
Not prospective study with a follow-up period ≥6 months	Subclinical coronary artery disease in COVID-19 patients	Nai Fovino et al, 2020
Not prospective study with a follow-up period ≥6 months	Combination of high ankle-brachial index and hard coronary heart disease framingham risk score in predicting the risk of ischemic stroke in general population	Zhang et al, 2014

Exclusion reason	Title	Source
Not prospective study with a follow-up period ≥6 months	Lower levels of plasma adiponectin and endothelial progenitor cells are associated with large artery atherosclerotic stroke	Zhang et al, 2016
Not prospective study with a follow-up period ≥6 months	Role of low ankle–brachial index in cardiovascular and mortality risk compared with major risk conditions	Alves-Cabratosa et al, 2019
Not prospective study with a follow-up period ≥6 months	Plasma endothelial microvesicles and their carrying miRNA-155 serve as biomarkers for ischemic stroke	Zhang et al, 2020
Not prospective study with a follow-up period ≥6 months	The use of cIMT as a predictor of postoperative stroke in patients undergoing surgical repair of acute type a aortic dissection	Zhang et al, 2020
Not prospective study with a follow-up period ≥6 months	Value of addition of coronary artery calcium to risk scores in the prediction of major cardiovascular events in patients with type 2 diabetes	Zafrir et al, 2021
Overlapping cohort/study	Predictors of coronary artery calcium and long-term risks of death, myocardial infarction, and stroke in young adults	Javaid et al, 2021
Overlapping cohort/study	Carotid Artery Wall Thickness and Incident Cardiovascular Events: A Comparison between US and MRI in the Multi-Ethnic Study of Atherosclerosis (MESA)	Zhang et al, 2018
Overlapping cohort/study	Inverse Association of Telomere Length With Liver Disease and Mortality in the US Population	Rattan et al, 2022
Overlapping cohort/study	Comparison of the Coronary Artery Calcium Score and Number of Calcified Coronary Plaques for Predicting Patient Mortality Risk	Arnson et al, 2017
Overlapping cohort/study	Coronary Artery Calcium and the Age-Specific Competing Risk of Cardiovascular Versus Cancer Mortality: The Coronary Artery Calcium Consortium	Whelton et al, 2020
Overlapping cohort/study	Sex differences in coronary artery calcium and mortality from coronary heart disease, cardiovascular disease, and all causes in adults with diabetes: The coronary calcium consortium	Wong et al, 2020
Overlapping cohort/study	Using Ultrasound and Inflammation to Improve Prediction of Ischemic Stroke: A Secondary Analysis of the Multi-Ethnic Study of Atherosclerosis	Baradaran et al, 2021
Overlapping cohort/study	Biomarkers representing key aging-related biological pathways are associated with subclinical atherosclerosis and all-cause mortality: The Framingham Study	Castro-Diehl et al, 2021
Overlapping cohort/study	Role of coronary artery calcium for stratifying cardiovascular risk in adults with hypertension: The coronary artery calcium consortium	Uddin et al, 2019
Overlapping cohort/study	The ankle brachial index is associated with prognosis in patients with diabetic kidney disease	Chang et al, 2015
Overlapping cohort/study	Independent and joint effect of relative telomere length and type 2 diabetes on all-cause mortality in American adults	Lan et al, 2022

Exclusion reason	Title	Source
Overlapping cohort/study	Does coronary CT angiography improve risk stratification over coronary calcium scoring in symptomatic patients with suspected coronary artery disease? Results from the prospective multicenter international CONFIRM registry	Al-Mallah et al, 2014
Overlapping cohort/study	Astronaut cardiovascular health and risk modification (Astro-CHARM) coronary calcium atherosclerotic cardiovascular disease risk calculator	Khera et al, 2018
Overlapping cohort/study	Leukocyte telomere length and mortality among U.S. adults: Effect modification by physical activity behaviour	Loprinzi et al, 2018
Overlapping cohort/study	Long-term prognosis for individuals with hypertension undergoing coronary artery calcium scoring	Valenti et al, 2015
Overlapping cohort/study	Cardiovascular outcome associations among cardiovascular magnetic resonance measures of arterial stiffness: the Dallas heart study	Maroules et al, 2014
Overlapping cohort/study	Impact of preclinical carotid atherosclerosis on global cardiovascular risk stratification and events in a 10-year follow-up: comparison between the algorithms of the Framingham Heart Study, the European SCORE and the Italian 'Progetto Cuore'	Novo et al, 2019
Overlapping cohort/study	Telomere length, vitamin B12 and mortality in persons undergoing coronary angiography: the Ludwigshafen risk and cardiovascular health study	Pusceddu et al, 2019
Overlapping cohort/study	Telomere length and mortality risk among adults in the United States: The role of age and race and ethnicity	Kodali et al, 2021
Overlapping cohort/study	Usefulness of ankle-brachial index calculated using diastolic blood pressure for prediction of mortality in patients with acute myocardial infarction	Hsu et al, 2020
Overlapping cohort/study	Biological ageing and the risks of all-cause and cause-specific mortality among people with diabetes: A prospective cohort study	Chen et al, 2022
Overlapping cohort/study	Arterial Stiffness and Long-Term Risk of Health Outcomes: The Framingham Heart Study	Vasan et al, 2022
Overlapping cohort/study	Cardiovascular and All-Cause Mortality Risk by Coronary Artery Calcium Scores and Percentiles Among Older Adult Males and Females	Wang et al, 2021
Overlapping cohort/study	Association of adiposity, telomere length and mortality: data from the NHANES 1999-2002	Batsis et al, 2018
Overlapping cohort/study	Combined effects of exercise capacity and coronary atherosclerotic burden on all-cause mortality in asymptomatic Koreans	Choi et al, 2016
Overlapping cohort/study	Association of Coronary Artery Calcium Score vs Age With Cardiovascular Risk in Older Adults: An Analysis of Pooled Population-Based Studies	Yano et al, 2017

Exclusion reason	Title	Source
Wrong population	Circulating Endothelial Cells and Endothelial Function Predict Major Adverse Cardiac Events and Early Adverse Left Ventricular Remodeling in Patients with ST-Segment Elevation Myocardial Infarction	Abdel Hamid et al, 2016
Wrong population	Elevated Coronary Artery Calcium Quantified by a Validated Deep Learning Model from Lung Cancer Radiotherapy Planning Scans Predicts Mortality	Atkins et al, 2022
Wrong population	Epicardial adipose tissue in long-term hemodialysis patients: its association with vascular calcification and long-term development	Barros et al, 2016
Wrong population	Bilateral common carotid artery ultrasound for prediction of incident strokes using intima-media thickness and external diameter: an observational study	Eigenbrodt et al, 2013
Wrong population	The Relationship Between Ambulatory Arterial Stiffness Index and Cardiovascular Outcomes in Women	Boos et al, 2021
Wrong population	Estimating cardiovascular complications after surgery with the ankle-brachial index	Carmo et al, 2014
Wrong population	The ankle-brachial index is associated with cardiovascular complications after noncardiac surgery	Carmo et al, 2016
Wrong population	Relationship between the ankle-brachial index and the risk of coronary heart disease and stroke: The circulatory risk in communities study	Cui et al, 2014
Wrong population	Association of All-Cause and Cardiovascular Mortality with High Levels of Physical Activity and Concurrent Coronary Artery Calcification	Defina et al, 2019
Wrong population	Change in peripheral blood leukocyte telomere length and mortality in breast cancer survivors	Duggan et al, 2014
Wrong population	Advanced peripheral endothelial dysfunction predicts future cardiovascular events in patients with acute decompensated heart failure	Eiichi Akiyama et al, 2016
Wrong population	Biomarkers for cardiovascular screening: Progress or passé?	Everett et al, 2017
Wrong population	Genetic variants within telomere-associated genes, leukocyte telomere length and the risk of acute coronary syndrome in Czech women	Dlouha et al, 2016
Wrong population	Risk factors for myocardial injury and death in patients with COVID-19: insights from a cohort study with chest computed tomography	Ferrante et al, 2020
Wrong population	Pulse Wave Velocity as a Marker of Vascular Dysfunction and Its Correlation with Cardiac Disease in Children with End-Stage Renal Disease (ESRD)	Filip et al, 2021
Wrong population	Comparison of brachial artery wall thickness versus endothelial function to predict late cardiovascular events in patients undergoing elective coronary angiography	A et al, 2013
Wrong population	Identification of Risk of Cardiovascular Disease by Automatic Quantification of Coronary Artery Calcifications on Radiotherapy Planning CT Scans in Patients With Breast Cancer	Gal et al, 2021

Exclusion reason	Title	Source
Wrong population	Prognostic value of flow-mediated dilation in patients with systemic lupus erythematosus: a pilot prospective cohort study	Ghiadoni et al, 2014
Wrong population	The Utility of Ankle-Brachial Index as a Predictor of Delayed Cerebral Ischemia in Aneurysmal Subarachnoid Hemorrhage	Guan et al, 2016
Wrong population	Lower brachial artery flow-mediated dilation is associated with a worse prognosis and more lung parenchymal involvement in Covid-19: Prospective observational study	Guz et al, 2022
Wrong population	Association between estimated pulse wave velocity and the risk of stroke in middle-aged men	Jae et al, 2021
Wrong population	Association Between Estimated Pulse Wave Velocity and the Risk of Heart Failure in the Kuopio Ischemic Heart Disease Risk Factor Study	Jae et al, 2021
Wrong population	Sympathoadrenal activation and endothelial damage are inter correlated and predict increased mortality in patients resuscitated after out-of-hospital cardiac arrest. a post Hoc sub-study of patients from the TTM-trial	Johansson et al, 2015
Wrong population	Relation of carotid intima-media thickness and plaque with incident cardiovascular events in women with systemic lupus erythematosus	Kao et al, 2013
Wrong population	Carfilzomib-induced endothelial dysfunction, recovery of proteasome activity, and prediction of cardiovascular complications: a prospective study	Kastritis et al, 2021
Wrong population	Circulating endothelial progenitor cells may predict outcomes in adult patients with severe sepsis in the emergency department	Kung et al, 2016
Wrong population	Association between carotid artery plaque and atherosclerotic and ischaemic heart disease hospitalisation and/or mortality is dependent on kidney function	Lim et al, 2014
Wrong population	Vascular age is associated with the risk of dialysis or death in chronic kidney disease	Lin et al, 2020
Wrong population	Peripheral arterial tonometry as a method of measuring reactive hyperaemia correlates with organ dysfunction and prognosis in the critically ill patient: a prospective observational study	Malheiro et al, 2021
Wrong population	Carotid phenotypes: The differential between impact of intima-media and plaques on the 10-year cardiovascular risk	Malyutina et al, 2017
Wrong population	Breast arterial calcification on mammography and risk of coronary artery disease: a SCOT-HEART sub-study	McLenachan et al, 2019
Wrong population	Evaluation of pulse wave velocity for predicting major adverse cardiovascular events in post-infarcted patients; comparison of oscillometric and MRI methods	Meiszterics et al, 2021
Wrong population	Diagnostic and Clinical Value of FFRCT in Stable Chest Pain Patients With Extensive Coronary Calcification: The FACC Study	Mickley et al, 2022

Exclusion reason	Title	Source
Wrong population	Walking-induced endothelial dysfunction predicts ischemic cardiovascular events in patients with intermittent claudication	Migliacci et al, 2021
Wrong population	Brachial-Ankle Pulse Wave Velocity as a Predictor of Silent Cerebral Embolism after Carotid Artery Stenting	Murakami et al, 2017
Wrong population	Use of reactive hyperemia - peripheral arterial tonometry and circulating biological markers to predict outcomes in sepsis	Nobre et al, 2016
Wrong population	Plasma Endothelial and Oxidative Stress Biomarkers Associated with Late Mortality in Hospitalized COVID-19 Patients	Orea-Tejada et al, 2022
Wrong population	Effect of telomere length on prognosis in men with acute coronary syndrome	Perez-Rivera et al, 2014
Wrong population	Increased Endothelial Progenitor Cell Levels are Associated with Good Outcome in Intracerebral Hemorrhage	Pias-Peleteiro et al, 2016
Wrong population	Predictive factors and prognostic effect of telomere shortening in pulmonary fibrosis	Planas-Cerezales et al, 2019
Wrong population	Relation of coronary artery calcification to outcomes among women ages 50-59 in the women's health initiative estrogen-alone clinical trial	Poornima et al, 2016
Wrong population	Coronary Artery Calcification (CAC) and Post-Trial Cardiovascular Events and Mortality Within the Women's Health Initiative (WHI) Estrogen-Alone Trial	Poornima et al, 2017
Wrong population	Cardiorespiratory fitness, coronary artery calcium, and cardiovascular disease events in a cohort of generally healthy middle-age men: Results from the cooper center longitudinal study	Radford et al, 2018
Wrong population	Is the coronary artery calcium score associated with acute coronary events in breast cancer patients treated with radiotherapy?	Roos et al, 2018
Wrong population	Increased Aortic Stiffness Is Associated With Higher Rates of Stroke, Gastrointestinal Bleeding and Pump Thrombosis in Patients With a Continuous Flow Left Ventricular Assist Device: Aortic Stiffness and CF-LVAD Outcomes	Rosenblum et al, 2021
Wrong population	Noncompressible arteries correlate with increased cardiovascular mortality at 2 years	A et al, 2013
Wrong population	Association between Long-Term Change in Arterial Stiffness and Cardiovascular Outcomes in Kidney Transplant Recipients: Insights from the TRANSARTE Study	Salib et al, 2022
Wrong population	Carotid Artery Intima-Media Thickness Predicts Major Cardiovascular Events During 7-Year Follow-Up in 64-Year-Old Women Irrespective of Other Glucometabolic Factors	Schmidt et al, 2017
Wrong population	Effective high-density lipoprotein cholesterol is associated with carotid intima-media thickness and vascular events after acute ischemic stroke	Schwedhelm et al, 2022

Exclusion reason	Title	Source
Wrong population	Computed tomography predictors of mortality, stroke and conduction disturbances in women undergoing TAVR: A sub-analysis of the WIN-TAVI registry	Spaziano et al, 2018
Wrong population	Leukocyte telomere length is not associated with mortality in older men	Svensson et al, 2014
Wrong population	Quantification of coronary artery calcium in nongated CT to predict cardiovascular events in male lung cancer screening participants: results of the NELSON study	Takx et al, 2015
Wrong population	Prognostic value of cardiovascular MR imaging biomarkers on outcome in peripheral arterial disease: a 6-year follow-up pilot study	van den Bosch et al, 2016
Wrong population	ICU admission levels of endothelial biomarkers as predictors of mortality in critically ill COVID-19 patients	Vassiliou et al, 2021
Wrong population	Prediction of cardiovascular events with aortic stiffness in patients with erectile dysfunction	Vlachopoulos et al, 2014
Wrong population	Abdominal aortic calcification on dual-energy X-ray absorptiometry is associated with coronary calcium and incident myocardial infarction in middle-aged men	Wang et al, 2013
Wrong population	Circulating endothelial-derived activated microparticle: a useful biomarker for predicting one-year mortality in patients with advanced non-small cell lung cancer	Wang et al, 2014
Wrong population	Prognostic value of brachial-ankle pulse wave velocity in patients with takayasu arteritis with drug-eluting stent implantation	Wang et al, 2015
Wrong population	Simultaneous heart rate variability monitoring enhances the predictive value of flow-mediated dilation in ischemic heart disease	Watanabe et al, 2013
Wrong population	Predictive value of brachial artery flow-mediated dilation on coronary artery abnormality in acute stage of Kawasaki disease	Wen et al, 2021
Wrong population	Progression of carotid intima media thickness after radiotherapy: a long-term prospective cohort study	Wilbers et al, 2014
Wrong population	U-Shaped Relationship of Leukocyte Telomere Length With All-Cause and Cancer-Related Mortality in Older Men	Yeap et al, 2021
Wrong population	The association between telomere length and ischemic stroke risk and phenotype	Yetim et al, 2021
Wrong population	Longitudinal changes in leukocyte telomere length and mortality in elderly Swedish men	Yuan et al, 2018
Wrong population	Very high coronary artery calcium score with normal myocardial perfusion SPECT imaging is associated with a moderate incidence of severe coronary artery disease	Yuoness et al, 2015
Wrong population	Association Between Carotid-Cerebral Pulse Wave Velocity and Acute Ischemic Stroke: Clinical Trial Protocol	Zeng et al, 2019

Supplementary Table 4. Excluded articles but included in previous systematic reviews

Exlclusion reason	Title	Source
Conference abstract	Carotid intima-media thickness versus coronary artery calcium score in predicting incident coronary heart disease and stroke among african americans: the jackson heart study	Effoe et al, 2018
Conference abstract	Coronary artery calcification heralds adverse clinical outcomes in patients hospitalized for covid-19	Shabbir et al, 2021
Conference abstract	Abstract P706: Age and Elevated Coronary Artery Calcium Score as a Predictor of Cerebral Ischemic Events	Singh et al, 2021
Conference abstract	Age and elevated coronary artery calcium score as a predictor of cerebrovascular disease	Singh et al, 2021
No assessment of relationship between biomarkers and outcomes	Changes in circulating progenitor cells are associated with outcome in heart failure patients: a longitudinal study	Ac et al, 2013
No assessment of relationship between biomarkers and outcomes	Prognostic value of coronary computed tomography angiography during 5 years of follow-up in patients with suspected coronary artery disease	M et al, 2013
No assessment of relationship between biomarkers and outcomes	Anti-Atherosclerotic Therapy Based on Botanicals	Orekhov et al, 2013
No assessment of relationship between biomarkers and outcomes	Beneficial effect of high dose statins on the vascular wall in patients with repaired aortic coarctation?	P et al, 2014
No assessment of relationship between biomarkers and outcomes	Decreased cardiovascular mortality in the ITALUNG lung cancer screening trial: Analysis of underlying factors	Puliti et al, 2019
No outcomes of interest	Flow-mediated dilation normalization predicts outcome in chronic heart failure patients	F et al, 2013
No outcomes of interest	Predictors of cardiovascular prognosis in patients receiving optimized secondary prevention measures after acute coronary syndrome	M et al, 2013
No outcomes of interest	Effect of magnesium supplementation on carotid intima-media thickness and flow-mediated dilatation among hemodialysis patients: a double-blind, randomized, placebo-controlled trial	M et al, 2013

Exlclusion reason	Title	Source
No outcomes of interest	Pioglitazone Slows Progression of Atherosclerosis in Prediabetes Independent of Changes in Cardiovascular Risk Factors	Saremi et al, 2013
No outcomes of interest	Endothelial dysfunction measured by peripheral arterial tonometry predicts prognosis in patients with heart failure with preserved ejection fraction	Y et al, 2013
No outcomes of interest	Significance of coronary calcification for prediction of coronary artery disease and cardiac events based on 64-slice coronary computed tomography angiography	Yc et al, 2013
No outcomes of interest	Reduction of circulating endothelial progenitor cell level is associated with contrast-induced nephropathy in patients undergoing percutaneous coronary and peripheral interventions	Ch et al, 2014
No outcomes of interest	Circulating progenitor cells in hypertensive patients with different degrees of cardiovascular involvement	G et al, 2014
No outcomes of interest	Short leukocyte telomere length predicts risk of diabetes in american indians: the strong heart family study	J et al, 2014
No outcomes of interest	Effect of periodontal therapy on arterial structure and function among aboriginal australians: a randomized, controlled trial	K et al, 2014
No outcomes of interest	Dose-Dependent Arterial Destiffening and Inward Remodeling After Olmesartan in Hypertensives With Metabolic Syndrome	Laurent et al, 2014
No outcomes of interest	Impact of Framingham Risk Score, Flow-Mediated Dilation, Pulse Wave Velocity, and Biomarkers for Cardiovascular Events in Stable Angina	Park et al, 2014
No outcomes of interest	Prognostic value of coronary CT angiography on long-term follow-up of 6.9 years	S et al, 2014
No outcomes of interest	Levels of circulating CD34+/KDR+ cells do not predict coronary in-stent restenosis	Se et al, 2014
No outcomes of interest	Effect of Platelet Reactivity, Endothelial Function, and Inflammatory Status on Outcomes in Patients With Stable Angina Pectoris on Clopidogrel Therapy	Woo et al, 2014
No outcomes of interest	Elevation of HDL-C in response to statin treatment is involved in the regression of carotid atherosclerosis	Y et al, 2014
No outcomes of interest	Association of cardio-ankle vascular index with cardiovascular risk factors and cardiovascular events in metabolic syndrome patients	A et al, 2015

Exlclusion reason	Title	Source
No outcomes of interest	Telomere length, antioxidant status and incidence of ischaemic heart disease in type 2 diabetes	Masi et al, 2016
No outcomes of interest	Vascular Function and Uric Acid-Lowering in Stage 3 CKD	Jalal et al, 2017
No outcomes of interest	Relationship between asymptomatic intra-cranial lesions and brachial-ankle pulse wave velocity in coronary artery disease patients without stroke	Tabata et al, 2017
No outcomes of interest	Examining the effects of uric acid-lowering on markers vascular of calcification and CKD-MBD; A post-hoc analysis of a randomized clinical trial	Andrews et al, 2018
No outcomes of interest	Calcification of the thoracic aorta on low-dose chest CT predicts severe COVID-19	Fervers et al, 2020
No relevant biomarkers	The Impact of Membrane Permeability and Dialysate Purity on Cardiovascular Outcomes	Asci et al, 2013
No relevant biomarkers	Glycated hemoglobin predicts overall and cardiovascular mortality in non-diabetic hemodialysis patients	Es et al, 2014
No relevant biomarkers	Prognostic value of nonobstructive and obstructive coronary artery disease detected by coronary computed tomography angiography to identify cardiovascular events	Ms et al, 2014
No relevant biomarkers	The Japan Statin Treatment Against Recurrent Stroke (J-STARS): A Multicenter, Randomized, Open-label, Parallel-group Study	N et al, 2015
No relevant biomarkers	Dyspnea predicts mortality among patients undergoing coronary computed tomographic angiography	R et al, 2016
No relevant biomarkers	Morning and Evening Home Blood Pressure and Risks of Incident Stroke and Coronary Artery Disease in the Japanese General Practice Population: The Japan Morning Surge-Home Blood Pressure Study	S et al, 2016
No relevant biomarkers	Early Conversion to Prednisolone/Everolimus as an Alternative Weaning Regimen Associates With Beneficial Renal Transplant Histology and Function: The Randomized-Controlled MECANO Trial	Fj et al, 2017
No relevant biomarkers	Utility of visual coronary artery calcification on non-cardiac gated thoracic CT in predicting clinical severity and outcome in COVID-19	Nair et al, 2021

Exlclusion reason	Title	Source
Not prospective study with a follow-up period ≥6 months	Cardiovascular event rates in patients with ST-elevation myocardial infarction were lower with early increases in mobilization of Oct4(high)Nanog(high) stem cells into the peripheral circulation during a 4-year follow-up	Cw et al, 2013
Not prospective study with a follow-up period ≥6 months	Decreased leukocyte telomere length (LTL) is associated with stroke but unlikely to be causative	X et al, 2013
Not prospective study with a follow-up period ≥6 months	Coronary Calcium Score in COVID-19 Hospitalized Patients	Cosyns et al, 2020
Not prospective study with a follow-up period ≥6 months	Coronary Artery Calcification and Complications in Patients With COVID-19	Dillinger et al, 2020
Not prospective study with a follow-up period ≥6 months	Subclinical coronary artery disease in COVID-19 patients	Nai Fovino et al, 2020
Not prospective study with a follow-up period ≥6 months	Coronary calcium scoring assessed on native screening chest CT imaging as predictor for outcome in COVID-19: An analysis of a hospitalized German cohort	Zimmermann et al, 2020
Not prospective study with a follow-up period ≥6 months	Coronary artery calcification in COVID-19 patients: an imaging biomarker for adverse clinical outcomes	Gupta et al, 2021
Wrong population	Noncompressible arteries correlate with increased cardiovascular mortality at 2 years	A et al, 2013
Wrong population	Comparison of brachial artery wall thickness versus endothelial function to predict late cardiovascular events in patients undergoing elective coronary angiography	A et al, 2013
Wrong population	Genetic variants within telomere-associated genes, leukocyte telomere length and the risk of acute coronary syndrome in Czech women	Dlouha et al, 2016

Supplementary Table 5. Multiple sensitivity analyses for mortality based on pooled risk estimates.

		Main meta-analysis: Random effect model including all sutdies		1 Fixed-effect model		2 Trim and fill estimate: Random effect model		3 Random effect model including studies with NOS score of 9		4 Leave-one-out: Random effect model
Outcome	**Marker**	**HR (95% CI)**	***p***	**HR (95% CI)**	***p***	**HR (95% CI)**	***p***	**HR (95% CI)**	***p***	**Pooled results**
All-cause mortality	cIMT	1.45 [1.22, 1.73]	<0.001	1.45 [1.22, 1.73]	<0.001	1.36 [1.15, 1.61]	<0.001	1.47 [1.20, 1.80]	<0.001	Stable
	CP	1.52 [1.29, 1.79]	<0.001	1.52 [1.29, 1.79]	<0.001	1.47 [1.26, 1.71]	<0.001	1.58 [1.27, 1.97]	<0.001	Stable
	CACS	1.59 [1.35, 1.87]	<0.001	NA	NA	1.06 [0.84, 1.35]	0.615	1.20 [1.08, 1.33]	<0.001	Stable
	baPWV	1.23 [1.07, 1.41]	0.004	NA	NA	1.04 [0.87, 1.24]	0.684	1.32 [1.11, 1.58]	0.002	Stable
	cfPWV	1.18 [1.12, 1.25]	<0.001	NA	NA	1.10 [1.04, 1.18]	0.002	1.07 [1.03, 1.12]	0.002	Stable
	low ABI	1.82 [1.66, 2.01]	<0.001	1.78 [1.66, 1.90]	<0.001	1.73 [1.55, 1.92]	<0.001	1.79 [1.63, 1.98]	<0.001	Stable
	high ABI	1.26 [1.07, 1.49]	0.006	1.25 [1.08, 1.46]	0.004	1.25 [1.06, 1.47]	0.007	1.23 [1.03, 1.48]	0.023	Stable
	AIx	1.02 [0.99, 1.06]	0.156	NA	NA	1.00 [0.84, 1.18]	0.955	1.13 [0.84, 1.54]	0.418	Moderately stable
	FMD	1.05 [0.95, 1.15]	0.335	1.04 [0.96, 1.12]	0.337	1.01 [0.94, 1.08]	0.770	1.01 [0.93, 1.10]*	0.816	Stable
	CEPCs	1.34 [0.86, 2.08]	0.197	NA	NA	1.14 [0.70, 1.87]	0.596	2.83 [1.57, 5.11]*	<0.001	Stable
	E-selectin	1.06 [0.92, 1.23]	0.389	NA	NA	0.99 [0.83, 1.16]	0.862	1.07 [0.90, 1.28]	0.428	Stable
	LTL	1.13 [1.09, 1.18]	<0.001	NA	NA	1.05 [0.99, 1.11]	0.120	1.07 [1.03, 1.10]	<0.001	Stable
Cardiovascular mortality	cIMT	0.72 [0.09, 6.11]	0.765	NA	NA	0.72 [0.09, 6.11]	0.765	0.58 [0.21, 1.60]*	0.292	Stable
	CP	2.33 [1.08, 5.04]	0.031	NA	NA	1.33 [0.51, 3.48]	0.564	2.59 [0.48, 13.83]†	0.266	Unstable
	CACS	1.13 [1.04, 1.22]	0.004	NA	NA	1.09 [1.00, 1.20]	0.055	1.20 [1.09, 1.33]†	<0.001	Moderately stable
	baPWV	1.00 [1.00, 1.01]	0.371	NA	NA	1.00 [1.00, 1.01]	0.401	2.03 [0.56, 7.32]	0.281	Moderately stable
	cfPWV	1.18 [1.09, 1.27]	<0.001	NA	NA	1.06 [0.96, 1.17]	0.236	1.06 [0.84, 1.33]†	0.619	Stable
	low ABI	2.28 [1.91, 2.74]	<0.001	2.13 [1.88, 2.42]	<0.001	2.03 [1.80, 2.29]	<0.001	2.53 [1.82, 3.50]	<0.001	Stable
	high ABI	1.43 [1.08, 1.89]	0.013	1.43 [1.08, 1.89]	0.013	1.34 [1.04, 1.73]	0.025	1.34 [0.97, 1.84]	0.072	Stable
	AIx	1.66 [0.99, 2.78]	0.056	NA	NA	1.10 [0.60, 2.01]	0.754	1.52 [0.73, 3.18]†	0.266	Moderately stable
	FMD	1.06 [0.82, 1.37]	0.659	1.06 [0.82, 1.37]	0.659	1.05 [0.81, 1.36]	0.710	1.06 [0.81, 1.37]†	0.676	Stable
	E-selectin	0.97 [0.73, 1.28]	0.822	NA	NA	0.97 [0.73, 1.28]	0.822	0.97 [0.73, 1.28]	0.822	Stable
	LTL	1.11 [1.04, 1.18]	0.001	NA	NA	1.04 [0.95, 1.14]	0.416	1.08 [1.01, 1.15]	0.017	Stable

NA indicates not appliable due to high heterogeneity. NOS, Newcastle–Ottawa Scale. * Only one study. † Only two studies.

Supplementary Table 6. Multiple sensitivity analyses for mortality based on pooled event counts.

		Main meta-analysis: Random effect model including all sutdies		**1 Fixed-effect model**		**2 Trim and fill estimate: Random effect model**		**3 Random effect model including studies with NOS score of 9**		**4 Leave-one-out: Random effect model**
Outcome	**Marker**	**HR (95% CI)**	***p***	**HR (95% CI)**	***p***	**HR (95% CI)**	***p***	**HR (95% CI)**	***p***	**Pooled results**
All-cause mortality	cIMT	1.96 [1.46, 2.61]	<0.001	1.93 [1.50, 2.49]	<0.001	1.70 [1.27, 2.27]	<0.001	1.88 [1.39, 2.53]	<0.001	Stable
	CP	3.68 [2.49, 5.43]	<0.001	NA	NA	3.68 [2.49, 5.43]	<0.001	4.44 [3.56, 5.53]	<0.001	Stable
	CACS	3.01 [2.59, 3.50]	<0.001	NA	NA	3.39 [2.88, 4.00]	<0.001	3.50 [3.21, 3.83]	<0.001	Stable
	baPWV	3.05 [1.69, 5.50]	<0.001	NA	NA	4.76 [2.35, 9.63]	<0.001	3.05 [1.69, 5.50]	<0.001	Stable
	cfPWV	2.86 [2.03, 4.05]	<0.001	2.77 [2.17, 3.55]	<0.001	2.48 [1.86, 3.31]	<0.001	3.17 [2.09, 4.80]†	<0.001	Stable
	low ABI	2.53 [2.20, 2.92]	<0.001	NA	NA	2.25 [1.91, 2.66]	<0.001	2.50 [2.23, 2.79]	<0.001	Stable
	high ABI	1.55 [1.16, 2.09]	0.003	NA	NA	1.19 [0.86, 1.65]	0.294	1.27 [1.07, 1.50]	0.007	Stable
	CEPCs	0.77 [0.35, 1.73]	0.534	NA	NA	1.21 [0.51, 2.86]	0.659	0.29 [0.11, 0.73]*	0.008	Stable
	LTL	1.40 [1.16, 1.70]	<0.001	NA	NA	1.29 [1.04, 1.61]	0.023	1.56 [1.20, 2.02]	<0.001	Stable
Cardiovascular mortality	cIMT	2.43 [1.58, 3.74]	<0.001	2.42 [1.58, 3.71]	<0.001	2.16 [1.46, 3.19]	<0.001	2.49 [1.38, 4.49]†	0.002	Stable
	CP	5.64 [2.98, 10.68]	<0.001	5.67 [3.12, 10.32]	<0.001	5.64 [2.98, 10.68]	<0.001	11.79 [3.45, 40.24]*	<0.001	Stable
	CACS	5.40 [4.43, 6.58]	<0.001	5.47 [4.48, 6.68]	<0.001	5.58 [4.59, 6.78]	<0.001	5.58 [4.56, 6.83]†	<0.001	Stable
	baPWV	10.27 [2.78, 37.92]	<0.001	NA	NA	4.75 [1.11, 20.26]	0.035	25.74 [2.63, 251.48]†	0.005	Stable
	cfPWV	3.27 [1.36, 7.87]	0.008	NA	NA	1.87 [0.69, 5.05]	0.217	3.77 [1.68, 8.46]*	0.001	Moderately stable
	low ABI	2.78 [2.13, 3.63]	<0.001	NA	NA	2.37 [1.72, 3.27]	<0.001	3.20 [2.16, 4.75]	<0.001	Stable
	high ABI	2.05 [1.20, 3.53]	0.009	NA	NA	2.05 [1.20, 3.53]	0.009	1.39 [1.03, 1.88]	0.032	Moderately stable
	FMD	1.17 [0.38, 3.66]	0.784	1.20 [0.39, 3.74]	0.750	1.17 [0.38, 3.66]	0.784	1.69 [0.21, 13.40]*	0.618	Stable
	LTL	2.42 [1.87, 3.14]	<0.001	2.31 [1.98, 2.70]	<0.001	2.17 [1.68, 2.82]	<0.001	2.42 [1.87, 3.14]	<0.001	Stable

NA indicates not appliable due to high heterogeneity. NOS, Newcastle–Ottawa Scale. * Only one study. † Only two studies.

Supplementary Table 7. Results of Egger test.

Biomarker	Outcome	No. of studies	pooled effect estimate	*P* value of Egger test	Funnel plot asymmetry
low ABI	all-cause mortality	19	RR: 2.53 [2.20, 2.92]	0.332	No
high ABI	all-cause mortality	10	RR: 1.55 [1.16, 2.09]	0.494	No
LTL	all-cause mortality	11	RR: 1.40 [1.16, 1.70]	0.569	No
cIMT	all-cause mortality	11	HR: 1.45 [1.22, 1.73]	0.074	No
CACS	all-cause mortality	23	HR: 1.59 [1.35, 1.87]	<0.001	Yes
baPWV	all-cause mortality	12	HR: 1.23 [1.07, 1.41]	0.003	Yes
cfPWV	all-cause mortality	16	HR: 1.18 [1.12, 1.25]	0.005	Yes
low ABI	all-cause mortality	19	HR: 1.82 [1.66, 2.01r]	0.077	No
high ABI	all-cause mortality	12	HR: 1.26 [1.07, 1.49]	0.483	No
LTL	all-cause mortality	26	HR: 1.13 [1.09, 1.18]	<0.001	Yes

Supplementary Table 8. Qualitative review table of biomarkers not included in the meta-analysis

Biomarker	Study	No. of subjects	Measurement of Biomarker	Outcome	Predictive effect, risk estimate (95%CI) or counts
cIMT	Novo et al, 2013	529	B-mode real-time ultrasound	MI	No. of IMT >0.9mm vs <0.9mm for MI: 49/331 vs 11/198
	Yeboah et al, 2014b	1343	B-mode sonography	MI	HR (per 1 mm increase) for MI: 2.10 (0.74, 5.97)
	Ryliškytė et al, 2019	2728	High-resolution echo-tracking technology	MI	HR (per 1 SD increase) for MI: 1.39 (1.21, 1.61)
CP	Sirimarco et al, 2013	23364	Ultrasound	MI	HR (presence of CP vs absence of CP) for MI: 1.38 (1.21, 1.57)
	Park et al, 2013	1390	Ultrasound	MI	No. of presence of CP vs absence of CP for MI: 8/433 vs 11/957
	Li et al, 2020	6507	Ultrasound	MI	No. of presence of CP vs absence of CP for MI: 29/2990 vs 15/3517
	Li et al, 2022b	4899	Ultrasound	MI	No. of presence of CP vs absence of CP for MI: 24/2006 vs 16/2893
Carotid diastolic diameter	Sedaghat, 2018	4887	Ultrasound	All-cause mortality Stroke	HR (per 1 SD increase) for (1) all-cause mortality: 1.07 (1.03,1.10); (2) stroke: 1.07 (1.00,1.14)
baPWV	Takashima et al, 2014	4164	A vascular profile device (BP-203RPE II Form I PWV/ABI)	MACEs	(1) No of baPWV ≥18m/s vs < 18m/s for combined outcome of stroke+MI: 24/877 vs 16/3287. (2) HR (per 2 m/s increase) for combined outcome of stroke+MI: 1.15 (0.95, 1.37)
	Ji et al, 2020	98348	BP-203 RPE III networked arteriosclerosis detection device	MACEs	HR (per 1 m/s increase) for combined outcome of stroke+MI: 1.08 (1.05, 1.11)
	Li et al, 2021	18944	BP-203 RPE III networked arteriosclerosis detection device	MACEs	No of baPWV >1400cm/s vs ≤1400cm/s for combined outcome of stroke+MI: 331/10261 vs 40/8683
cfPWV	Han et al, 2016	1472	Complior SP device	MI	No of cf-PWV ≥ 12 m/s vs cf-PWV < 12 m/s for MI: 7/472 vs 4/1000

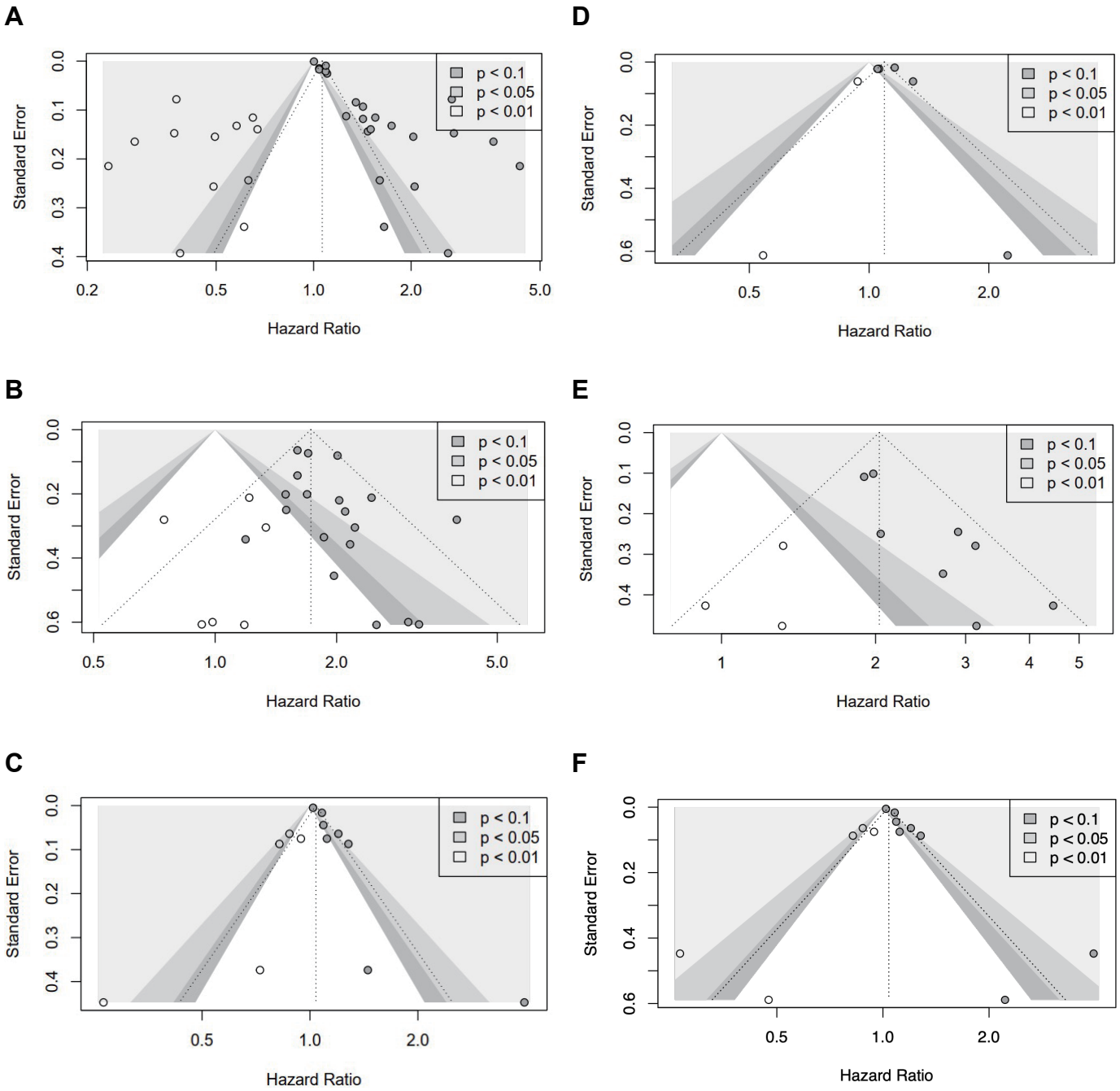
Biomarker	Study	No. of subjects	Measurement of Biomarker	Outcome	Predictive effect, risk estimate (95%CI) or counts
	Ryliškytė et al, 2019	2728	Applanation tonometry and Fukuda Vascular Screening system VaSera VS-1000	MI	HR (per 1 SD increase) for MI: 1.38 (1.05, 1.82)
CAVI	Watanabe et al, 2021	223	VaSera VS-1000	All-cause mortality	HR (CAVI ≥ 8.9 vs CAVI < 8.9) for all-cause mortality: 1.80 (0.91, 3.56)
	Aiumtrakul et al, 2022b	4898	NR	All-cause mortality CV mortality	No. of CAVI >9 vs <9 for (1) all-cause mortality: 72/2145 vs 61/2753; (2) CV mortality: 30/2145 vs 38/2753
	Kirigaya et al, 2020	387	VaSera VS-1000	CV mortality	HR (per SD increase) for CV mortality: 2.31 (1.27, 4.49)
	Miyoshi et al, 2021	2932	VaSera device	CV mortality MI All-cause mortality	HR (CAVI>9.5 vs CAVI<9.5) for (1) all-cause mortality: 1.90 (1.11, 3.26); (2) CV mortality: 3.83 (1.28, 11.40); (3) MI: 1.13 (0.42, 3.02)
AIx	Ryliškytė et al, 2019	2728	Applanation tonometry and Fukuda Vascular Screening system vasera VS-1000	MI Stroke	HR (per 1 SD increase) for (1) MI: 1.29 (0.88, 1.89); (2) stroke: 1.72 (1.14, 2.60)
FMD	Shechter et al, 2014	618	High-resolution linear array ultrasound	MACEs	No. of FMD ≤ 11.3% vs >11.3% for combined outcome of death+stroke+MI: 15/309 vs 3/309
	Ryliškytė et al, 2019	2728	Ultrasound system	MACEs	HR (Per 1 SD increment) for combined outcome of MI+stroke: 0.83 (0.71, 0.97)
	Abe et al, 2022	624	High-resolution ultrasonog-raphy	MACEs	(1) No. of FMD < 7.0% vs FMD≥7.0% for combined outcome of cardiac death+non-fatal MI+non-fatal stroke: 81/515 vs 9/109 (2) HR (FMD＜7.0% vs FMD≥7.0%) for combined outcome of cardiac death+non-fatal MI+non-fatal stroke: 2.10 (1.03, 4.25)
RHI	Matsuzawa, 2015	343	EndoPAT 2000 device	MACEs	HR (RHI <1.93 vs RHI >1.93) for combined outcome of stroke, MI, and CV mortality: 4.69 (1.54,20.27)

Biomarker	Study	No. of subjects	Measurement of Biomarker	Outcome	Predictive effect, risk estimate (95%CI) or counts
	Tabata et al, 2016	434	EndoPAT 2000 device	MI CV mortality	No. of RHI <0.55 vs RHI ≥0.55 for (1) CV mortality: 4/217 vs 0/217; (2) MI: 2/217 vs 2/217
	Saito et al, 2019	195	EndoPAT 2000 device	CV mortality	No. of RHI ≤1.64 and RHI >1.64 for CV mortality: 6/86 vs 1/109
	Cooper, 2021	3865	EndoPAT 2000 device	MI	HR (per 1 SD increase) for (1) stroke: 0.76 (0.61,0.94); (2) MI: 0.98 (0.77,1.24)
	Matsuzawa et al, 2013	528	EndoPAT 2000 device	CV mortality	No of RHI ≤0.531 vs RHI >0.531 for CV mortality: 1/261 vs 0/267
	Schnabel,2022	15010	EndoPAT 2000 device	All-cause mortality CV mortality	HR (per 1 SD increase) for (1) all-cause mortality: 1.03 (0.94,1,12); (2) CV mortality: 1.03 (0.80,1.33)
CEPCs	Padfield et al, 2013	201	Flow cytometry, CD34+CD45- cell	MI	No. of low & medium vs high for MI: 5/129 vs 10/64
	Wu et al, 2014	130	Flow cytometry, CD34+KDR+ Cell	CV mortality	No. of low & medium vs high for CV mortality: 3/87 vs 0/43
	Patel et al, 2015	905	Flow cytometry, CD34+/CD133+ circulating progenitor cell	MACEs CV mortality	HR (<threshold vs ＞threshold) for (1) CV mortality: 2.74 (1.48, 5.05); (2) combined outcome of death+MI: 2.79 (1.70, 4.60)
	Lu et al, 2016	154	Flow cytometry, CD34+CD133+KDR+ cell	CV mortality	HR (per 1/uL increase EPC) for CV mortality: 0.79 (0.65, 0.96)
EMPs	Berezin, 2015	136	Flow cytometry, CD31+/Annexin V+	All-cause mortality	OR (per 1 unit increase) for all-cause mortality: 1.58 (1.20,1.88)
	Green, 2017	123	Flow cytometry, CD31+/annexinv+/CD42b-	All-cause mortality	HR (per 1 unit increase) for all-cause mortality: 8.20 (1.67,40.2)

Biomarker	Study	No. of subjects	Measurement of Biomarker	Outcome	Predictive effect, risk estimate (95%CI) or counts
	Huo, 2021	571	Flow cytometry, AV+ and CD41- and CD45CD31+ or CD144+ or CD146+	MACEs	No. of high (Q4) vs low (Q1-Q3) for combined outcome of recurrent stroke+MI+all-cause mortality: 31/143 vs 64/428
E-selectin	Krishnamoorthy et al, 2013	423	NR	MACEs	HR (E-selectin>16.8 ng/ml vs E-selectin<12.1 ng/ml) for combined outcome of death+stroke+MI: 3.70 (2.51, 5.31)
	Pletsch-Borba et al, 2020	335	Quiplex SQ 120	Stroke	HR (per 1 SD increment) for stroke: 1.17 (0.94, 1.45)
LTL	Zhang et al, 2013	1662	qPCR	Stroke	No. of low and middle tertile vs high tertile for stroke: 255/1231 vs 83/431
	Østhus et al, 2017	915	qPCR	MI	(1) No. of short & middle vs long for MI: 43/613 vs 39/302 (2) HR (per 1 SD increment of ln TL) for MI: 1.6 (1.28, 2)
	Mwasongwe et al, 2017	2518	Southern blot analysis	Stroke MACEs	HR (per 1 kb increase of LTL) for (1) stroke: 0.73 (0.50, 1.06); (2) combined outcome of MI+CV death: 1.28 (0.85, 1.91)
	Hammadah et al, 2017	566	qPCR	MACEs	HR (LTL<Q1 vs LTL ≥Q1) for combined outcome of death+stroke+MI: 1.70 (0.60, 4.60)
	Chan et al, 2020	135	qPCR	MI Stroke	No. of middle & short TL vs long TL for (1) stroke: 1/92 vs 1/43; (2) MI: 7/92 vs 5/43

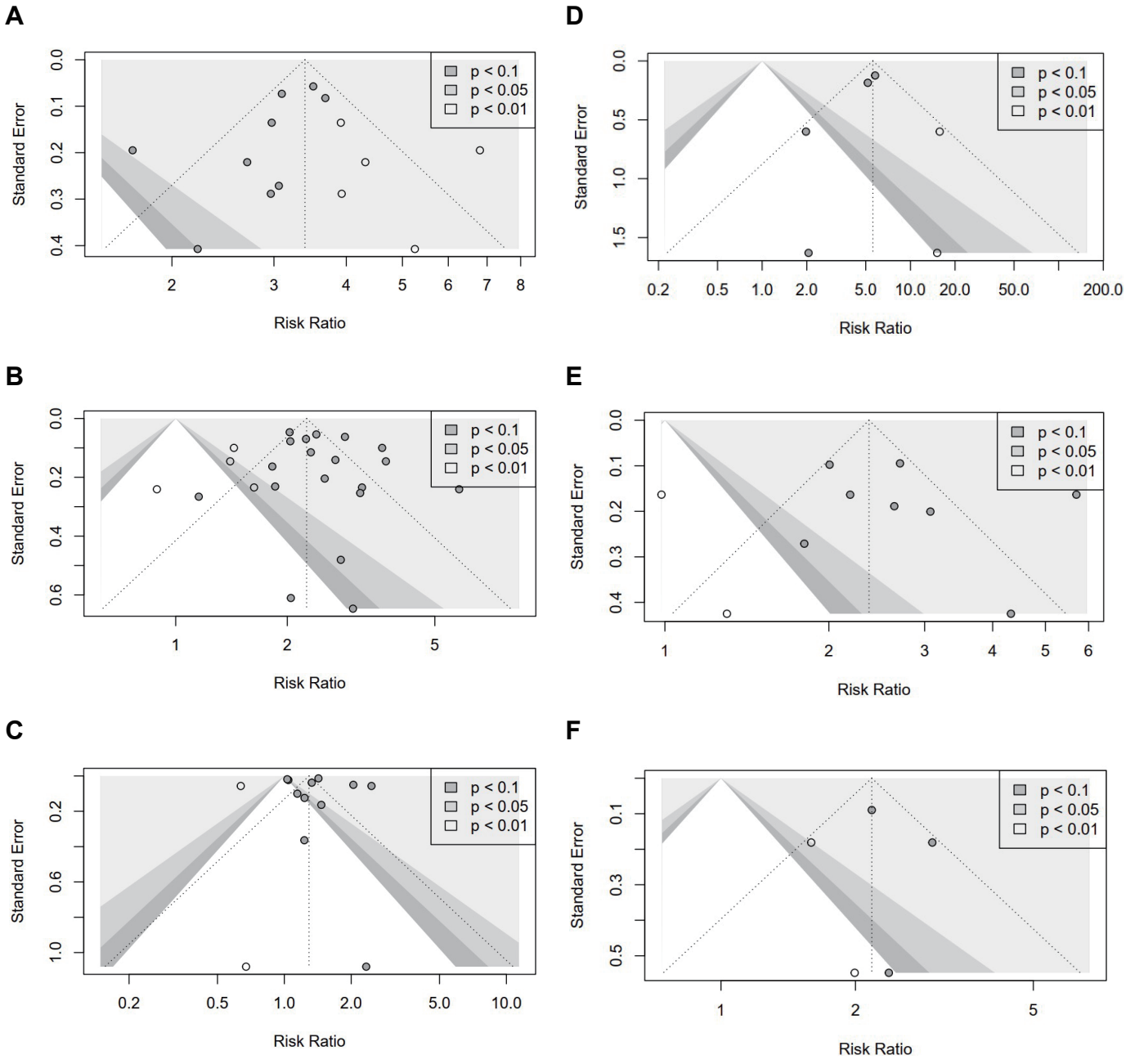
Supplementary Figures

Supplementary Figure 1. Publication bias for mortality outcomes based on pooled risk estimates.



A–C, All-cause mortality. **D–F**, Cardiovascular mortality. Three vascular aging biomarkers are the coronary artery calcium score>0 (**A** and **D**), low ankle-brachial index (**B** and **E**) and short leucocyte telomere length (**C** and **F**). For **A–F**, funnel plots showing visible publication bias. Different shades of grey areas represent the significance of the effect estimates. Gray dots show included studies and white circles show additional studies in the trim and fill procedure.

Supplementary Figure 2. Publication bias for mortality outcomes based on pooled event counts.



A–C, All-cause mortality. **D–F**, Cardiovascular mortality. Three vascular aging biomarkers are the coronary artery calcium score>0 (**A** and **D**), low ankle-brachial index (**B** and **E**) and short leucocyte telomere length (**C** and **F**). For **A–F**, funnel plots showing visible publication bias. Different shades of grey areas represent the significance of the effect estimates. Gray dots show included studies and white circles show additional studies in the trim and fill procedure.

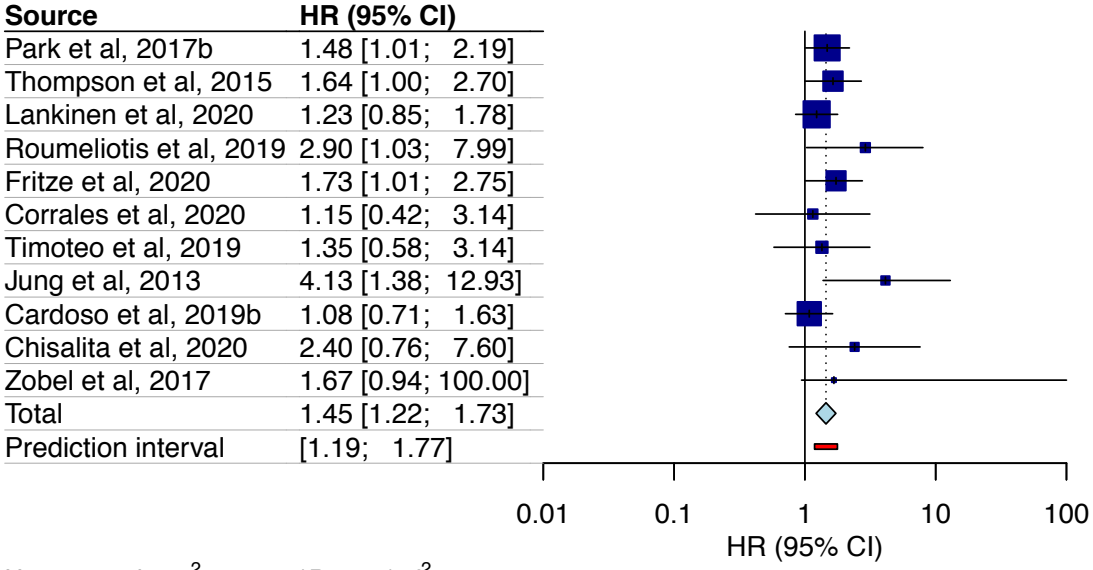
Extended Results

1 Supplementary forest plots of meta-analyses

1.1 Pooled risk estimates

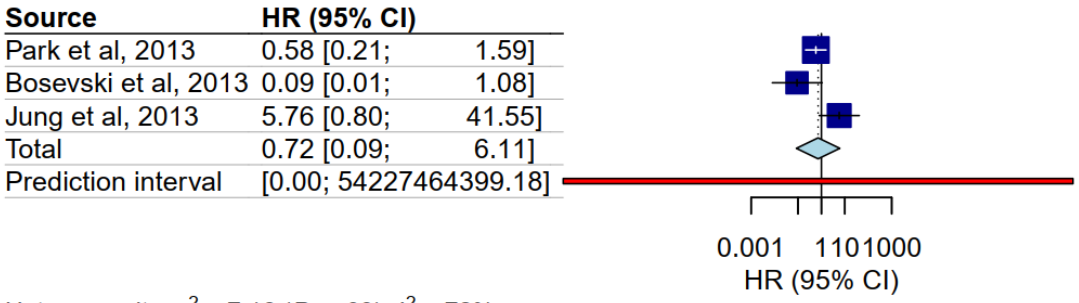
Abbreviations: HR = hazard ratio; CI = confidence interval.

Figure S1: Predictive effects of cIMT on all-cause mortality.



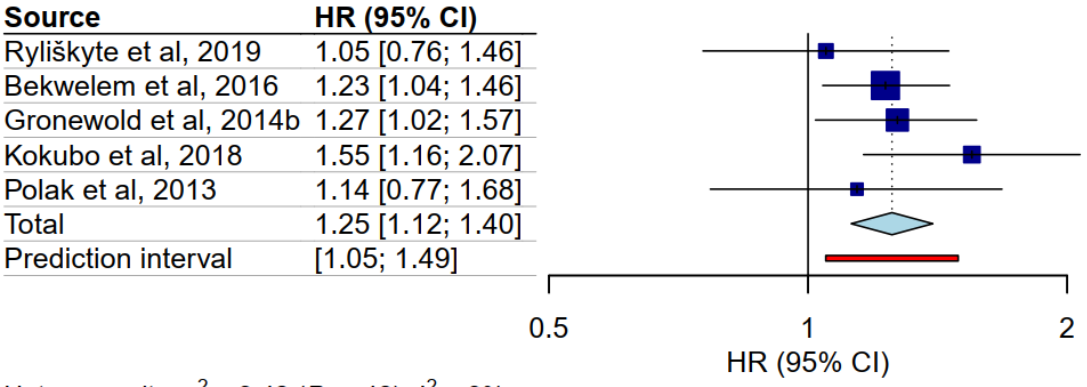
Heterogeneity: $\chi^2_{10} = 9.51$ ($P = .48$), $I^2 = 0\%$

Figure S2: Predictive effects of cIMT on CV mortality.



Heterogeneity: $\chi^2_{2} = 7.16$ ($P = .03$), $I^2 = 72\%$

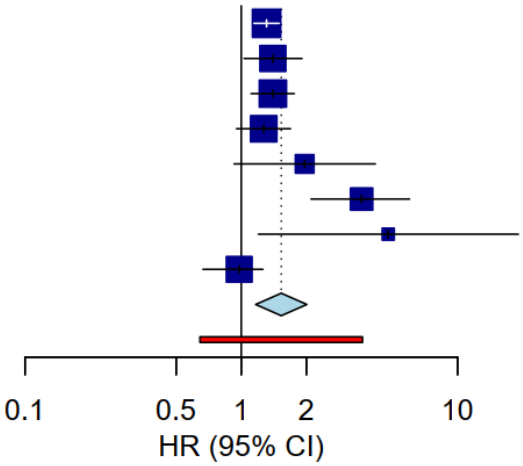
Figure S3: Predictive effects of cIMT on stroke.



Heterogeneity: $\chi^2_{4} = 3.48$ ($P = .48$), $I^2 = 0\%$

Figure S4: Predictive effects of cIMT on MACEs.

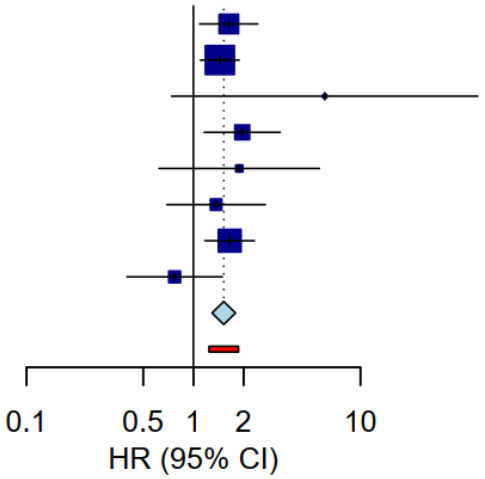
Source	HR (95% CI)
Ryliškyte et al, 2019	1.31 [1.14; 1.50]
Park et al, 2017b	1.40 [1.03; 1.91]
Eikendal et al, 2015	1.40 [1.11; 1.76]
Geisel et al, 2017	1.27 [0.95; 1.69]
Guaricci et al, 2018	1.96 [0.93; 4.17]
Villines et al, 2017	3.60 [2.10; 6.00]
Simonetto et al, 2020	4.78 [1.20; 19.10]
Matsuzawa et al, 2015	0.98 [0.66; 1.26]
Total	1.53 [1.17; 2.01]
Prediction interval	[0.64; 3.63]



Heterogeneity: $\chi^2_7 = 22.00$ ($P = .003$), $I^2 = 68\%$

Figure S5: Predictive effects of CP on all-cause mortality.

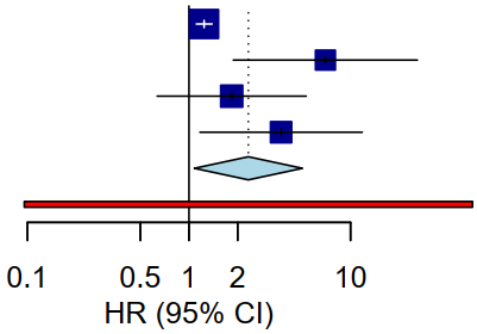
Source	HR (95% CI)
Park et al, 2017b	1.63 [1.09; 2.43]
Hanna et al, 2018	1.44 [1.10; 1.88]
Corrales et al, 2020	6.12 [0.74; 50.50]
Li et al, 2020	1.96 [1.16; 3.31]
Jung et al, 2013	1.88 [0.62; 5.68]
Chen et al, 2020	1.37 [0.69; 2.70]
Yang et al, 2020	1.65 [1.17; 2.32]
Chisalita et al, 2020	0.77 [0.40; 1.49]
Total	1.52 [1.29; 1.79]
Prediction interval	[1.24; 1.86]



Heterogeneity: $\chi^2_7 = 7.37$ ($P = .39$), $I^2 = 5\%$

Figure S6: Predictive effects of CP on CV mortality.

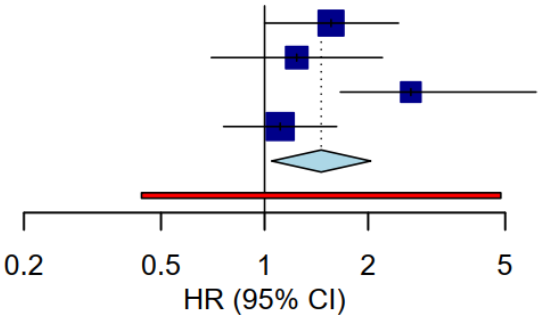
Source	HR (95% CI)
Sirimarco et al, 2013	1.24 [1.11; 1.39]
Park et al, 2013	6.99 [1.88; 25.95]
Jung et al, 2013	1.84 [0.64; 5.32]
Chen et al, 2020	3.72 [1.17; 11.82]
Total	2.33 [1.08; 5.04]
Prediction interval	[0.10; 56.93]



Heterogeneity: $\chi^2_3 = 10.43$ ($P = .02$), $I^2 = 71\%$

Figure S7: Predictive effects of CP on stroke.

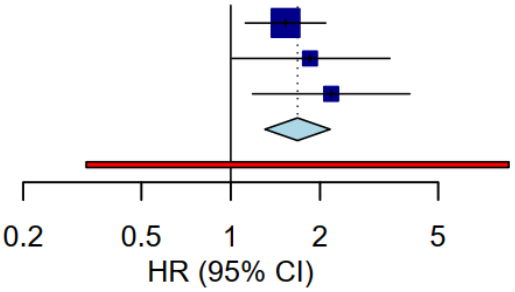
Source	HR (95% CI)
Bekwelem et al, 2016	1.56 [1.00; 2.45]
Chen et al, 2016b	1.24 [0.70; 2.20]
Li et al, 2020	2.66 [1.66; 6.15]
Polak et al, 2013	1.11 [0.76; 1.62]
Total	1.46 [1.05; 2.03]
Prediction interval	[0.44; 4.86]



Heterogeneity: $\chi^2_3 = 5.53$ ($P = .14$), $I^2 = 46\%$

Figure S8: Predictive effects of CP on MACEs.

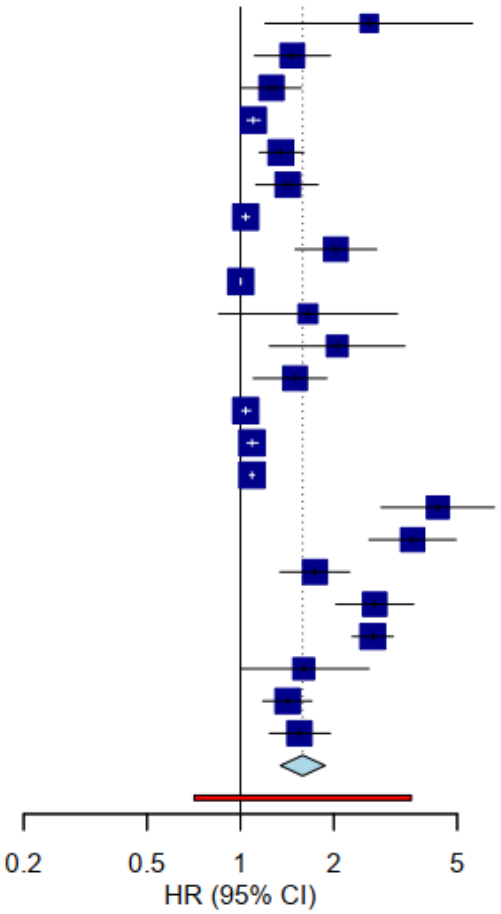
Source	HR (95% CI)
Park et al, 2017b	1.53 [1.12; 2.09]
Li et al, 2020	1.85 [1.01; 3.44]
Guaricci et al, 2018	2.18 [1.18; 4.02]
Total	1.68 [1.30; 2.16]
Prediction interval	[0.33; 8.66]



Heterogeneity: $\chi^2_2 = 1.14$ ($P = .57$), $I^2 = 0\%$

Figure S9: Predictive effects of CACS on all-cause mortality.

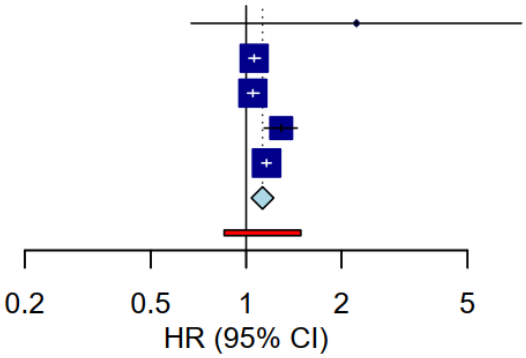
Source	HR (95% CI)
von Scholten et al, 2015	2.60 [1.20; 5.60]
Jung et al, 2022	1.47 [1.11; 1.95]
Hoffmann et al, 2016	1.26 [1.01; 1.57]
Yeboah et al, 2014a	1.10 [1.05; 1.16]
Chen et al, 2017	1.35 [1.15; 1.60]
Williams et al, 2014	1.42 [1.12; 1.78]
Xie et al, 2016	1.04 [1.01; 1.07]
Osawa et al, 2020	2.03 [1.50; 2.75]
Shalaeva et al, 2022	1.00 [1.00; 1.00]
Guney et al, 2014	1.65 [0.85; 3.21]
Lamarche et al, 2019	2.05 [1.24; 3.39]
Hughes−Austin et al, 2016	1.50 [1.10; 1.90]
Janda et al, 2014	1.04 [1.01; 1.08]
Mirbolouk et al, 2020(1)	1.09 [1.05; 1.14]
Mirbolouk et al, 2020(2)	1.09 [1.07; 1.11]
Hartaigh et al, 2016(1)	4.33 [2.84; 6.59]
Hartaigh et al, 2016(2)	3.59 [2.60; 4.96]
Hartaigh et al, 2016(3)	1.74 [1.34; 2.25]
Hartaigh et al, 2016(4)	2.71 [2.03; 3.62]
Valenti et al, 2015	2.67 [2.29; 3.11]
Carr et al, 2017	1.60 [1.00; 2.60]
Mitchell et al, 2018	1.42 [1.18; 1.70]
Shah et al, 2014	1.55 [1.24; 1.95]
Total	1.59 [1.35; 1.87]
Prediction interval	[0.71; 3.56]



Heterogeneity: $\chi^2_{22} = 555.23$ ($P < .001$), $I^2 = 96\%$

Figure S10: Predictive effects of CACS on CV mortality.

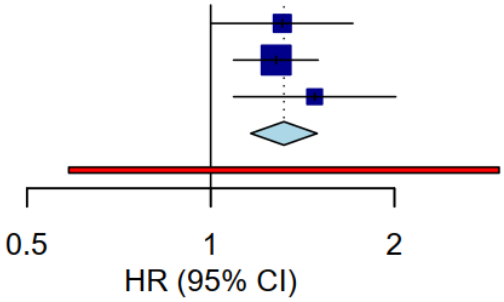
Source	HR (95% CI)
Blair et al, 2014	2.23 [0.67; 7.40]
Xie et al, 2016	1.06 [1.02; 1.11]
Janda et al, 2014	1.05 [1.01; 1.10]
Mirbolouk et al, 2020(1)	1.29 [1.14; 1.45]
Mirbolouk et al, 2020(2)	1.16 [1.12; 1.20]
Total	1.13 [1.04; 1.22]
Prediction interval	[0.85; 1.49]



Heterogeneity: $\chi^2_4 = 24.50$ ($P < .001$), $I^2 = 84\%$

Figure S11: Predictive effects of CACS on stroke.

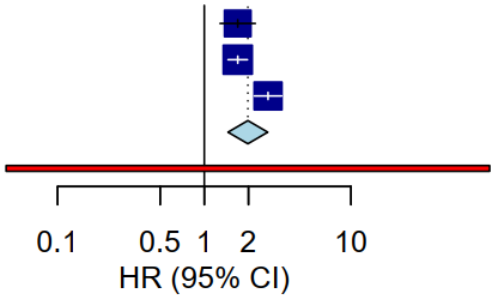
Source	HR (95% CI)
Hermann et al, 2013	1.31 [1.00; 1.71]
Mitchell et al, 2018	1.28 [1.09; 1.50]
Mehta et al, 2020	1.48 [1.09; 2.01]
Total	1.32 [1.16; 1.49]
Prediction interval	[0.59; 2.97]



Heterogeneity: $\chi^2_2 = 0.68$ ($P = .71$), $I^2 = 0\%$

Figure S12: Predictive effects of CACS on MI.

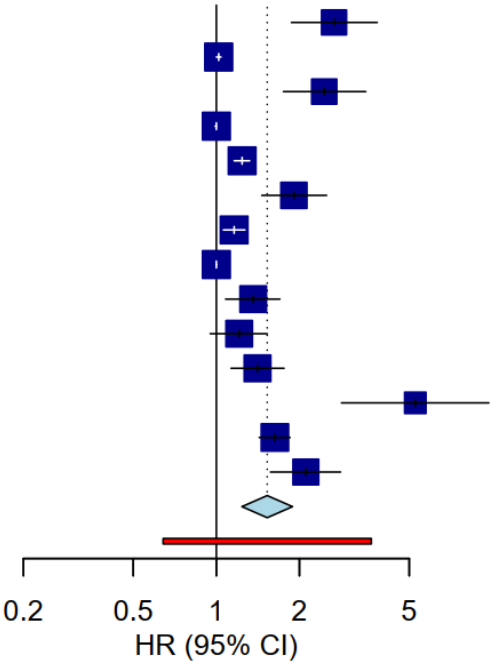
Source	HR (95% CI)
Chen et al, 2017	1.69 [1.28; 2.23]
Yeboah et al, 2014b	1.69 [1.45; 1.97]
Mitchell et al, 2018	2.72 [2.19; 3.37]
Total	1.98 [1.45; 2.71]
Prediction interval	[0.04; 88.13]



Heterogeneity: $\chi^2_2 = 13.50$ ($P = .001$), $I^2 = 85\%$

Figure S13: Predictive effects of CACS on MACEs.

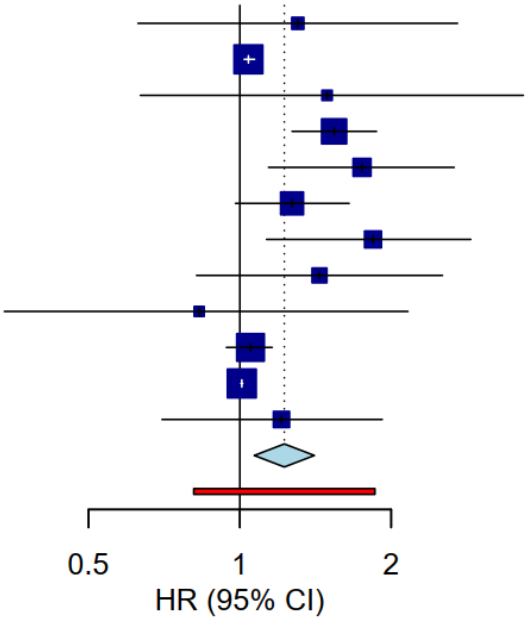
Source	HR (95% CI)
Jung et al, 2022	2.67 [1.87; 3.83]
Premaratne et al, 2017	1.02 [1.00; 1.04]
Hoffmann et al, 2016	2.46 [1.75; 3.48]
Gitsioudis et al, 2015	1.00 [0.99; 1.00]
Geisel et al, 2017	1.24 [1.16; 1.32]
Osawa et al, 2020	1.91 [1.46; 2.51]
Commandeur et al, 2020	1.16 [1.06; 1.27]
Guaricci et al, 2018	1.00 [1.00; 1.00]
Radford et al, 2016	1.36 [1.08; 1.70]
Mordi et al, 2016	1.21 [0.95; 1.53]
Chang et al, 2015	1.41 [1.13; 1.76]
Zhou et al, 2022	5.26 [2.84; 9.72]
Mitchell et al, 2018	1.63 [1.43; 1.85]
Akintoye et al, 2021	2.11 [1.57; 2.82]
Total	1.53 [1.24; 1.89]
Prediction interval	[0.64; 3.64]



Heterogeneity: χ^2_{13} = 260.83 (P < .001), I^2 = 95%

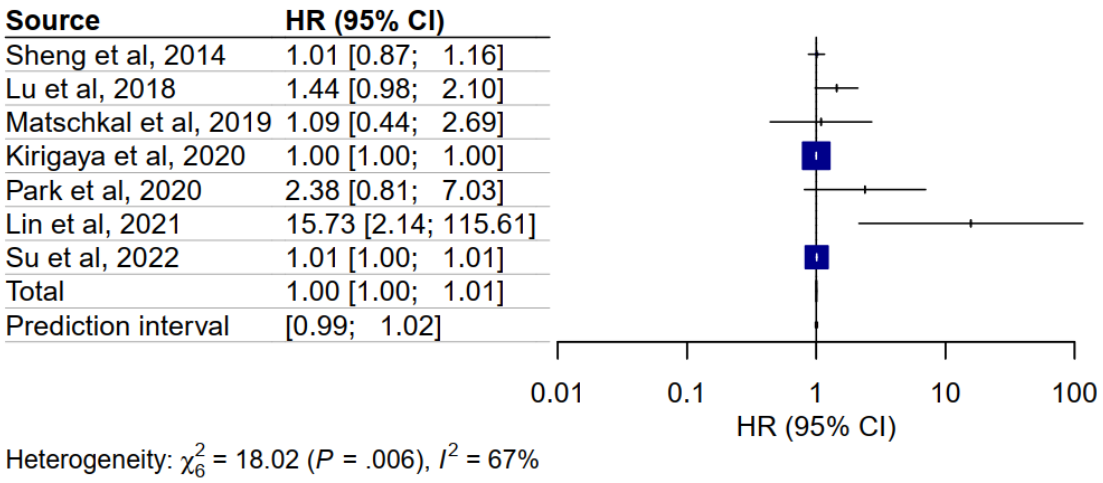
Figure S14: Predictive effects of baPWV on all-cause mortality.

Source	HR (95% CI)
Ban et al, 2022	1.30 [0.63; 2.71]
Ji et al, 2020	1.04 [1.02; 1.07]
Kawai et al, 2013	1.49 [0.63; 3.66]
Kim et al, 2014	1.54 [1.27; 1.87]
Lin et al, 2021	1.75 [1.14; 2.67]
Lu et al, 2018	1.27 [0.98; 1.65]
Maeda et al, 2014	1.84 [1.13; 2.88]
Matschkal et al, 2019	1.44 [0.82; 2.53]
Saji et al, 2017	0.83 [0.34; 2.16]
Sheng et al, 2014	1.05 [0.94; 1.16]
Su et al, 2022	1.01 [1.00; 1.01]
Song et al, 2022	1.21 [0.70; 1.92]
Total	1.23 [1.07; 1.41]
Prediction interval	[0.81; 1.86]



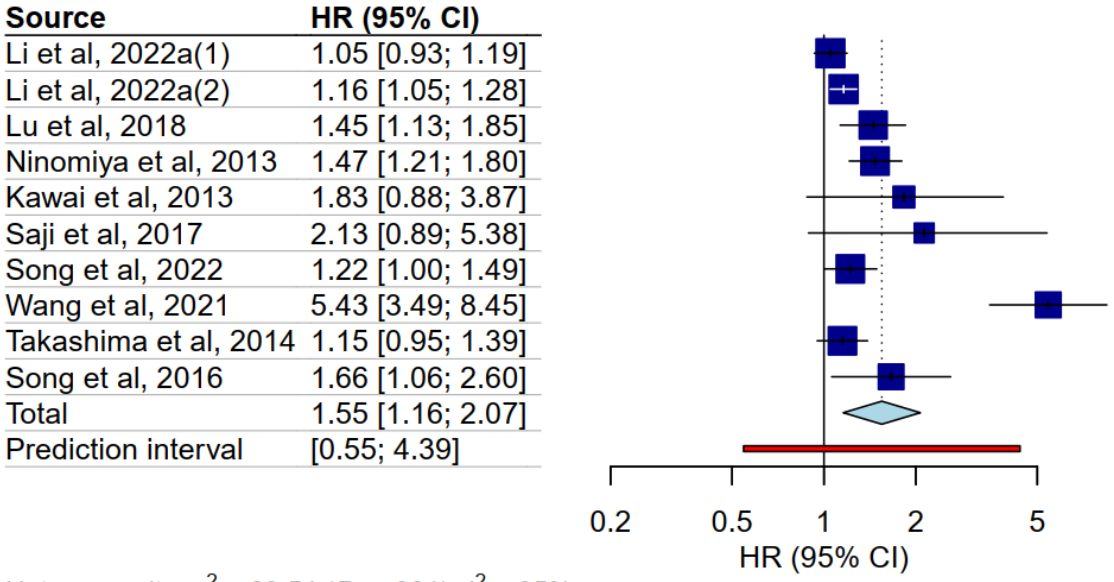
Heterogeneity: χ^2_{11} = 43.87 (P < .001), I^2 = 75%

Figure S15: Predictive effects of baPWV on CV mortality.



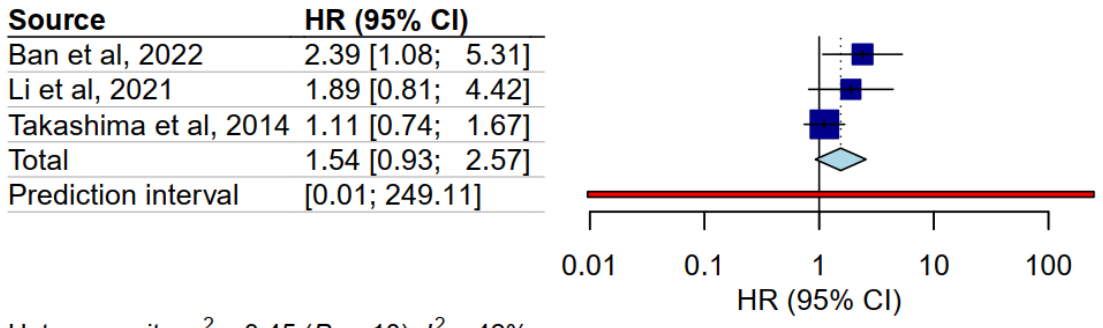
Heterogeneity: $\chi^2_6 = 18.02$ ($P = .006$), $I^2 = 67\%$

Figure S16: Predictive effects of baPWV on stroke.



Heterogeneity: $\chi^2_9 = 60.54$ ($P < .001$), $I^2 = 85\%$

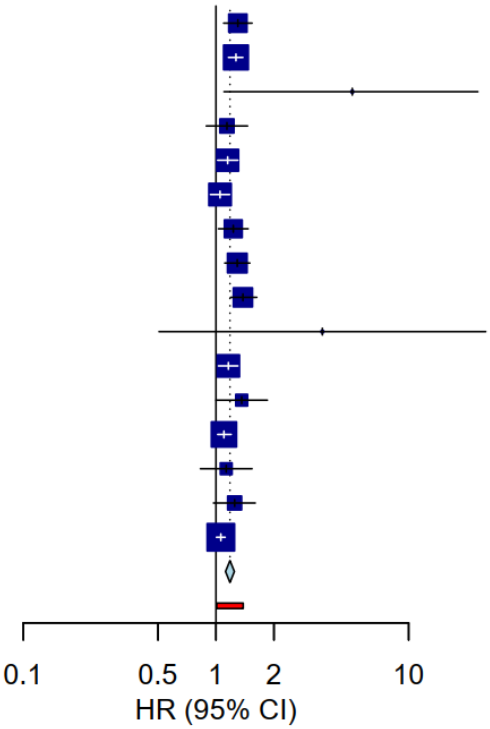
Figure S17: Predictive effects of baPWV on MI.



Heterogeneity: $\chi^2_2 = 3.45$ ($P = .18$), $I^2 = 42\%$

Figure S18: Predictive effects of cfPWV on all-cause mortality.

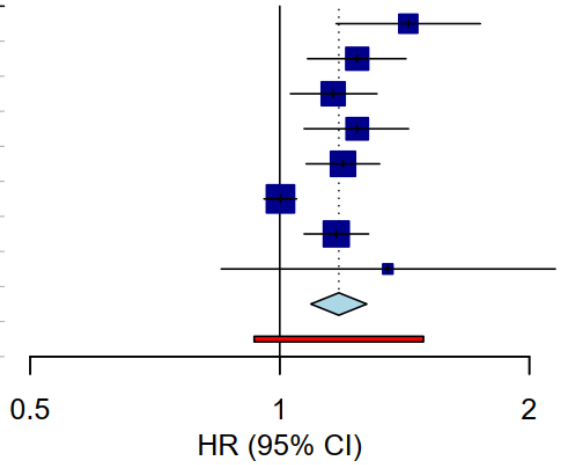
Source	HR (95% CI)
Avramovski et al, 2014	1.30 [1.10; 1.54]
Bao et al, 2019	1.27 [1.16; 1.38]
Baumann et al, 2014	5.10 [1.10; 22.90]
Cardoso et al, 2013	1.14 [0.89; 1.46]
Cardoso et al, 2019	1.15 [1.02; 1.30]
Chisalita et al, 2020	1.05 [0.94; 1.18]
Chiu et al, 2016	1.23 [1.03; 1.47]
Fortier et al, 2015	1.29 [1.11; 1.50]
Giannitsi et al, 2021	1.38 [1.19; 1.63]
Papaioannou et al, 2014	3.57 [0.51; 25.14]
Regnault et al, 2014	1.16 [1.03; 1.30]
Tougaard et al, 2020	1.36 [1.00; 1.85]
Tripepi et al, 2018	1.10 [1.02; 1.20]
Van Sloten et al, 2014	1.13 [0.83; 1.54]
Wei et al, 2022	1.25 [0.97; 1.60]
Samara et al, 2022	1.06 [1.00; 1.12]
Total	1.18 [1.12; 1.25]
Prediction interval	[1.01; 1.38]



Heterogeneity: χ^2_{15} = 34.07 (P = .003), I^2 = 56%

Figure S19: Predictive effects of cfPWV on CV mortality.

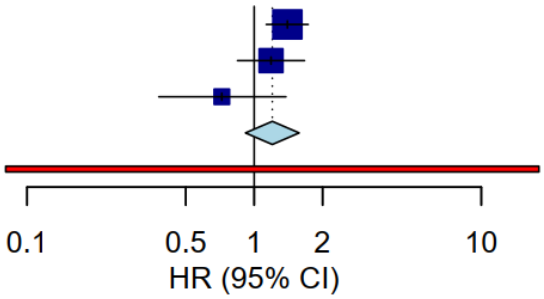
Source	HR (95% CI)
Avramovski et al, 2014	1.43 [1.17; 1.75]
Bao et al, 2019	1.24 [1.08; 1.42]
Regnault et al, 2014	1.16 [1.03; 1.31]
Cardoso et al, 2019	1.24 [1.07; 1.43]
Dimkovic et al, 2018	1.19 [1.08; 1.32]
Fortier et al, 2019	1.00 [0.96; 1.05]
Tripepi et al, 2018	1.17 [1.07; 1.28]
Wei et al, 2022	1.35 [0.85; 2.15]
Total	1.18 [1.09; 1.27]
Prediction interval	[0.93; 1.49]



Heterogeneity: χ^2_7 = 33.84 (P < .001), I^2 = 79%

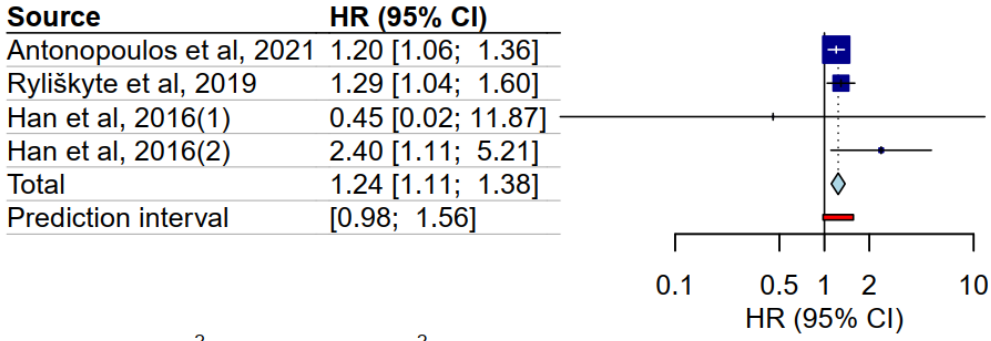
Figure S20: Predictive effects of cfPWV on stroke.

Source	HR (95% CI)
Pereira et al, 2013	1.40 [1.13; 1.73]
Ryliškyte et al, 2019	1.19 [0.84; 1.67]
Wei et al, 2022	0.72 [0.38; 1.38]
Total	1.20 [0.92; 1.58]
Prediction interval	[0.08; 17.93]



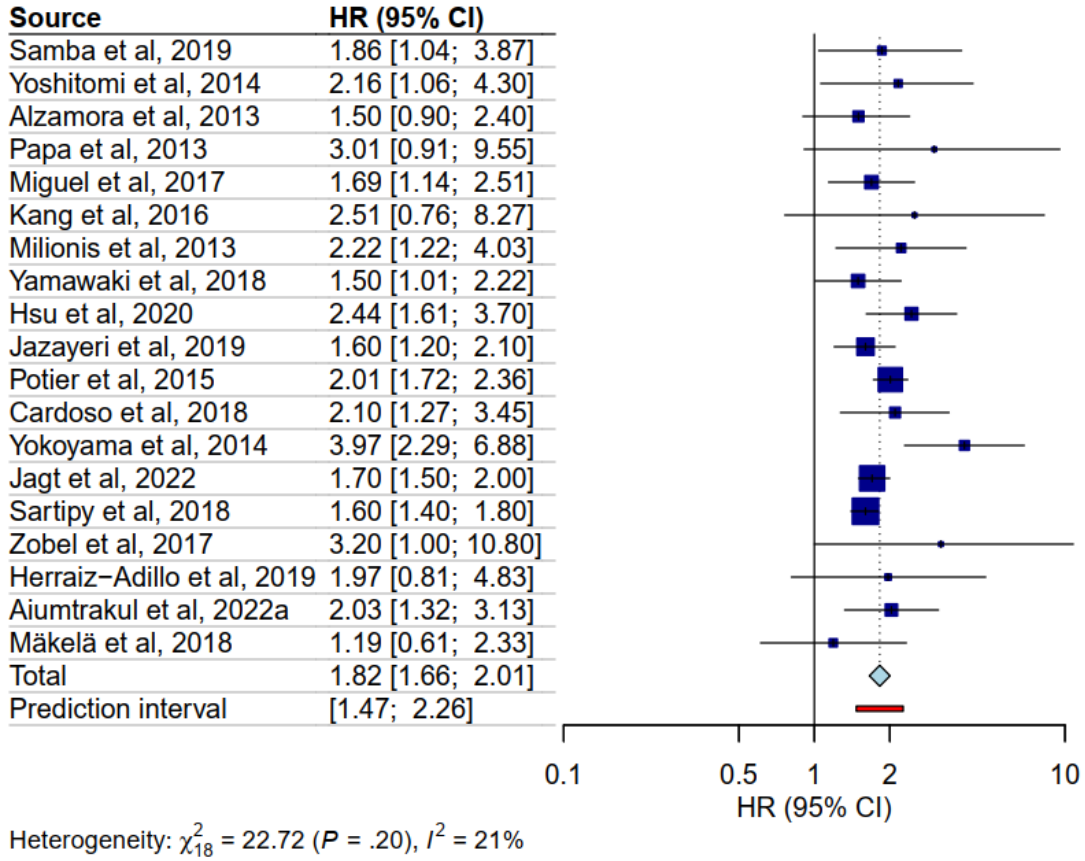
Heterogeneity: χ^2_2 = 3.93 (P = .14), I^2 = 49%

Figure S21: Predictive effects of cfPWV on MACEs.



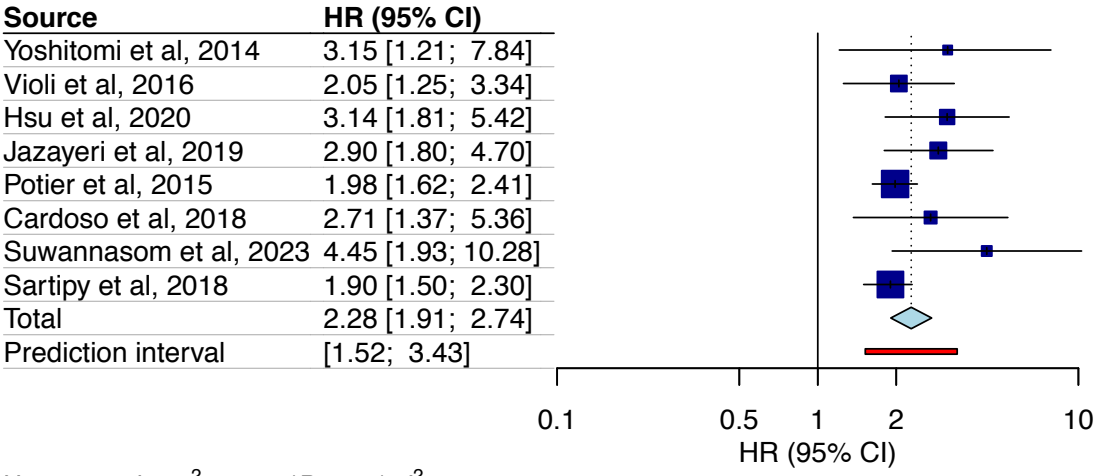
Heterogeneity: $\chi^2_3 = 3.56$ ($P = .31$), $I^2 = 16\%$

Figure S22: Predictive effects of low ABI on all-cause mortality.



Heterogeneity: $\chi^2_{18} = 22.72$ ($P = .20$), $I^2 = 21\%$

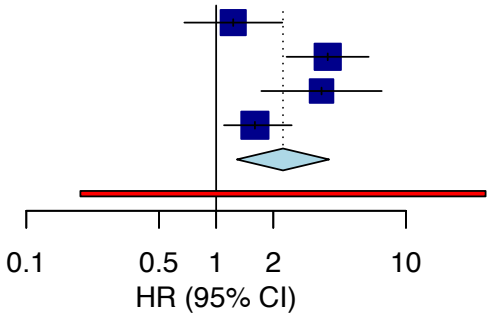
Figure S23: Predictive effects of low ABI on CV mortality.



Heterogeneity: $\chi^2_7 = 9.28$ ($P = .23$), $I^2 = 25\%$

Figure S24: Predictive effects of low ABI on stroke.

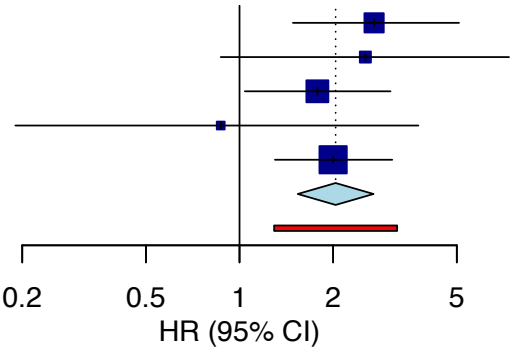
Source	HR (95% CI)
Milionis et al, 2013	1.23 [0.68; 2.23]
Gronewold et al, 2014a	3.87 [2.35; 6.36]
Suwannasom et al, 2023	3.59 [1.73; 7.45]
Sartipy et al, 2018	1.60 [1.10; 2.50]
Total	2.25 [1.29; 3.94]
Prediction interval	[0.19; 26.26]



Heterogeneity: $\chi^2_3 = 12.64$ ($P = .005$), $I^2 = 76\%$

Figure S25: Predictive effects of low ABI on MI.

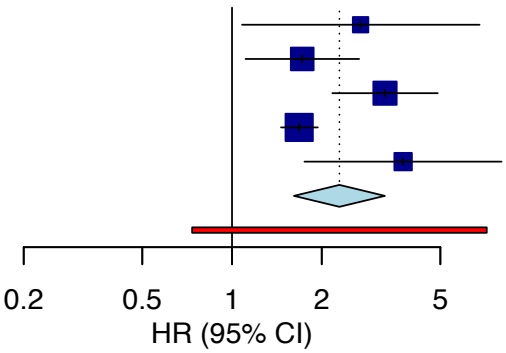
Source	HR (95% CI)
Violi et al, 2016	2.71 [1.49; 5.08]
Papa et al, 2013	2.54 [0.87; 7.36]
Yeboah et al, 2014b	1.78 [1.04; 3.06]
Suwannasom et al, 2023	0.87 [0.19; 3.76]
Sartipy et al, 2018	2.00 [1.30; 3.10]
Total	2.04 [1.54; 2.70]
Prediction interval	[1.29; 3.21]



Heterogeneity: $\chi^2_4 = 2.48$ ($P = .65$), $I^2 = 0\%$

Figure S26: Predictive effects of low ABI on MACEs.

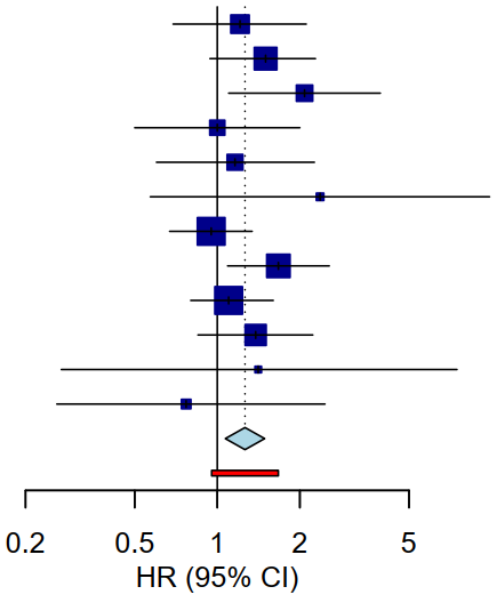
Source	HR (95% CI)
Papa et al, 2013	2.70 [1.08; 6.77]
Milionis et al, 2013	1.72 [1.11; 2.67]
Geisel et al, 2017	3.26 [2.17; 4.90]
Akintoye et al, 2021	1.68 [1.46; 1.94]
Suwannasom et al, 2023	3.75 [1.75; 8.02]
Total	2.29 [1.61; 3.26]
Prediction interval	[0.73; 7.15]



Heterogeneity: $\chi^2_4 = 13.27$ ($P = .01$), $I^2 = 70\%$

Figure S27: Predictive effects of high ABI on all-cause mortality.

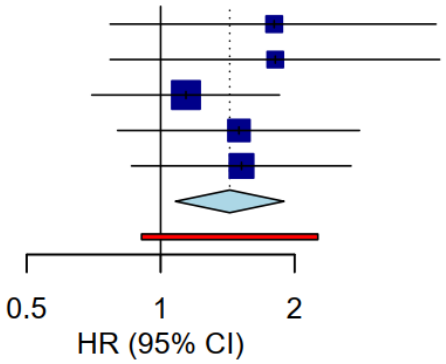
Source	HR (95% CI)
Mäkelä et al, 2018	1.21 [0.69; 2.11]
Velescu et al, 2017	1.50 [0.94; 2.28]
Chen et al, 2016a	2.08 [1.10; 3.93]
Alzamora et al, 2013	1.00 [0.50; 2.00]
Miguel et al, 2017	1.16 [0.60; 2.26]
Aiumtrakul et al, 2022a	2.37 [0.57; 9.83]
Hendriks et al, 2016	0.95 [0.67; 1.34]
Golledge et al, 2020	1.67 [1.09; 2.56]
Jazayeri et al, 2019	1.10 [0.80; 1.60]
Potier et al, 2015	1.38 [0.85; 2.23]
Herraiz−Adillo et al, 2019	1.41 [0.27; 7.48]
Samba et al, 2019	0.77 [0.26; 2.47]
Total	1.26 [1.07; 1.49]
Prediction interval	[0.95; 1.67]



Heterogeneity: χ^2_{11} = 9.94 (P = .54), I^2 = 0%

Figure S28: Predictive effects of high ABI on CV mortality.

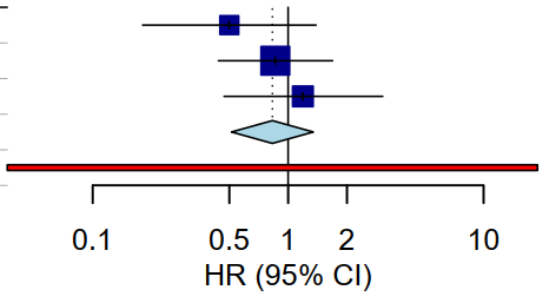
Source	HR (95% CI)
Velescu et al, 2017	1.80 [0.77; 4.16]
Hyun et al, 2014	1.81 [0.77; 4.24]
Hendriks et al, 2016	1.14 [0.70; 1.85]
Jazayeri et al, 2019	1.50 [0.80; 2.80]
Potier et al, 2015	1.52 [0.86; 2.68]
Total	1.43 [1.08; 1.89]
Prediction interval	[0.91; 2.26]



Heterogeneity: χ^2_4 = 1.48 (P = .83), I^2 = 0%

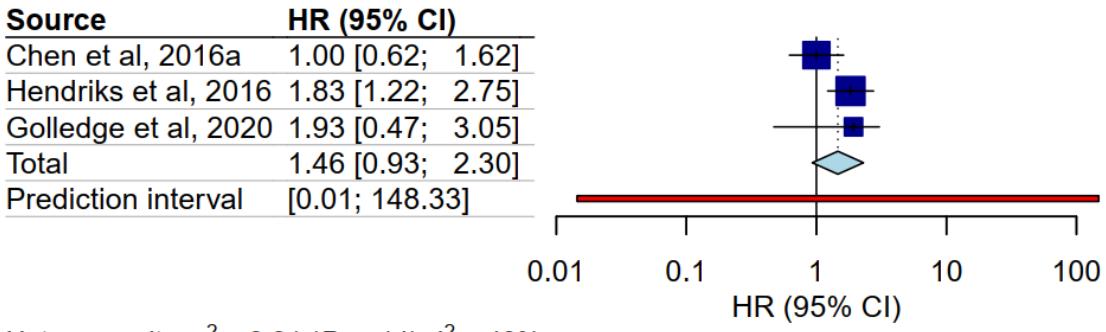
Figure S29: Predictive effects of high ABI on stroke.

Source	HR (95% CI)
Gronewold et al, 2014a	0.50 [0.18; 1.39]
Hendriks et al, 2016	0.86 [0.44; 1.69]
Golledge et al, 2020	1.19 [0.47; 3.05]
Total	0.83 [0.51; 1.35]
Prediction interval	[0.04; 18.87]



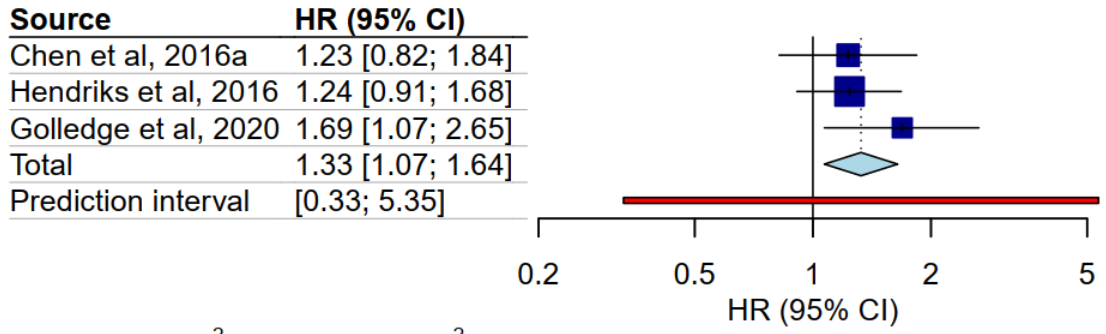
Heterogeneity: χ^2_2 = 1.53 (P = .47), I^2 = 0%

Figure S30: Predictive effects of high ABI on MI.



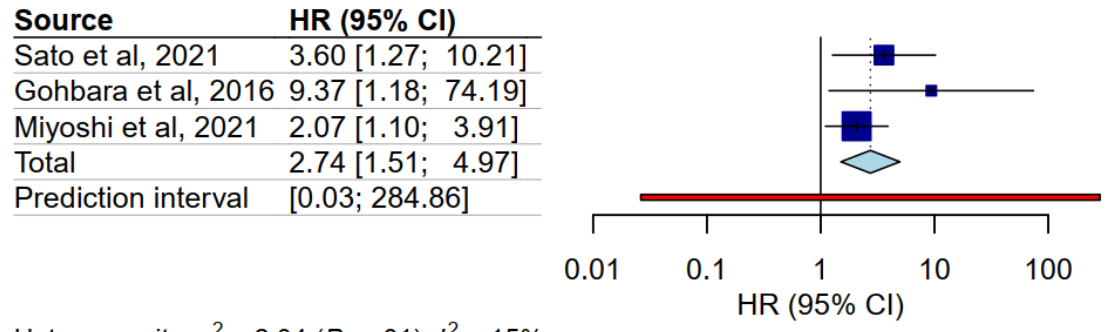
Heterogeneity: $\chi^2_2 = 3.91$ ($P = .14$), $I^2 = 49\%$

Figure S31: Predictive effects of high ABI on MACEs.



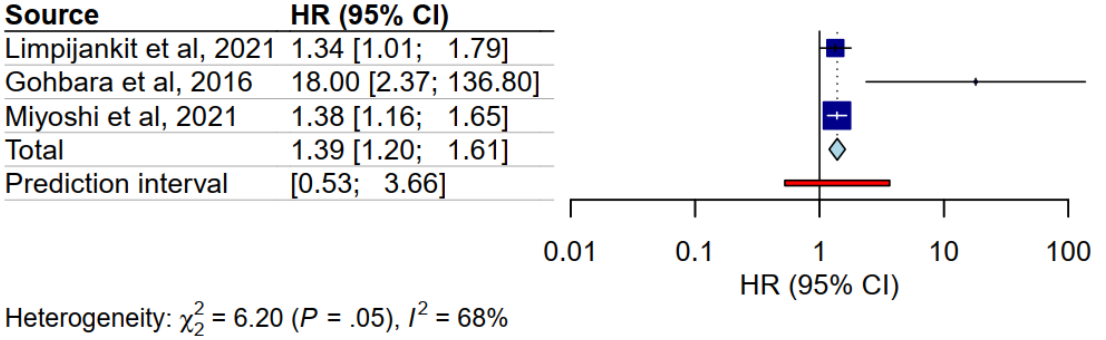
Heterogeneity: $\chi^2_2 = 1.42$ ($P = .49$), $I^2 = 0\%$

Figure S32: Predictive effects of CAVI on stroke.



Heterogeneity: $\chi^2_2 = 2.34$ ($P = .31$), $I^2 = 15\%$

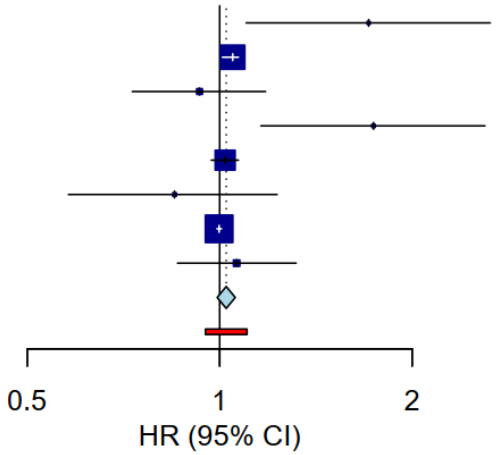
Figure S33: Predictive effects of CAVI on MACEs.



Heterogeneity: $\chi^2_2 = 6.20$ ($P = .05$), $I^2 = 68\%$

Figure S34: Predictive effects of AIx on all-cause motality.

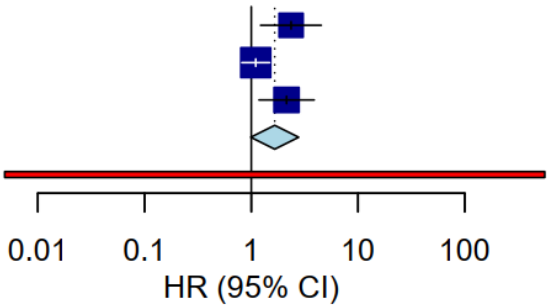
Source	HR (95% CI)
Tynjala et al, 2020	1.71 [1.10; 2.65]
Vriz et al, 2021	1.05 [1.01; 1.07]
Van Sloten et al, 2014	0.93 [0.73; 1.18]
Mukai et al, 2019	1.74 [1.16; 2.60]
Green et al, 2017	1.02 [0.97; 1.07]
Giannitsi et al, 2021	0.85 [0.58; 1.23]
Papaioannou et al, 2014	1.00 [0.99; 1.01]
Fortier et al, 2019	1.06 [0.86; 1.32]
Total	1.02 [0.99; 1.06]
Prediction interval	[0.95; 1.10]



Heterogeneity: $\chi^2_7 = 24.88$ ($P < .001$), $I^2 = 72\%$

Figure S35: Predictive effects of AIx on CV motality.

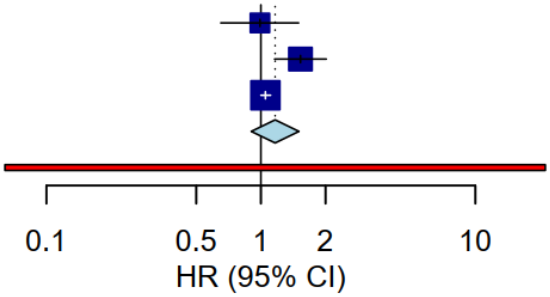
Source	HR (95% CI)
Tynjala et al, 2020	2.36 [1.22; 4.53]
Fortier et al, 2019	1.10 [0.81; 1.49]
Mukai et al, 2019	2.14 [1.18; 3.89]
Total	1.66 [0.99; 2.78]
Prediction interval	[0.00; 561.79]



Heterogeneity: $\chi^2_2 = 6.82$ ($P = .03$), $I^2 = 71\%$

Figure S36: Predictive effects of AIx on MACEs.

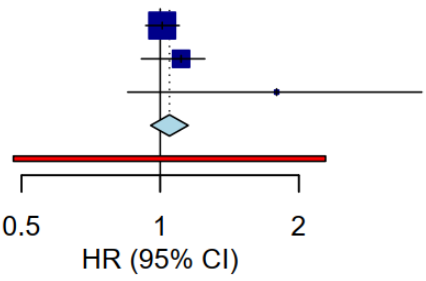
Source	HR (95% CI)
Sarafidis et al, 2017	0.99 [0.65; 1.50]
Ryliškyte et al, 2019	1.53 [1.16; 2.02]
Desbiens et al, 2022	1.05 [1.00; 1.11]
Total	1.17 [0.90; 1.51]
Prediction interval	[0.06; 21.16]



Heterogeneity: $\chi^2_2 = 6.91$ ($P = .03$), $I^2 = 71\%$

Figure S37: Predictive effects of FMD on all-cause mortality.

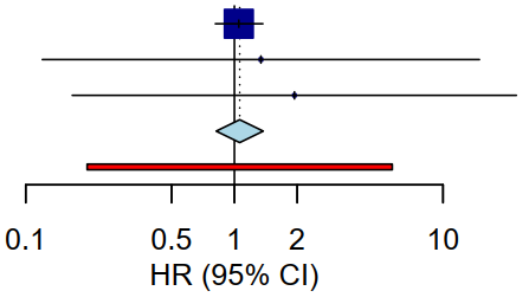
Source	HR (95% CI)
Schnabel et al, 2022	1.01 [0.93; 1.10]
Savic−Radojevic et al, 2013	1.11 [0.91; 1.25]
Giannitsi et al, 2021	1.79 [0.85; 3.70]
Total	1.05 [0.95; 1.15]
Prediction interval	[0.48; 2.29]



Heterogeneity: $\chi^2_2 = 3.20$ ($P = .20$), $I^2 = 38\%$

Figure S38: Predictive effects of FMD on CV mortality.

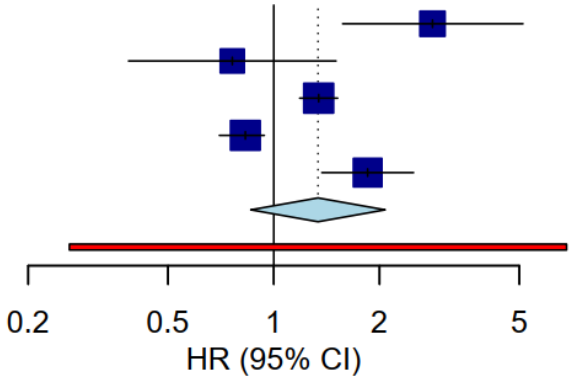
Source	HR (95% CI)
Schnabel et al, 2022	1.05 [0.81; 1.37]
Careri et al, 2013	1.34 [0.12; 14.95]
Abe et al, 2022	1.94 [0.17; 22.47]
Total	1.06 [0.82; 1.37]
Prediction interval	[0.20; 5.71]



Heterogeneity: $\chi^2_2 = 0.27$ ($P = .87$), $I^2 = 0\%$

Figure S39: Predictive effects of CEPCs on all-cause mortality.

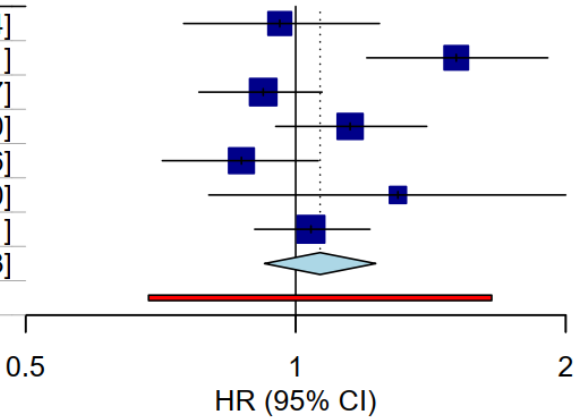
Source	HR (95% CI)
Patel et al, 2015	2.83 [1.57; 5.12]
Yang et al, 2017	0.76 [0.39; 1.50]
Lu et al, 2016	1.34 [1.18; 1.52]
Berezin et al, 2015	0.83 [0.70; 0.94]
Koller et al, 2016	1.85 [1.37; 2.50]
Total	1.34 [0.86; 2.08]
Prediction interval	[0.26; 6.81]



Heterogeneity: $\chi^2_4 = 44.53$ ($P < .001$), $I^2 = 91\%$

Figure S40: Predictive effects of E-selectin on all-cause mortality.

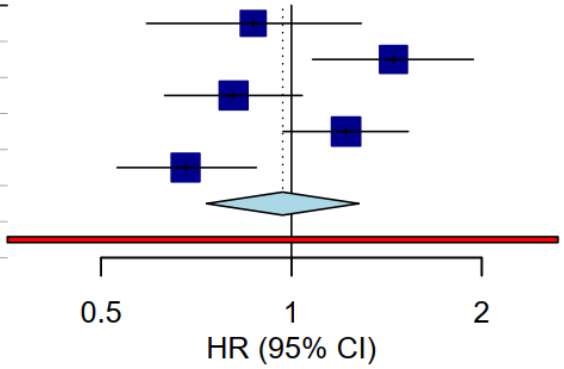
Source	HR (95% CI)
Delgado et al, 2020(1)	0.96 [0.75; 1.24]
Delgado et al, 2020(2)	1.51 [1.20; 1.91]
Delgado et al, 2020(3)	0.92 [0.78; 1.07]
Delgado et al, 2020(4)	1.15 [0.95; 1.40]
Delgado et al, 2020(5)	0.87 [0.71; 1.06]
von Scholten et al, 2016	1.30 [0.80; 2.00]
Skau et al, 2020	1.04 [0.90; 1.21]
Total	1.06 [0.92; 1.23]
Prediction interval	[0.69; 1.65]



Heterogeneity: $\chi^2_6 = 17.58$ ($P = .007$), $I^2 = 66\%$

Figure S41: Predictive effects of E-selectin on CV mortality.

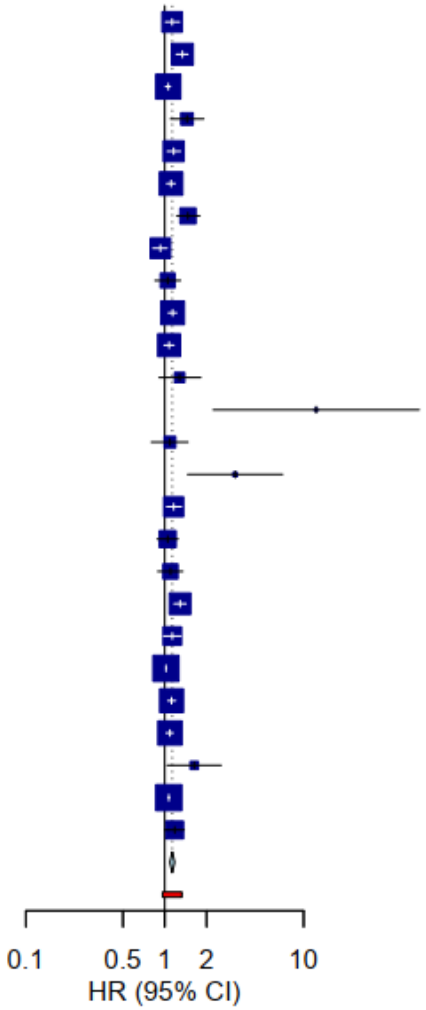
Source	HR (95% CI)
Delgado et al, 2020(1)	0.87 [0.59; 1.29]
Delgado et al, 2020(2)	1.45 [1.08; 1.94]
Delgado et al, 2020(3)	0.81 [0.63; 1.04]
Delgado et al, 2020(4)	1.22 [0.97; 1.53]
Delgado et al, 2020(5)	0.68 [0.53; 0.88]
Total	0.97 [0.73; 1.28]
Prediction interval	[0.36; 2.64]



Heterogeneity: $\chi^2_4 = 20.95$ ($P < .001$), $I^2 = 81\%$

Figure S42: Predictive effects of LTL on all-cause mortality.

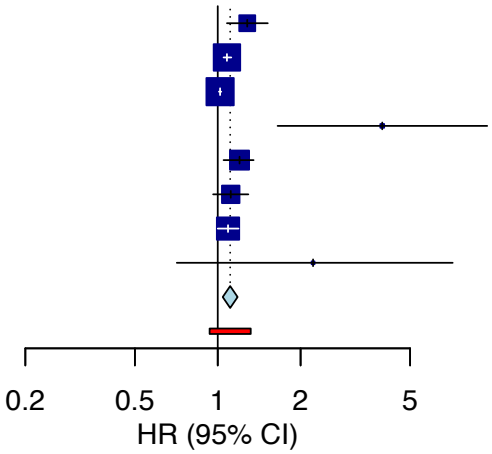
Source	HR (95% CI)
Antwi et al, 2021	1.13 [1.01; 1.28]
Arbeev et al, 2020	1.34 [1.21; 1.47]
Cheng et al, 2021	1.06 [1.01; 1.10]
Córdoba−Lanús et al, 2021	1.45 [1.10; 1.91]
Dean et al, 2017	1.16 [1.04; 1.30]
Deelen et al, 2014(1)	1.11 [1.03; 1.19]
Deelen et al, 2014(2)	1.47 [1.22; 1.79]
El Assar et al, 2021(1)	0.93 [0.82; 1.04]
El Assar et al, 2021(2)	1.05 [0.85; 1.30]
Fazzini et al, 2020	1.14 [1.06; 1.22]
Glei et al, 2015	1.07 [0.99; 1.17]
Huang et al, 2019	1.28 [0.91; 1.82]
Jin et al, 2018	12.31 [2.23; 67.97]
Kachuri et al, 2019	1.09 [0.80; 1.47]
Margaritis et al, 2017	3.21 [1.46; 7.06]
Marioni et al, 2016(1)	1.16 [1.03; 1.32]
Marioni et al, 2016(2)	1.05 [0.88; 1.25]
Mwasongwe et al, 2017	1.10 [0.89; 1.35]
Pavanello et al, 2021	1.29 [1.16; 1.43]
Pusceddu et al, 2018	1.13 [0.98; 1.31]
Rode et al, 2015	1.02 [1.02; 1.03]
Romaine et al, 2022	1.12 [1.05; 1.20]
Samavat et al, 2021	1.09 [1.02; 1.15]
Sanchez et al, 2022	1.63 [1.04; 2.55]
Schneider et al, 2022	1.07 [1.06; 1.08]
Zhan et al, 2018	1.18 [1.00; 1.38]
Total	1.13 [1.09; 1.18]
Prediction interval	[0.96; 1.33]



Heterogeneity: $\chi^2_{25} = 205.75$ ($P < .001$), $I^2 = 88\%$

Figure S43: Predictive effects of LTL on CV mortality.

Source	HR (95% CI)
Arbeev et al, 2020	1.28 [1.08; 1.52]
Schneider et al, 2022	1.08 [1.05; 1.12]
Rode et al, 2015	1.02 [1.01; 1.03]
Margaritis et al, 2017	3.96 [1.65; 9.53]
Fazzini et al, 2020	1.20 [1.05; 1.35]
Pusceddu et al, 2018	1.11 [0.96; 1.29]
Romaine et al, 2022	1.09 [1.00; 1.19]
Huang et al, 2019	2.22 [0.71; 7.14]
Total	1.11 [1.04; 1.18]
Prediction interval	[0.93; 1.32]



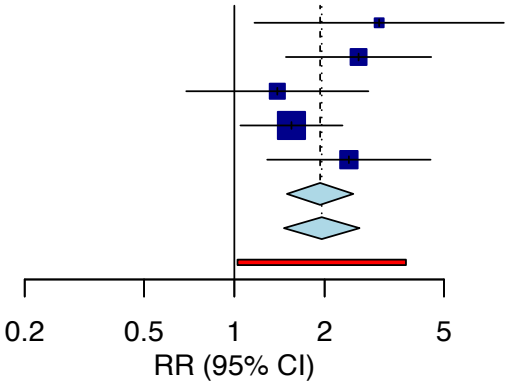
Heterogeneity: $\chi^2_7 = 37.27$ ($P < .001$), $I^2 = 81\%$

1.2 Pooled event counts

Abbreviations: RR = risk ratio; CI = confidence interval.

Figure S1: Predictive effects of cIMT on all-cause mortality.

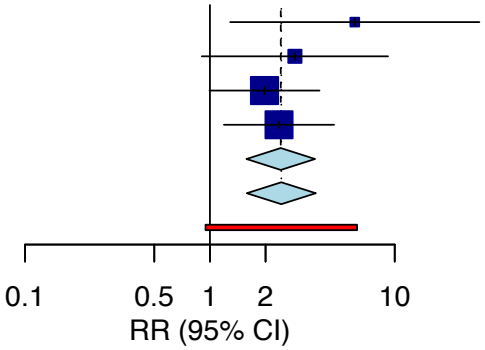
Source	RR (95% CI)
Hernández et al, 2015	3.04 [1.17; 7.92]
Roumeliotis et al, 2019	2.60 [1.49; 4.53]
Timoteo et al, 2019	1.39 [0.69; 2.80]
Cardoso et al, 2019b	1.55 [1.05; 2.29]
Meireles et al, 2018	2.41 [1.29; 4.51]
Total (common effect)	1.93 [1.50; 2.49]
Total (random effect)	1.96 [1.46; 2.61]
Prediction interval	[1.02; 3.73]



Heterogeneity: $\chi^2_4 = 4.47$ ($P = .35$), $I^2 = 11\%$

Figure S2: Predictive effects of cIMT on CV mortality.

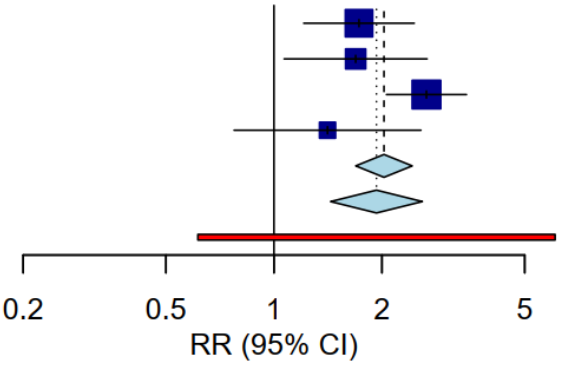
Source	RR (95% CI)
Hernández et al, 2015	6.08 [1.29; 28.71]
Timoteo et al, 2019	2.88 [0.90; 9.20]
Novo et al, 2013	1.97 [0.99; 3.92]
Cardoso et al, 2019b	2.37 [1.19; 4.70]
Total (common effect)	2.42 [1.58; 3.71]
Total (random effect)	2.43 [1.58; 3.74]
Prediction interval	[0.95; 6.25]



Heterogeneity: $\chi^2_3 = 1.78$ ($P = .62$), $I^2 = 0\%$

Figure S3: Predictive effects of cIMT on stroke.

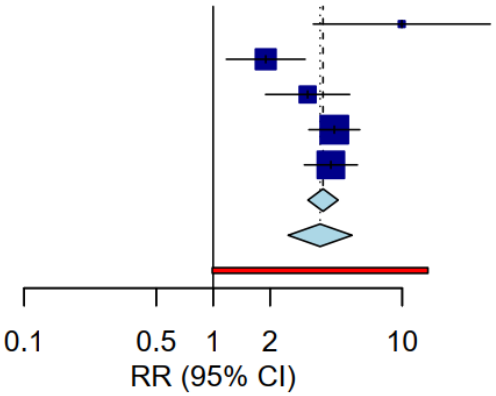
Source	RR (95% CI)
Shimoda et al, 2020	1.73 [1.21; 2.46]
Bekwelem et al, 2016	1.69 [1.07; 2.67]
Kokubo et al, 2018	2.66 [2.06; 3.44]
Novo et al, 2013	1.41 [0.77; 2.57]
Total (common effect)	2.03 [1.69; 2.43]
Total (random effect)	1.93 [1.44; 2.59]
Prediction interval	[0.61; 6.08]



Heterogeneity: $\chi^2_3 = 6.98$ ($P = .07$), $I^2 = 57\%$

Figure S4: Predictive effects of CP on all-cause mortality.

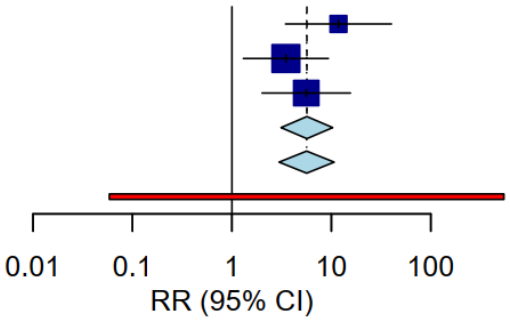
Source	RR (95% CI)
Park et al, 2013	9.95 [3.39; 29.21]
Jung et al, 2013	1.90 [1.17; 3.07]
Chen et al, 2020	3.16 [1.89; 5.27]
Yang et al, 2020	4.37 [3.21; 5.96]
Li et al, 2020	4.19 [3.03; 5.79]
Total (common effect)	3.81 [3.17; 4.58]
Total (random effect)	3.68 [2.49; 5.43]
Prediction interval	[0.99; 13.68]



Heterogeneity: $\chi^2_4 = 12.71$ ($P = .01$), $I^2 = 69\%$

Figure S5: Predictive effects of CP on CV mortality.

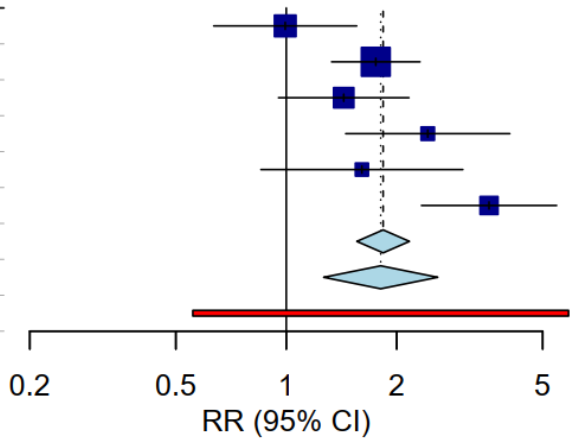
Source	RR (95% CI)
Park et al, 2013	11.79 [3.45; 40.24]
Jung et al, 2013	3.49 [1.30; 9.34]
Chen et al, 2020	5.59 [2.01; 15.56]
Total (common effect)	5.67 [3.12; 10.32]
Total (random effect)	5.64 [2.98; 10.68]
Prediction interval	[0.06; 543.57]



Heterogeneity: $\chi^2_2 = 2.30$ ($P = .32$), $I^2 = 13\%$

Figure S6: Predictive effects of CP on stroke.

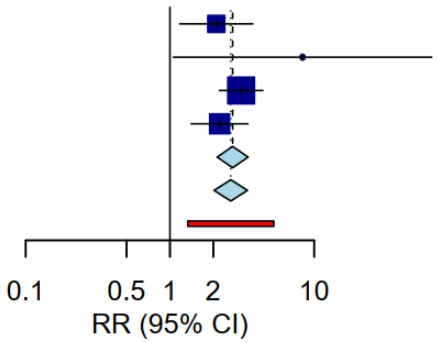
Source	RR (95% CI)
Mehta et al, 2021	0.99 [0.63; 1.56]
Shimoda et al, 2020	1.75 [1.33; 2.32]
Bekwelem et al, 2016	1.43 [0.95; 2.16]
Chen et al, 2016b	2.43 [1.45; 4.07]
Park et al, 2013	1.61 [0.85; 3.03]
Li et al, 2020	3.57 [2.34; 5.46]
Total (common effect)	1.84 [1.56; 2.17]
Total (random effect)	1.81 [1.26; 2.59]
Prediction interval	[0.56; 5.88]



Heterogeneity: $\chi^2_5 = 19.38$ ($P = .002$), $I^2 = 74\%$

Figure S7: Predictive effects of CP on MACEs.

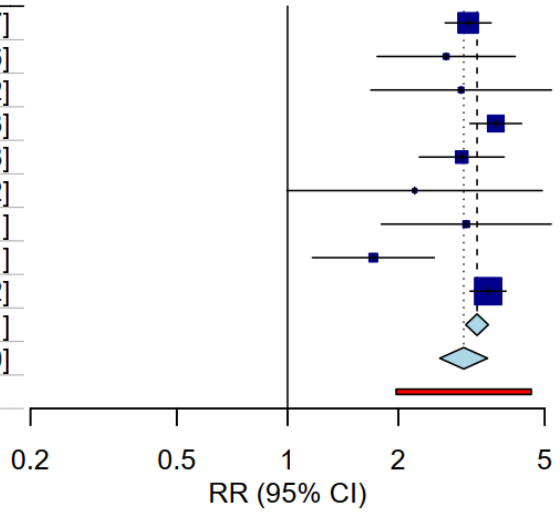
Source	RR (95% CI)
Guaricci et al, 2018	2.10 [1.17; 3.76]
Jeevarethinam et al, 2018	8.31 [1.05; 65.54]
Li et al, 2020	3.12 [2.20; 4.41]
Park et al, 2013	2.21 [1.40; 3.48]
Total (common effect)	2.72 [2.13; 3.49]
Total (random effect)	2.64 [2.02; 3.45]
Prediction interval	[1.33; 5.26]



Heterogeneity: $\chi^2_3 = 3.25$ ($P = .35$), $I^2 = 8\%$

Figure S8: Predictive effects of CACS on all-cause mortality.

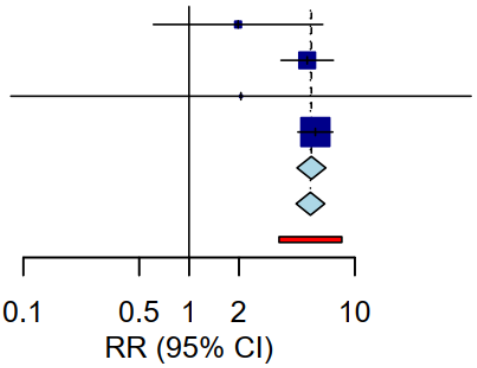
Source	RR (95% CI)
Valenti et al, 2015	3.10 [2.68; 3.57]
Carr et al, 2017	2.70 [1.75; 4.16]
Jung et al, 2022	2.96 [1.68; 5.22]
Mitchell et al, 2018	3.68 [3.13; 4.33]
Cho et al, 2017	2.97 [2.28; 3.88]
Naya et al, 2013	2.22 [1.00; 4.92]
Engbers et al, 2016	3.06 [1.80; 5.21]
Hughes−Austin et al, 2016	1.71 [1.17; 2.51]
Orimoloye et al, 2018	3.51 [3.13; 3.92]
Total (common effect)	3.27 [3.05; 3.51]
Total (random effect)	3.01 [2.59; 3.50]
Prediction interval	[1.97; 4.60]



Heterogeneity: $\chi^2_8 = 17.50$ ($P = .03$), $I^2 = 54\%$

Figure S9: Predictive effects of CACS on CV mortality.

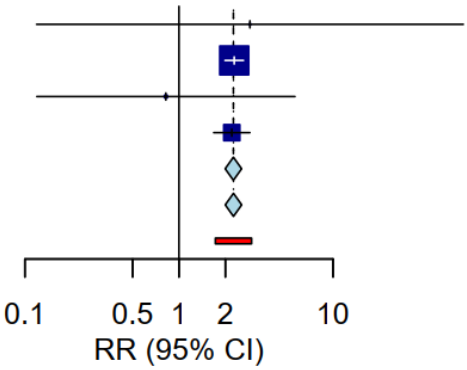
Source	RR (95% CI)
Zhou et al, 2022	1.98 [0.61; 6.41]
Mitchell et al, 2018	5.16 [3.59; 7.42]
Parma et al, 2016	2.06 [0.08; 50.25]
Orimoloye et al, 2018	5.78 [4.53; 7.36]
Total (common effect)	5.47 [4.48; 6.68]
Total (random effect)	5.40 [4.43; 6.58]
Prediction interval	[3.49; 8.34]



Heterogeneity: $\chi^2_3 = 3.52$ ($P = .32$), $I^2 = 15\%$

Figure S10: Predictive effects of CACS on stroke.

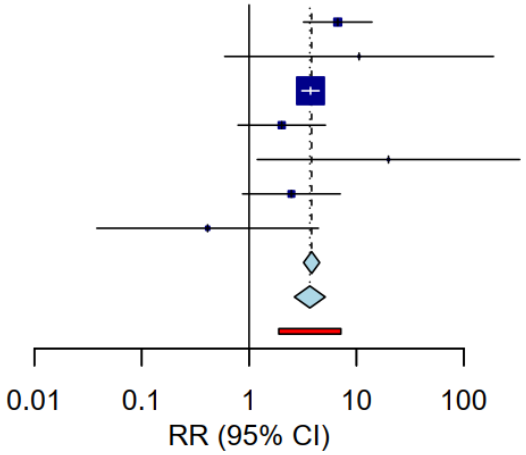
Source	RR (95% CI)
Miname et al, 2019	2.89 [0.12; 70.03]
Mitchell et al, 2018	2.28 [1.99; 2.62]
Günther et al, 2018	0.82 [0.12; 5.66]
Mehta et al, 2020	2.20 [1.68; 2.89]
Total (common effect)	2.25 [1.99; 2.55]
Total (random effect)	2.26 [2.00; 2.55]
Prediction interval	[1.72; 2.96]



Heterogeneity: $\chi^2_3 = 1.13$ ($P = .77$), $I^2 = 0\%$

Figure S11: Predictive effects of CACS on MI.

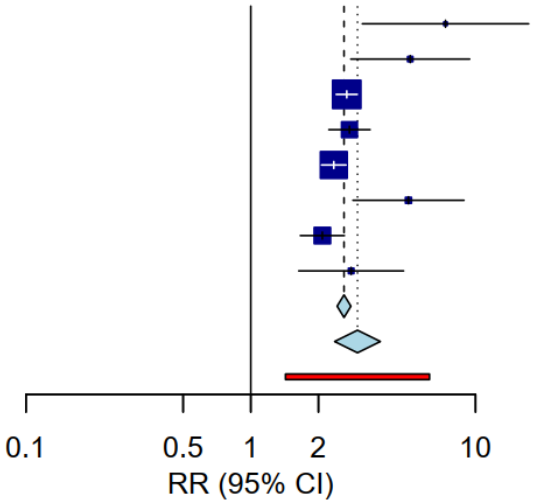
Source	RR (95% CI)
Zhou et al, 2022	6.70 [3.21; 13.96]
Miname et al, 2019	10.58 [0.59; 188.94]
Mitchell et al, 2018	3.73 [3.10; 4.49]
Naya et al, 2013	2.01 [0.79; 5.14]
Parma et al, 2016	19.87 [1.19; 331.54]
Engbers et al, 2016	2.48 [0.87; 7.07]
Günther et al, 2018	0.41 [0.04; 4.42]
Total (common effect)	3.82 [3.21; 4.54]
Total (random effect)	3.68 [2.64; 5.12]
Prediction interval	[1.89; 7.16]



Heterogeneity: $\chi^2_6 = 9.85$ ($P = .13$), $I^2 = 39\%$

Figure S12: Predictive effects of CACS on MACEs.

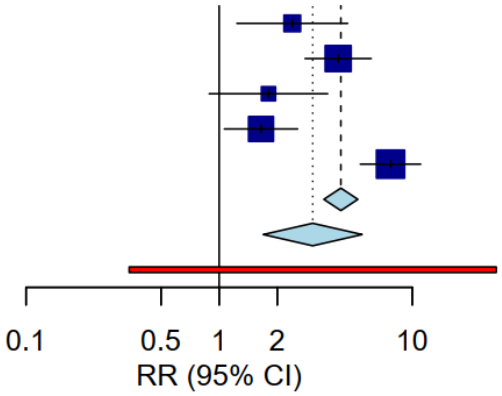
Source	RR (95% CI)
Jung et al, 2022	7.35 [3.13; 17.24]
Zhou et al, 2022	5.12 [2.79; 9.42]
Mitchell et al, 2018	2.67 [2.40; 2.98]
Leigh et al, 2019	2.75 [2.22; 3.40]
Mortensen et al, 2020	2.34 [2.06; 2.65]
Aljizeeri et al, 2021	5.03 [2.85; 8.89]
Al−Kindi et al, 2022	2.08 [1.66; 2.61]
Budoff et al, 2019	2.80 [1.63; 4.79]
Total (common effect)	2.60 [2.42; 2.79]
Total (random effect)	2.98 [2.36; 3.77]
Prediction interval	[1.43; 6.24]



Heterogeneity: $\chi^2_7 = 22.51$ ($P = .002$), $I^2 = 69\%$

Figure S13: Predictive effects of baPWV on all-cause motality.

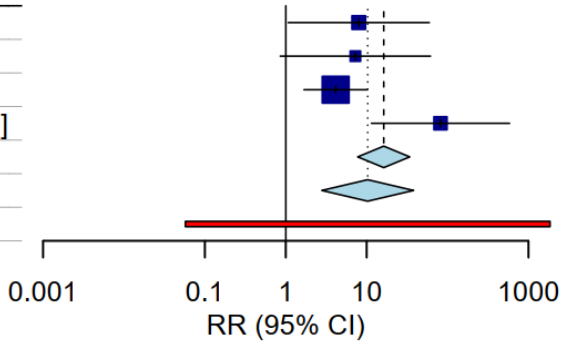
Source	RR (95% CI)
Ban et al, 2022	2.39 [1.24; 4.63]
Li et al, 2022b	4.13 [2.78; 6.13]
Saji et al, 2017	1.80 [0.89; 3.65]
Song et al, 2022	1.65 [1.06; 2.55]
Lin et al, 2021	7.71 [5.38; 11.05]
Total (common effect)	4.27 [3.48; 5.23]
Total (random effect)	3.05 [1.69; 5.50]
Prediction interval	[0.34; 27.20]



Heterogeneity: $\chi^2_4 = 35.14$ ($P < .001$), $I^2 = 89\%$

Figure S14: Predictive effects of baPWV on CV motality.

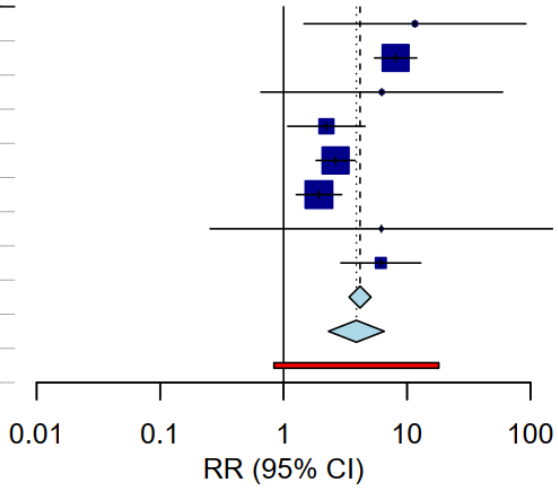
Source	RR (95% CI)
Ban et al, 2022	7.97 [1.07; 59.41]
Tokitsu et al, 2018	7.24 [0.85; 61.44]
Park et al, 2020	4.13 [1.68; 10.19]
Lin et al, 2021	81.57 [11.42; 582.49]
Total (common effect)	16.23 [7.73; 34.06]
Total (random effect)	10.27 [2.78; 37.92]
Prediction interval	[0.06; 1842.16]



Heterogeneity: $\chi^2_3 = 7.32$ ($P = .06$), $I^2 = 59\%$

Figure S15: Predictive effects of baPWV on stroke.

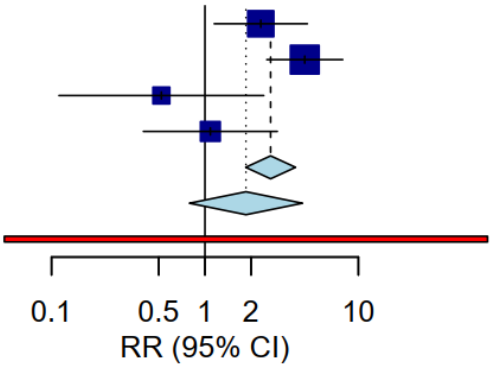
Source	RR (95% CI)
Tokitsu et al, 2018	11.59 [1.46; 91.81]
Li et al, 2021	8.09 [5.45; 12.01]
Maruhashi et al, 2018	6.24 [0.65; 59.49]
Saji et al, 2017	2.22 [1.08; 4.57]
Song et al, 2016	2.64 [1.83; 3.80]
Song et al, 2022	1.93 [1.27; 2.95]
Park et al, 2017a	6.19 [0.25; 150.93]
Takashima et al, 2014	6.13 [2.91; 12.94]
Total (common effect)	4.16 [3.39; 5.11]
Total (random effect)	3.89 [2.31; 6.54]
Prediction interval	[0.84; 18.08]



Heterogeneity: $\chi^2_7 = 32.43$ ($P < .001$), $I^2 = 78\%$

Figure S16: Predictive effects of baPWV on MI.

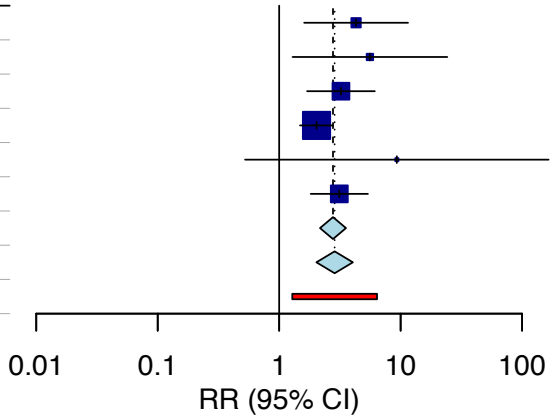
Source	RR (95% CI)
Ban et al, 2022	2.31 [1.15; 4.65]
Li et al, 2021	4.47 [2.53; 7.91]
Maruhashi et al, 2018	0.52 [0.11; 2.42]
Park et al, 2020	1.08 [0.40; 2.96]
Total (common effect)	2.68 [1.84; 3.90]
Total (random effect)	1.85 [0.79; 4.32]
Prediction interval	[0.05; 69.46]



Heterogeneity: $\chi^2_3 = 10.69$ ($P = .01$), $I^2 = 72\%$

Figure S17: Predictive effects of cfPWV on all-cause mortality.

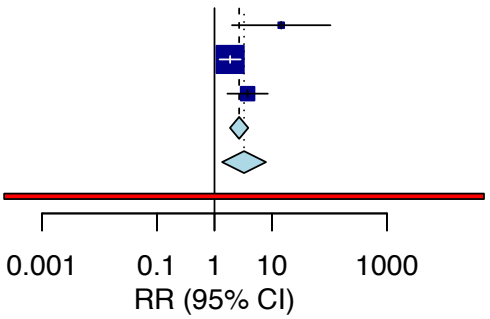
Source	RR (95% CI)
Avramovski et al, 2014	4.30 [1.61; 11.51]
Baumann et al, 2014	5.59 [1.29; 24.21]
Samara et al, 2022	3.23 [1.70; 6.13]
Cardoso et al, 2019a	2.03 [1.48; 2.78]
Xu et al, 2015	9.31 [0.52; 165.36]
Han et al, 2016	3.13 [1.82; 5.38]
Total (common effect)	2.77 [2.17; 3.55]
Total (random effect)	2.86 [2.03; 4.05]
Prediction interval	[1.28; 6.39]



Heterogeneity: $\chi^2_5 = 6.04$ ($P = .30$), $I^2 = 17\%$

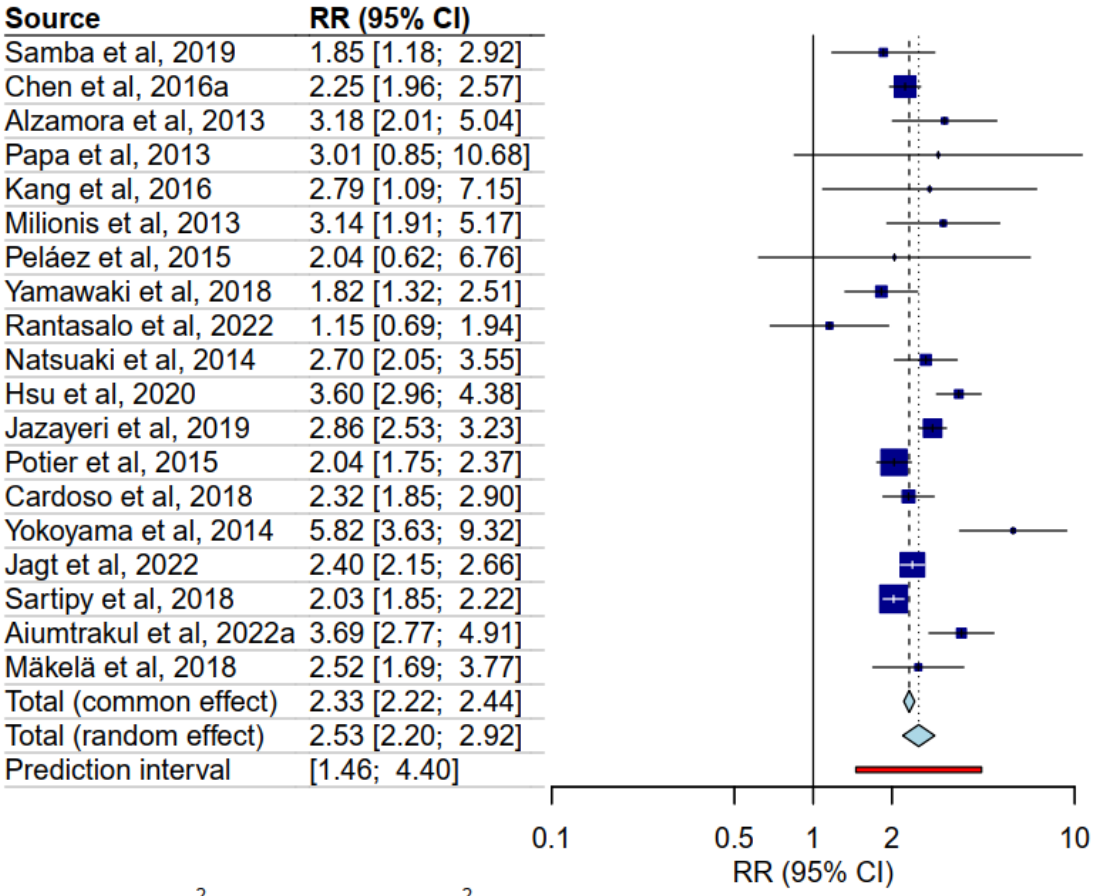
Figure S18: Predictive effects of cfPWV on CV mortality.

Source	RR (95% CI)
Avramovski et al, 2014	14.48 [2.01; 104.02]
Cardoso et al, 2019a	1.87 [1.23; 2.85]
Han et al, 2016	3.77 [1.68; 8.46]
Total (common effect)	2.68 [1.86; 3.87]
Total (random effect)	3.27 [1.36; 7.87]
Prediction interval	[0.00; 48688.93]



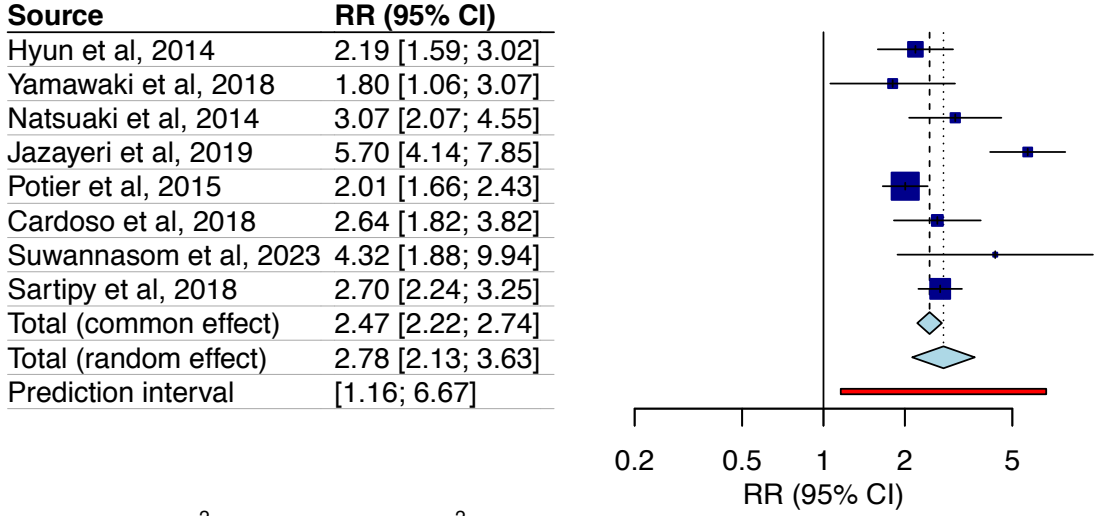
Heterogeneity: $\chi^2_2 = 5.70$ ($P = .06$), $I^2 = 65\%$

Figure S19: Predictive effects of low ABI on all-cause mortality.



Heterogeneity: $\chi^2_{18} = 80.31$ ($P < .001$), $I^2 = 78\%$

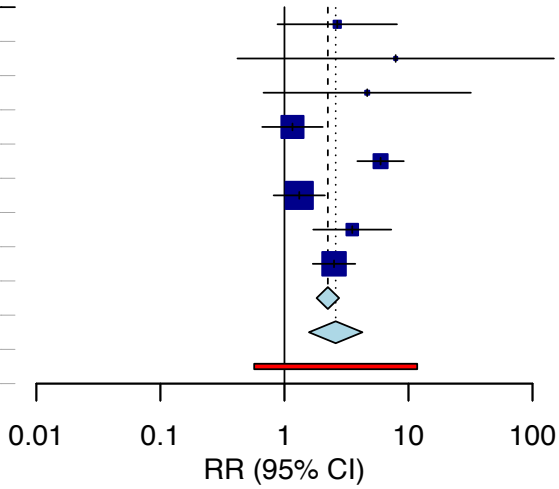
Figure S20: Predictive effects of low ABI on CV mortality.



Heterogeneity: $\chi^2_{7} = 35.32$ ($P < .001$), $I^2 = 80\%$

Figure S21: Predictive effects of low ABI on stroke.

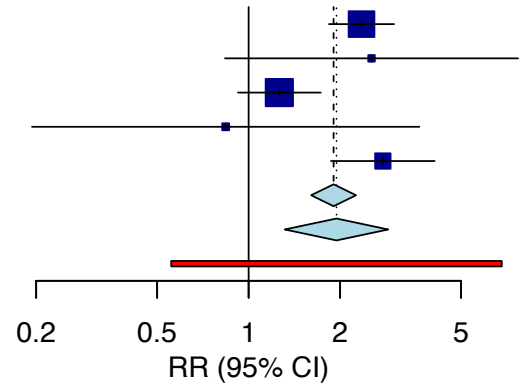
Source	RR (95% CI)
Kojima et al, 2014	2.67 [0.88; 8.08]
Papa et al, 2013	7.88 [0.42; 148.74]
Kang et al, 2016	4.65 [0.68; 31.84]
Milionis et al, 2013	1.16 [0.66; 2.04]
Gronewold et al, 2014a	5.96 [3.87; 9.17]
Golledge et al, 2020	1.32 [0.82; 2.12]
Suwannasom et al, 2023	3.52 [1.71; 7.26]
Sartipy et al, 2018	2.51 [1.69; 3.72]
Total (common effect)	2.24 [1.82; 2.76]
Total (random effect)	2.59 [1.58; 4.25]
Prediction interval	[0.57; 11.76]



Heterogeneity: $\chi^2_7 = 31.55$ ($P < .001$), $I^2 = 78\%$

Figure S22: Predictive effects of low ABI on MI.

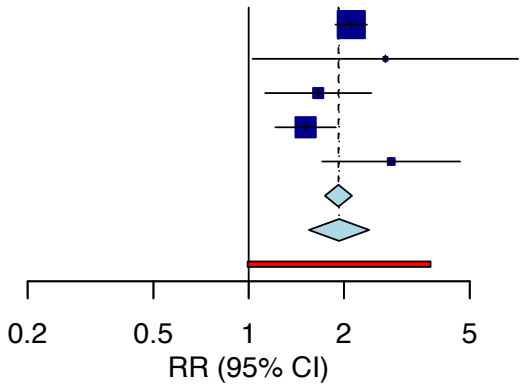
Source	RR (95% CI)
Chen et al, 2016a	2.35 [1.84; 3.01]
Papa et al, 2013	2.54 [0.84; 7.70]
Golledge et al, 2020	1.26 [0.92; 1.73]
Suwannasom et al, 2023	0.84 [0.19; 3.64]
Sartipy et al, 2018	2.76 [1.87; 4.09]
Total (common effect)	1.90 [1.61; 2.26]
Total (random effect)	1.95 [1.31; 2.88]
Prediction interval	[0.56; 6.80]



Heterogeneity: $\chi^2_4 = 14.06$ ($P = .007$), $I^2 = 72\%$

Figure S23: Predictive effects of low ABI on MACEs.

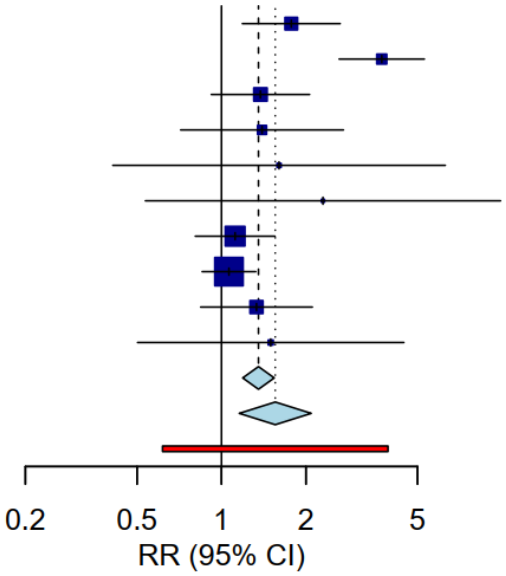
Source	RR (95% CI)
Chen et al, 2016a	2.11 [1.88; 2.37]
Papa et al, 2013	2.71 [1.03; 7.11]
Milionis et al, 2013	1.66 [1.13; 2.44]
Golledge et al, 2020	1.51 [1.21; 1.89]
Suwannasom et al, 2023	2.82 [1.71; 4.66]
Total (common effect)	1.92 [1.74; 2.12]
Total (random effect)	1.93 [1.55; 2.41]
Prediction interval	[0.99; 3.76]



Heterogeneity: $\chi^2_4 = 10.03$ ($P = .04$), $I^2 = 60\%$

Figure S24: Predictive effects of high ABI on all-cause mortality.

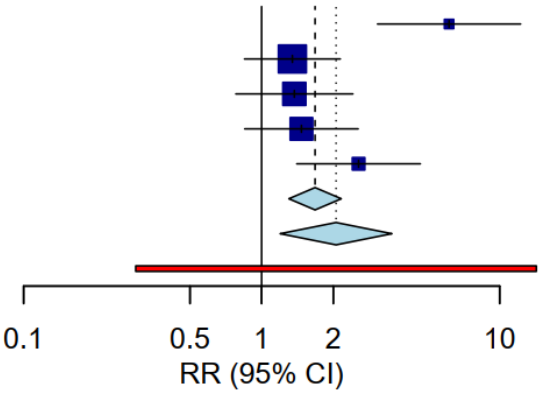
Source	RR (95% CI)
Mäkelä et al, 2018	1.77 [1.19; 2.65]
Velescu et al, 2017	3.73 [2.63; 5.29]
Chen et al, 2016a	1.38 [0.92; 2.06]
Alzamora et al, 2013	1.40 [0.72; 2.72]
Aiumtrakul et al, 2022a	1.60 [0.41; 6.28]
Peláez et al, 2015	2.30 [0.54; 9.88]
Hendriks et al, 2016	1.12 [0.81; 1.55]
Jazayeri et al, 2019	1.06 [0.85; 1.32]
Potier et al, 2015	1.33 [0.84; 2.11]
Samba et al, 2019	1.50 [0.50; 4.47]
Total (common effect)	1.35 [1.19; 1.54]
Total (random effect)	1.55 [1.16; 2.09]
Prediction interval	[0.62; 3.92]



Heterogeneity: $\chi^2_9 = 39.55$ ($P < .001$), $I^2 = 77\%$

Figure S25: Predictive effects of high ABI on CV mortality.

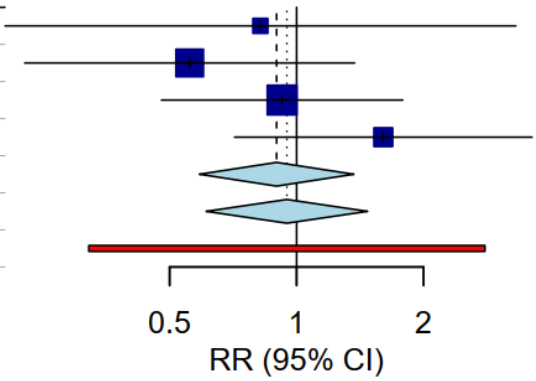
Source	RR (95% CI)
Velescu et al, 2017	6.13 [3.07; 12.25]
Hendriks et al, 2016	1.35 [0.85; 2.14]
Jazayeri et al, 2019	1.37 [0.78; 2.42]
Potier et al, 2015	1.47 [0.85; 2.54]
Hyun et al, 2014	2.55 [1.40; 4.65]
Total (common effect)	1.68 [1.30; 2.16]
Total (random effect)	2.05 [1.20; 3.53]
Prediction interval	[0.30; 14.26]



Heterogeneity: $\chi^2_4 = 16.15$ ($P = .003$), $I^2 = 75\%$

Figure S26: Predictive effects of high ABI on stroke.

Source	RR (95% CI)
Velescu et al, 2017	0.82 [0.20; 3.31]
Gronewold et al, 2014a	0.56 [0.23; 1.37]
Hendriks et al, 2016	0.92 [0.48; 1.78]
Golledge et al, 2020	1.60 [0.71; 3.61]
Total (common effect)	0.90 [0.59; 1.37]
Total (random effect)	0.95 [0.61; 1.47]
Prediction interval	[0.32; 2.79]



Heterogeneity: $\chi^2_3 = 2.99$ ($P = .39$), $I^2 = 0\%$

Figure S27: Predictive effects of high ABI on MI.

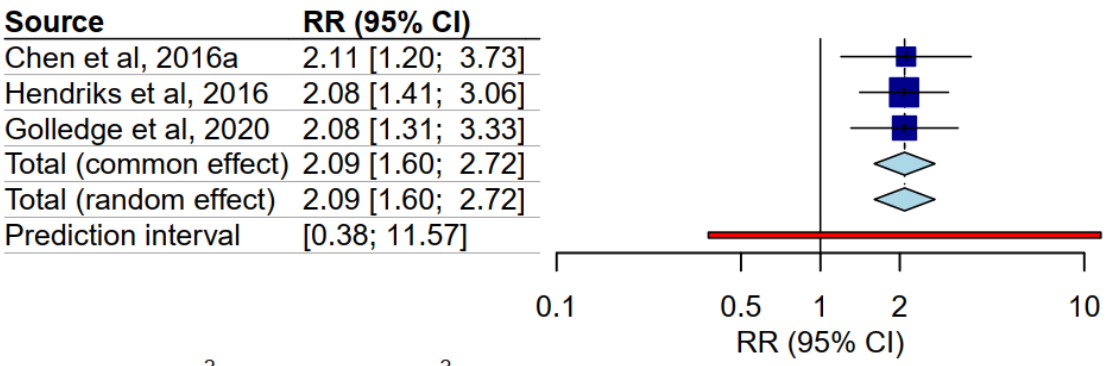


Figure S28: Predictive effects of high ABI on MACEs.

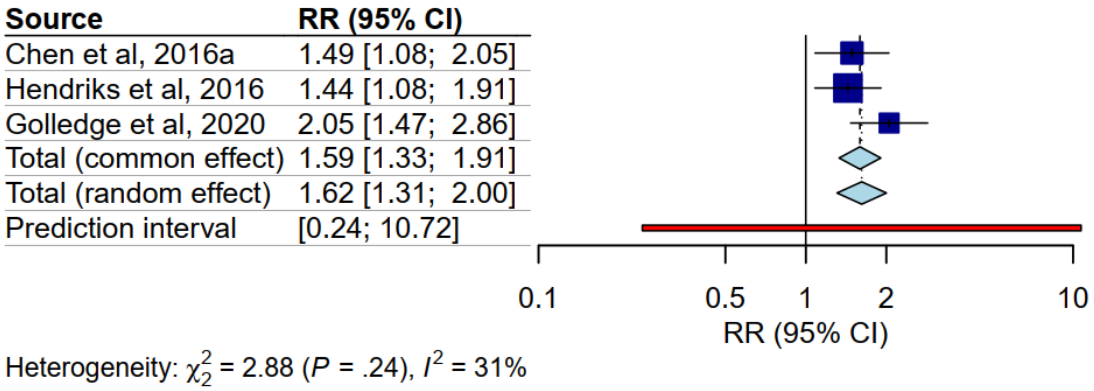


Figure S29: Predictive effects of CAVI on MACEs.

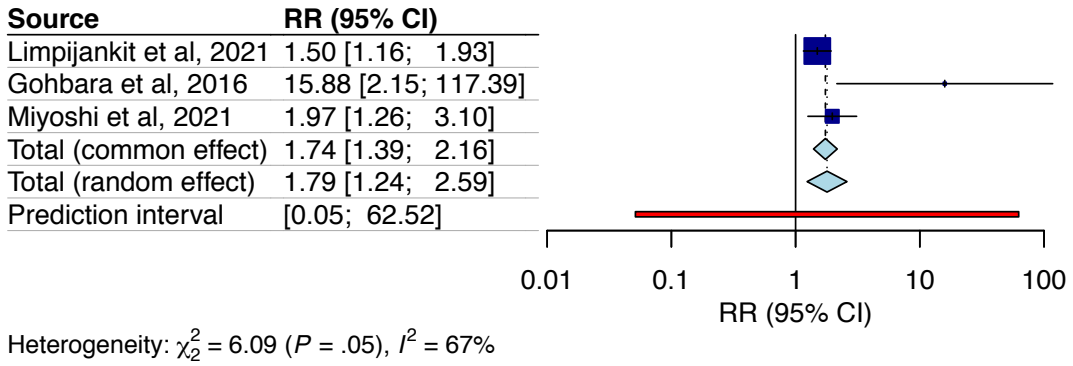


Figure S30: Predictive effects of FMD on CV mortality.

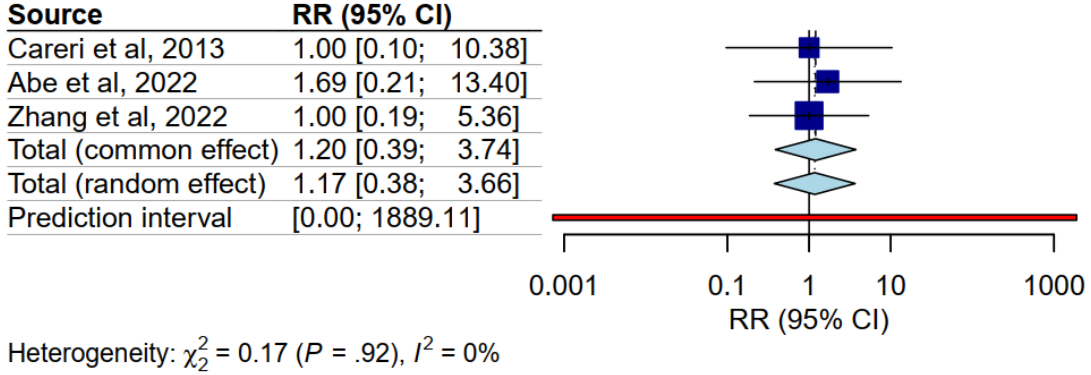
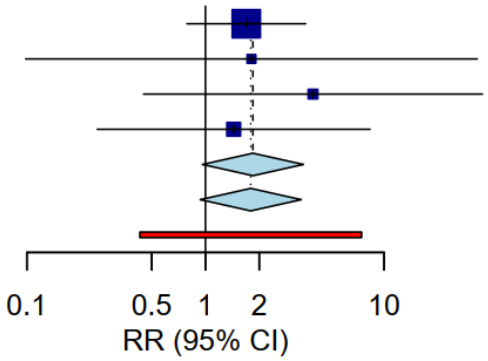


Figure S31: Predictive effects of FMD on stroke.

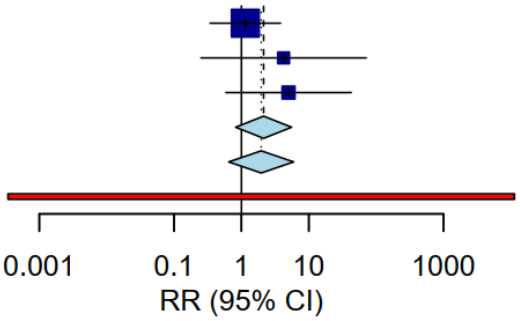
Source	RR (95% CI)
Zhang et al, 2022	1.69 [0.79; 3.64]
Maruhashi et al, 2018	1.81 [0.10; 33.26]
Shechter et al, 2014	4.00 [0.45; 35.58]
Lee et al, 2014	1.44 [0.25; 8.35]
Total (common effect)	1.84 [0.96; 3.53]
Total (random effect)	1.79 [0.93; 3.44]
Prediction interval	[0.43; 7.48]



Heterogeneity: $\chi^2_3 = 0.60$ ($P = .90$), $I^2 = 0\%$

Figure S32: Predictive effects of FMD on MI.

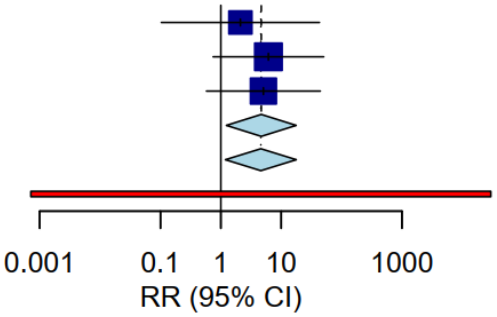
Source	RR (95% CI)
Zhang et al, 2022	1.14 [0.34; 3.81]
Maruhashi et al, 2018	4.22 [0.25; 71.29]
Shechter et al, 2014	5.00 [0.59; 42.55]
Total (common effect)	2.13 [0.82; 5.55]
Total (random effect)	1.97 [0.65; 5.97]
Prediction interval	[0.00; 11285.08]



Heterogeneity: $\chi^2_2 = 1.77$ ($P = .41$), $I^2 = 0\%$

Figure S33: Predictive effects of RHI on stroke.

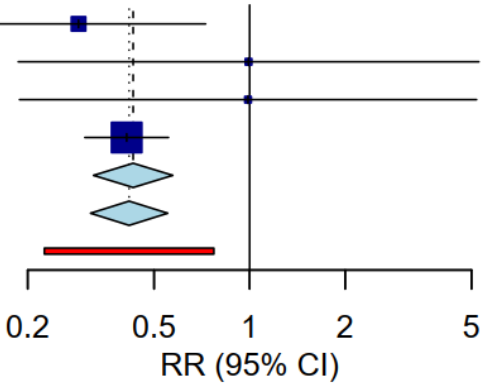
Source	RR (95% CI)
Koo et al, 2020	2.11 [0.10; 43.05]
Matsuzawa et al, 2013	6.14 [0.74; 50.63]
Saito et al, 2019	5.07 [0.58; 44.54]
Total (common effect)	4.68 [1.24; 17.70]
Total (random effect)	4.60 [1.19; 17.79]
Prediction interval	[0.00; 29628.73]



Heterogeneity: $\chi^2_2 = 0.34$ ($P = .85$), $I^2 = 0\%$

Figure S34: Predictive effects of CEPCs on all-cause mortality.

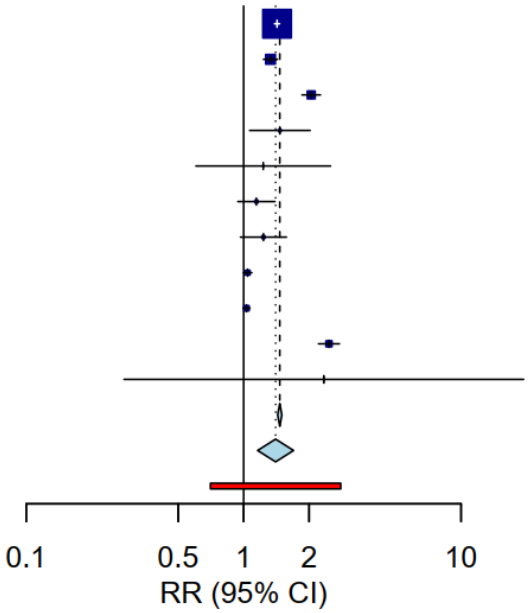
Source	RR (95% CI)
Pelliccia et al, 2013	0.29 [0.11; 0.73]
Padfield et al, 2013	0.99 [0.19; 5.27]
Wu et al, 2014	0.99 [0.19; 5.19]
Lu et al, 2016	0.41 [0.30; 0.56]
Total (common effect)	0.43 [0.32; 0.57]
Total (random effect)	0.42 [0.32; 0.55]
Prediction interval	[0.23; 0.77]



Heterogeneity: $\chi^2_3 = 2.69$ ($P = .44$), $I^2 = 0\%$

Figure S35: Predictive effects of LTL on all-cause mortality.

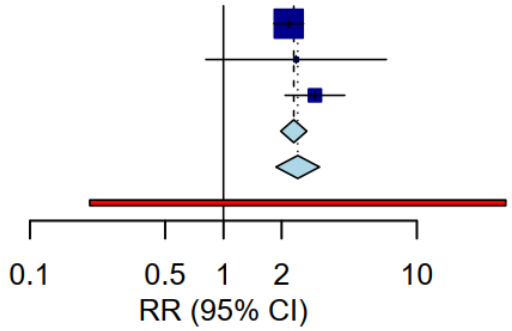
Source	RR (95% CI)
Schneider et al, 2022	1.42 [1.39; 1.46]
Samavat et al, 2021	1.33 [1.23; 1.43]
Rode et al, 2015	2.05 [1.85; 2.26]
Ye et al, 2013	1.47 [1.06; 2.02]
Jin et al, 2018	1.23 [0.60; 2.51]
Wang et al, 2017	1.14 [0.94; 1.39]
Zhang et al, 2013	1.23 [0.97; 1.57]
Antwi et al, 2021	1.04 [1.00; 1.09]
Doherty et al, 2018	1.03 [0.99; 1.07]
Huang et al, 2019	2.47 [2.21; 2.76]
Chan et al, 2020	2.34 [0.28; 19.40]
Total (common effect)	1.47 [1.43; 1.50]
Total (random effect)	1.40 [1.16; 1.70]
Prediction interval	[0.70; 2.80]



Heterogeneity: χ^2_{10} = 497.89 (P < .001), I^2 = 98%

Figure S36: Predictive effects of LTL on CV mortality.

Source	RR (95% CI)
Rode et al, 2015	2.17 [1.82; 2.59]
Ye et al, 2013	2.38 [0.81; 6.95]
Huang et al, 2019	2.97 [2.08; 4.24]
Total (common effect)	2.31 [1.98; 2.70]
Total (random effect)	2.42 [1.87; 3.14]
Prediction interval	[0.20; 28.80]



Heterogeneity: χ^2_2 = 2.39 (P = .30), I^2 = 16%

2 Supplementary results of trial sequence analysis

Figure S1: The effects of cIMT in prediction of all-cause mortality.

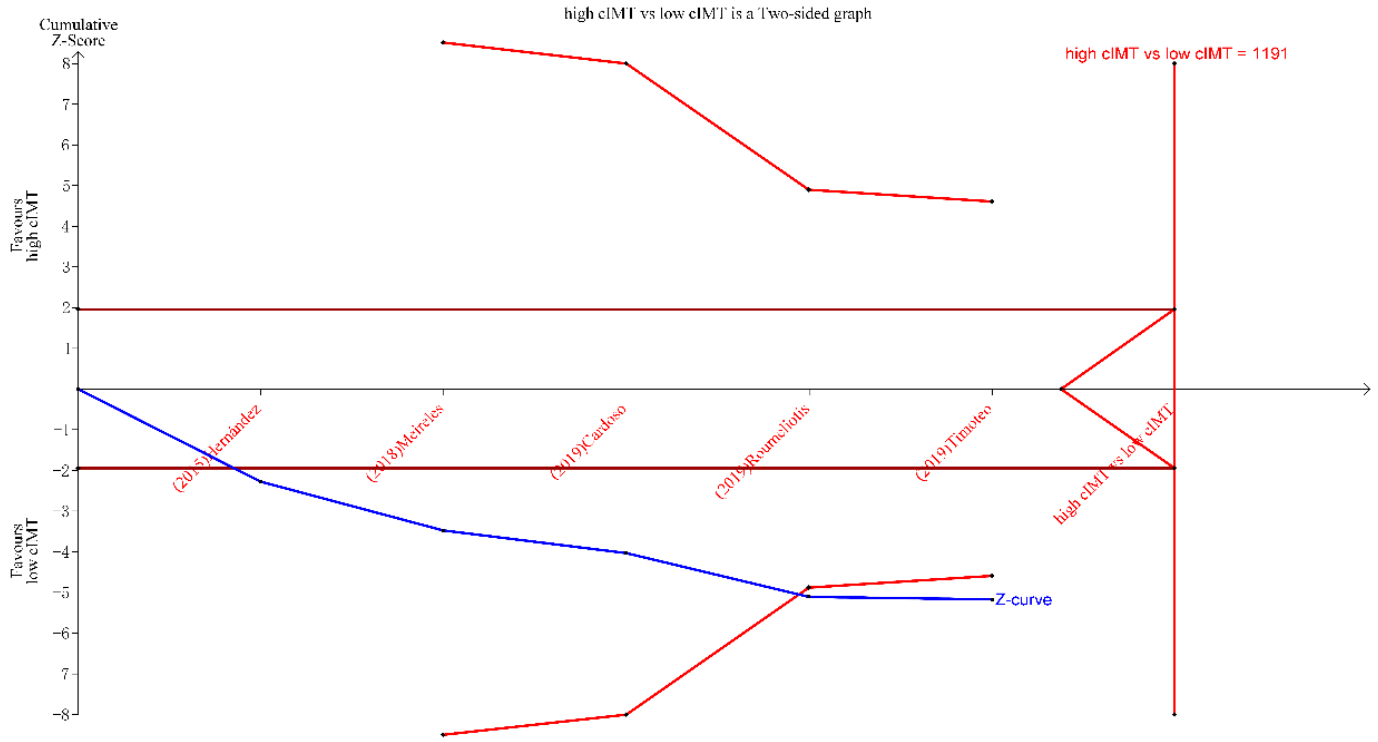


Figure S2: The effects of cIMT in prediction of CV mortality.

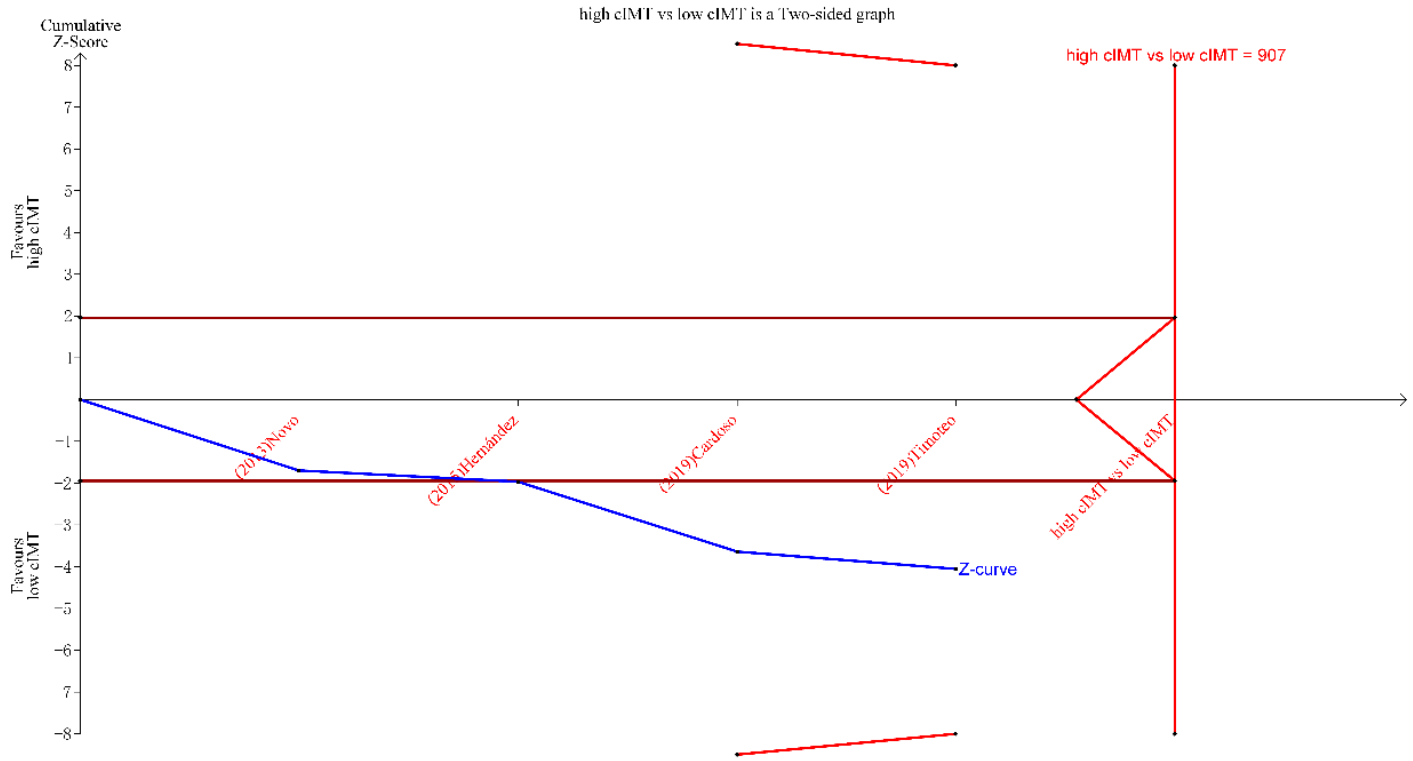


Figure S3: The effects of cIMT in prediction of stroke.

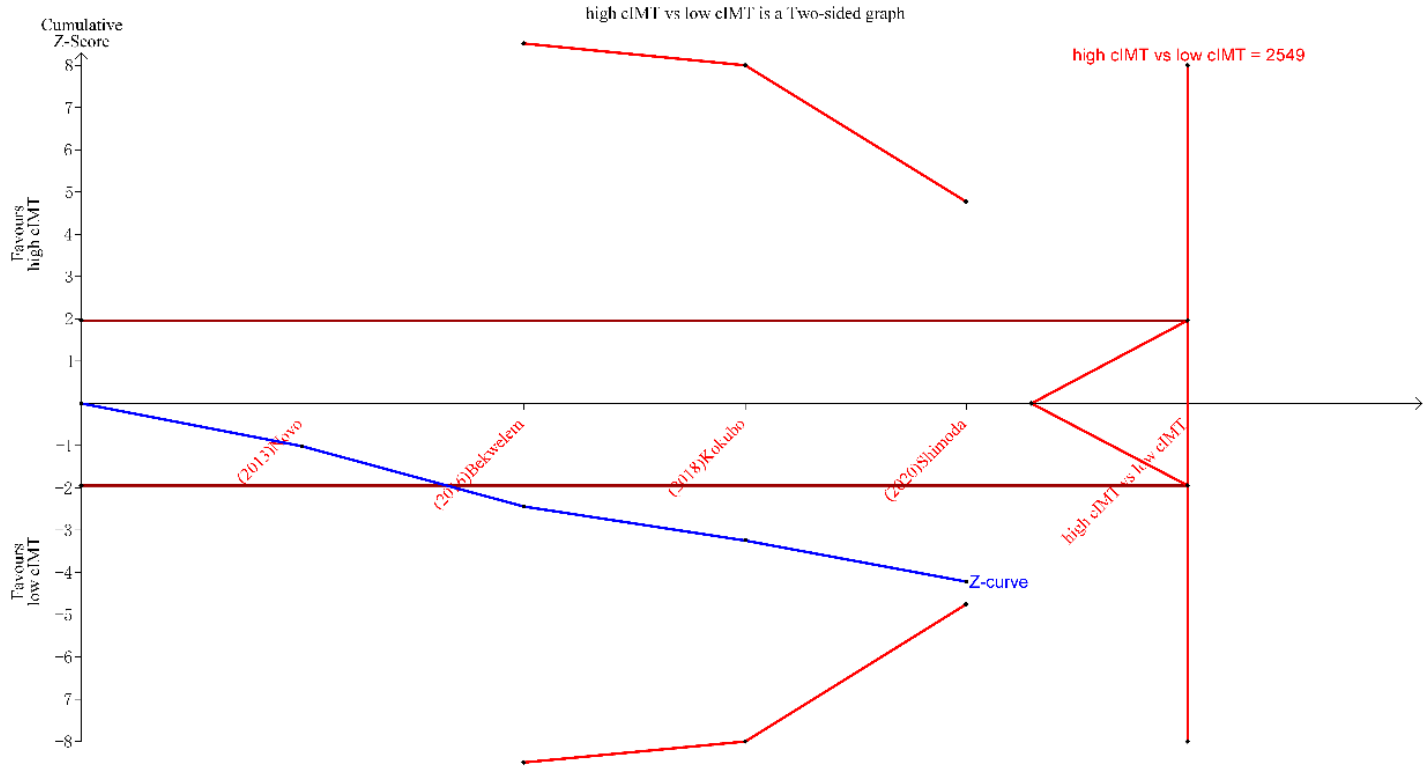


Figure S4: The effects of CP in prediction of all-cause mortality.

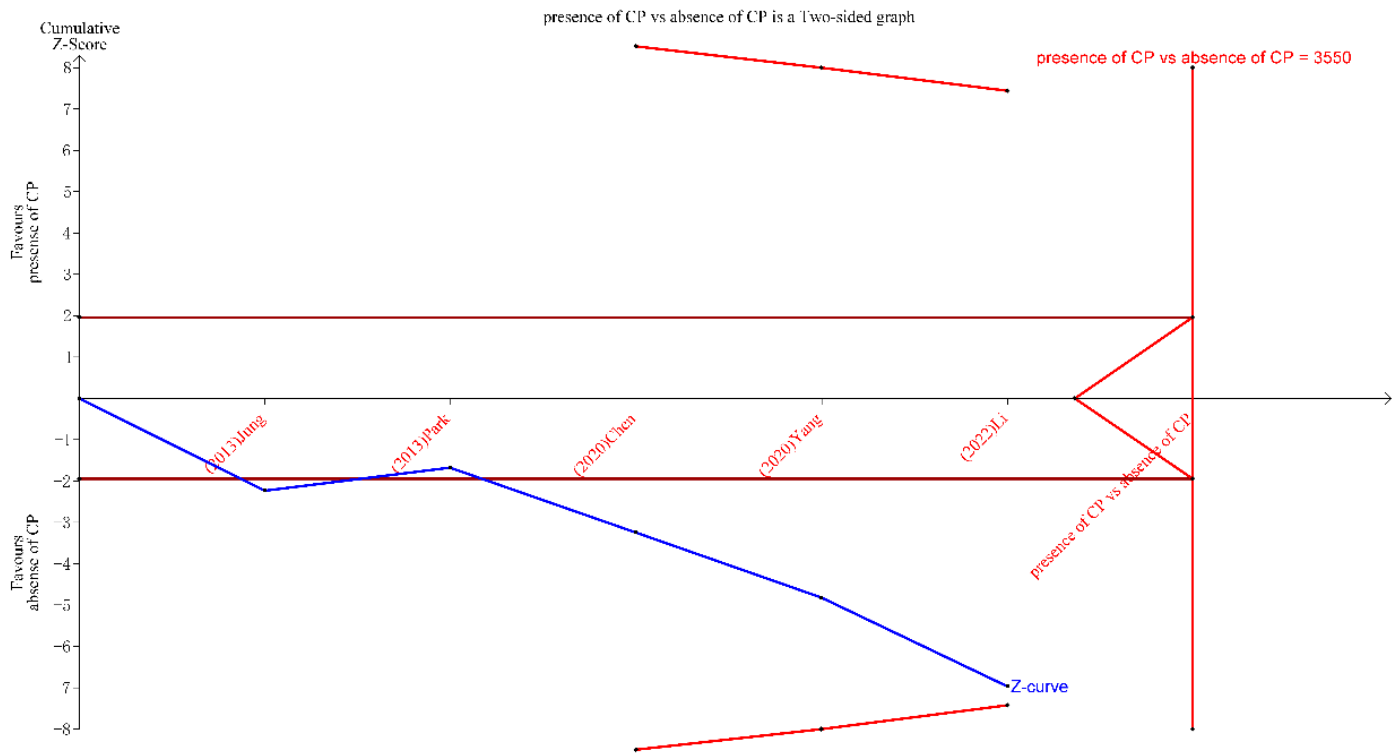


Figure S5: The effects of CP in prediction of CV mortality.

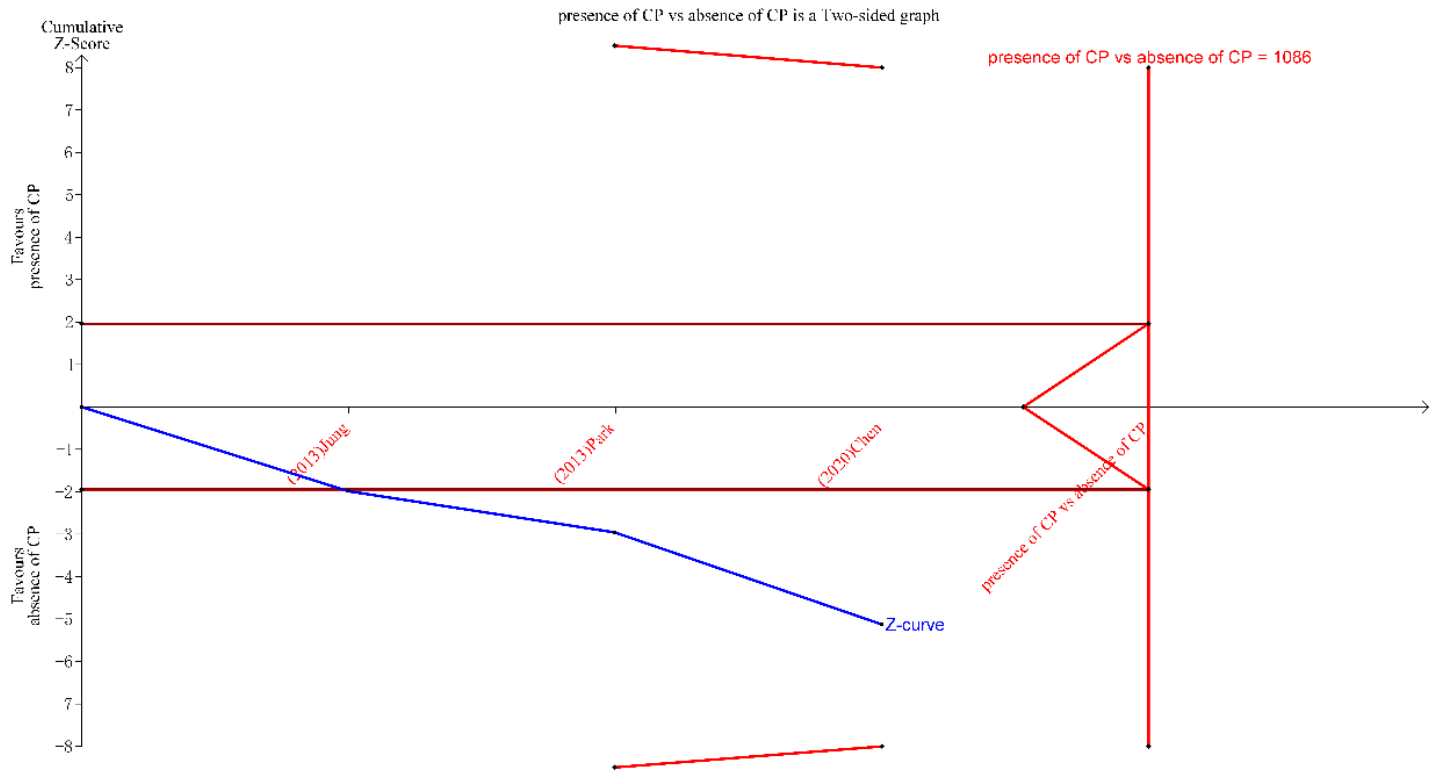


Figure S6: The effects of CP in prediction of stroke.

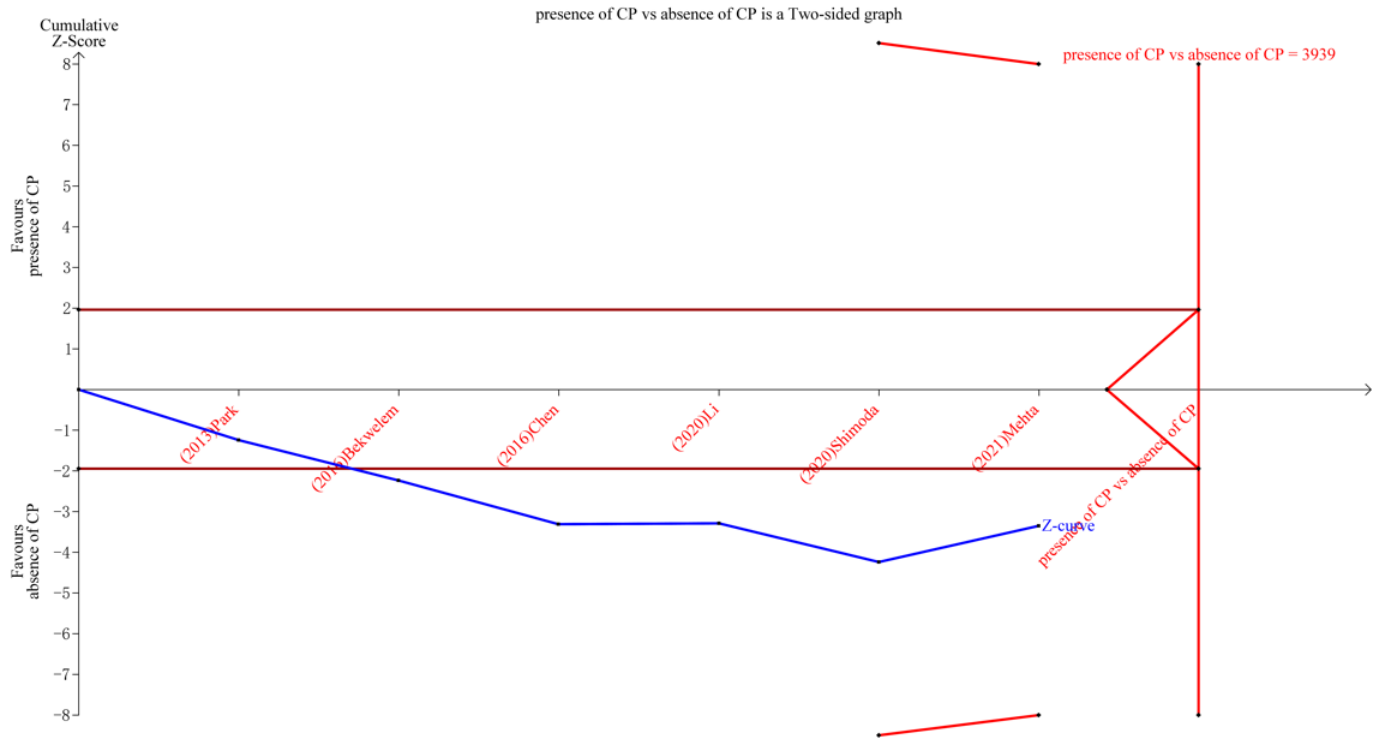


Figure S7: The effects of CP in prediction of MACEs.

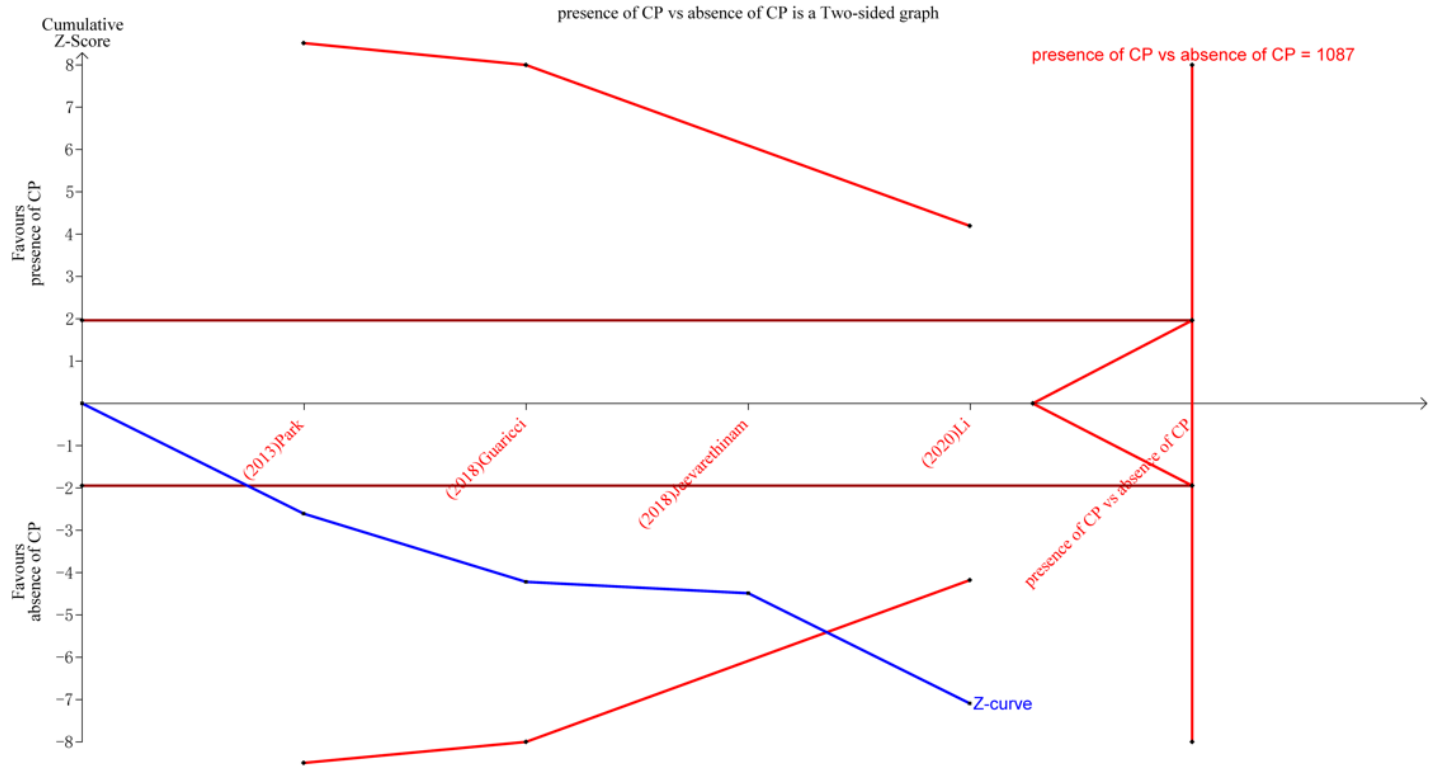


Figure S8: The effects of CACS in prediction of all-cause mortality.

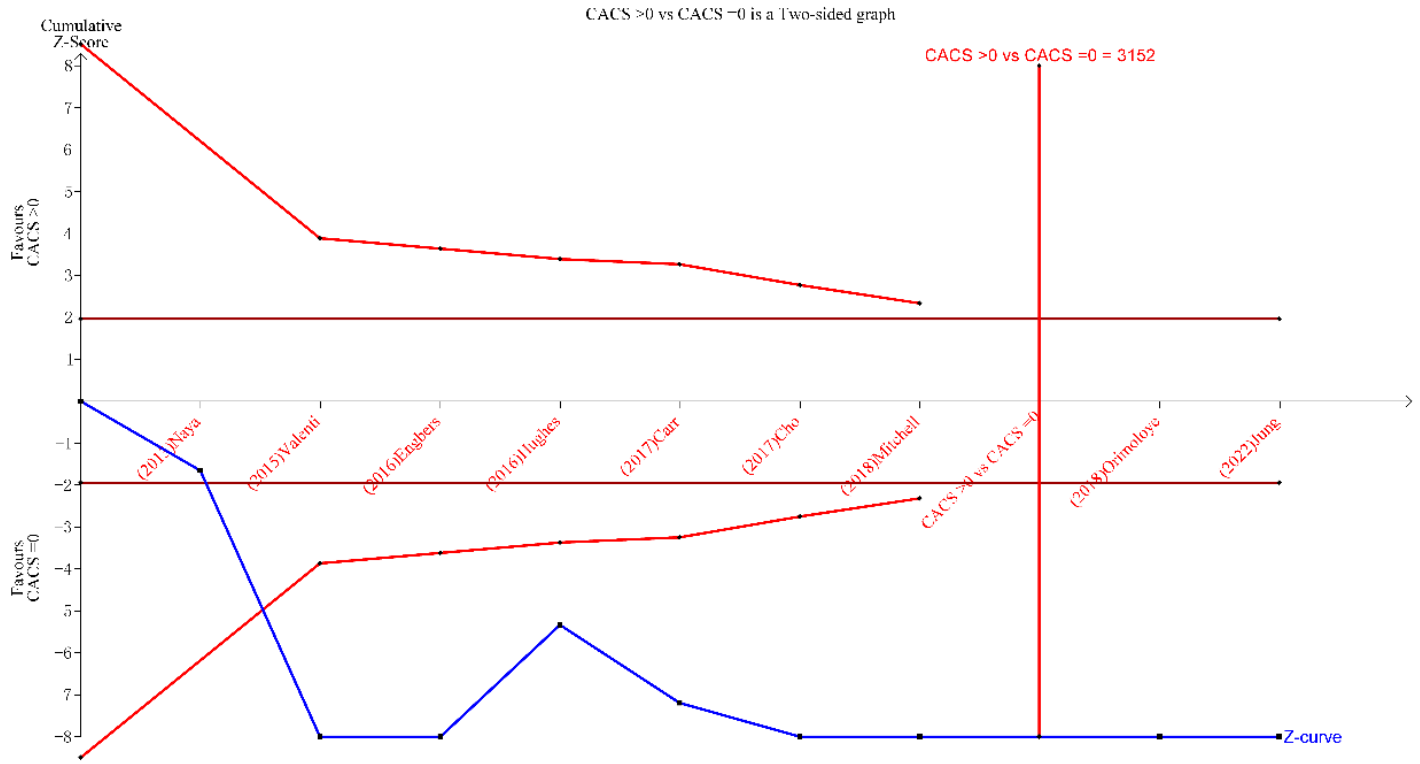


Figure S9: The effects of CACS in prediction of CV mortality.

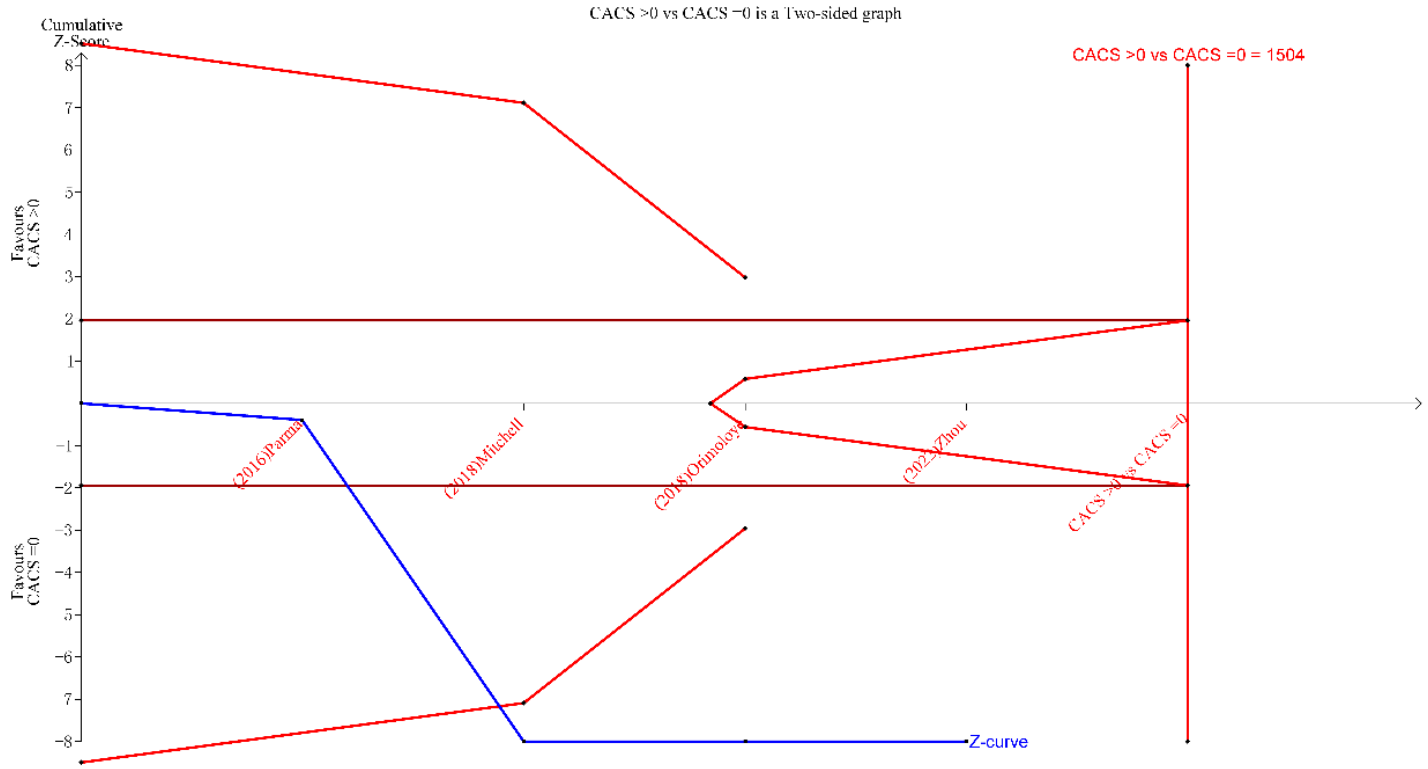


Figure S10: The effects of CACS in prediction of stroke.

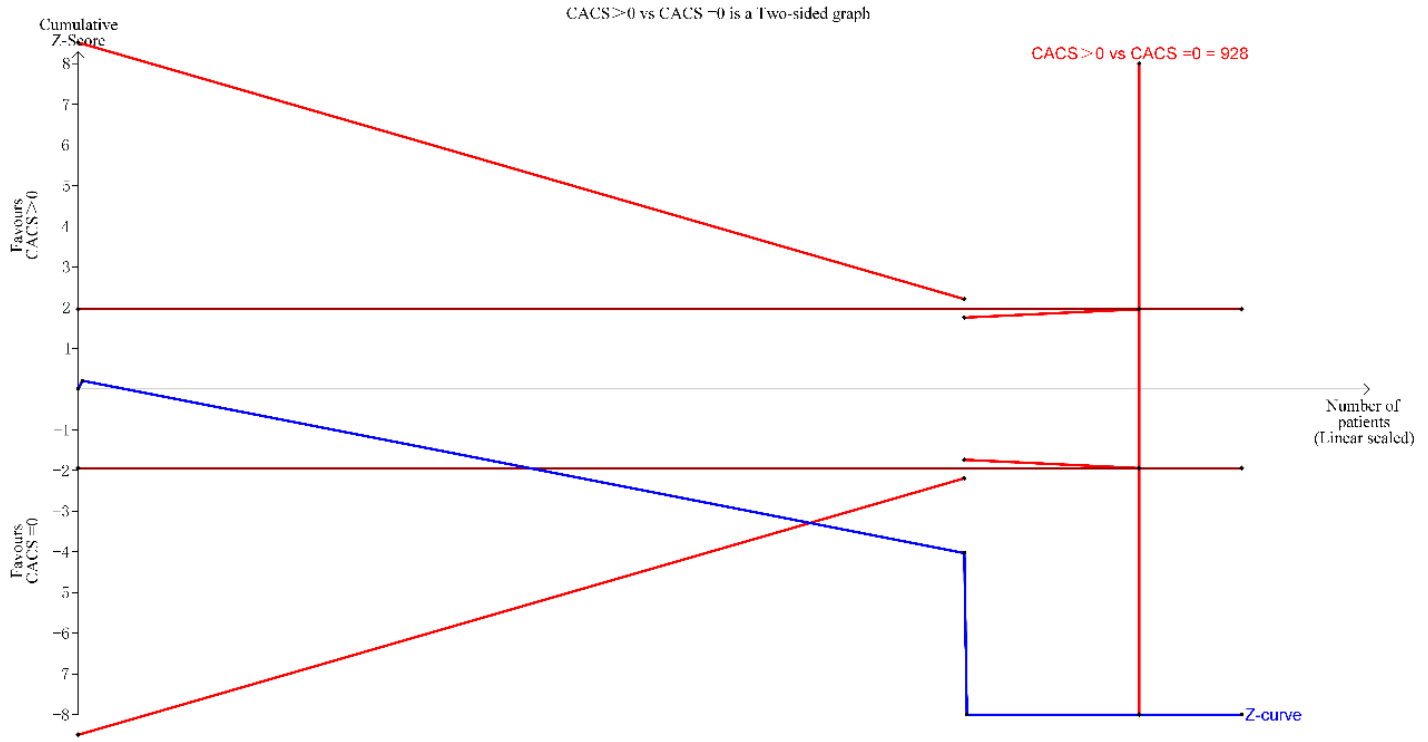


Figure S11: The effects of CACS in prediction of MI.

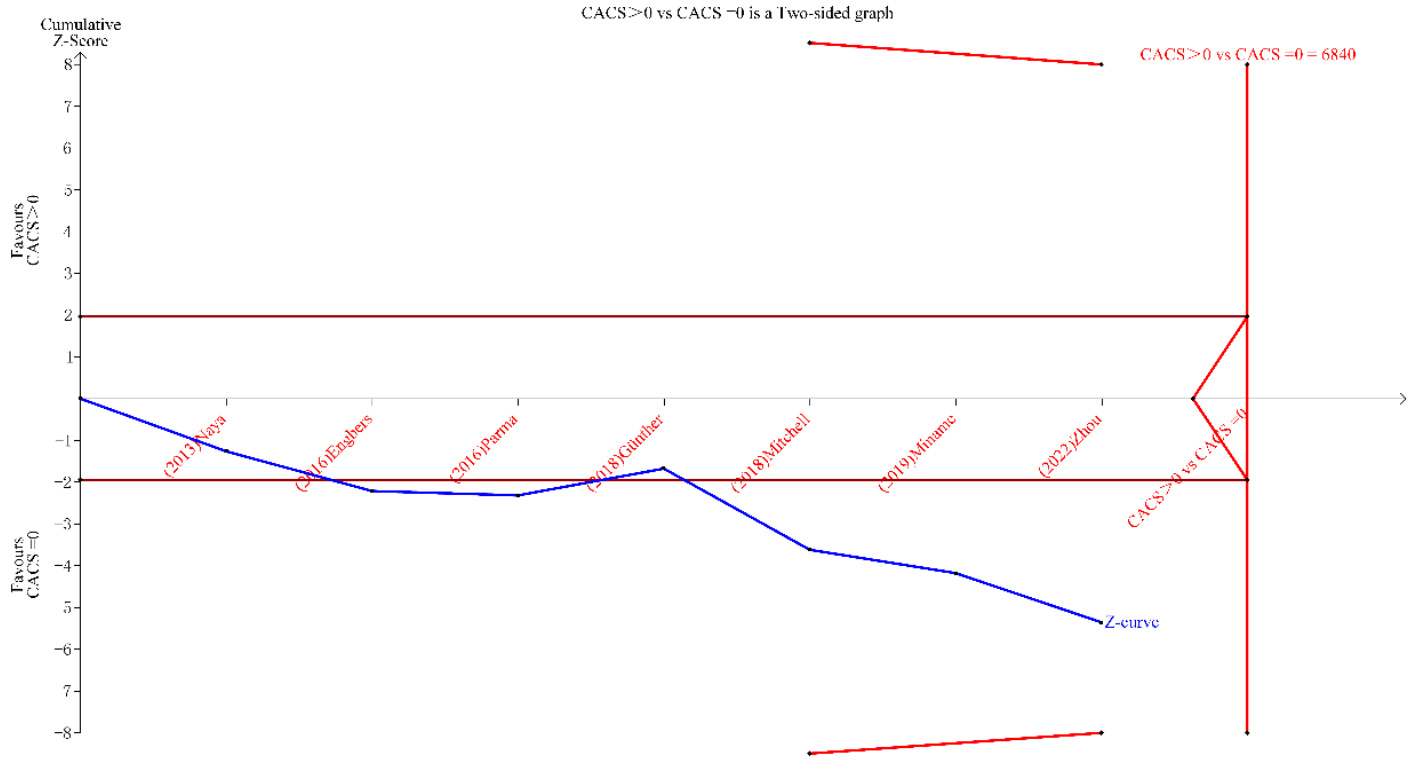


Figure S12: The effects of CACS in prediction of MACEs.

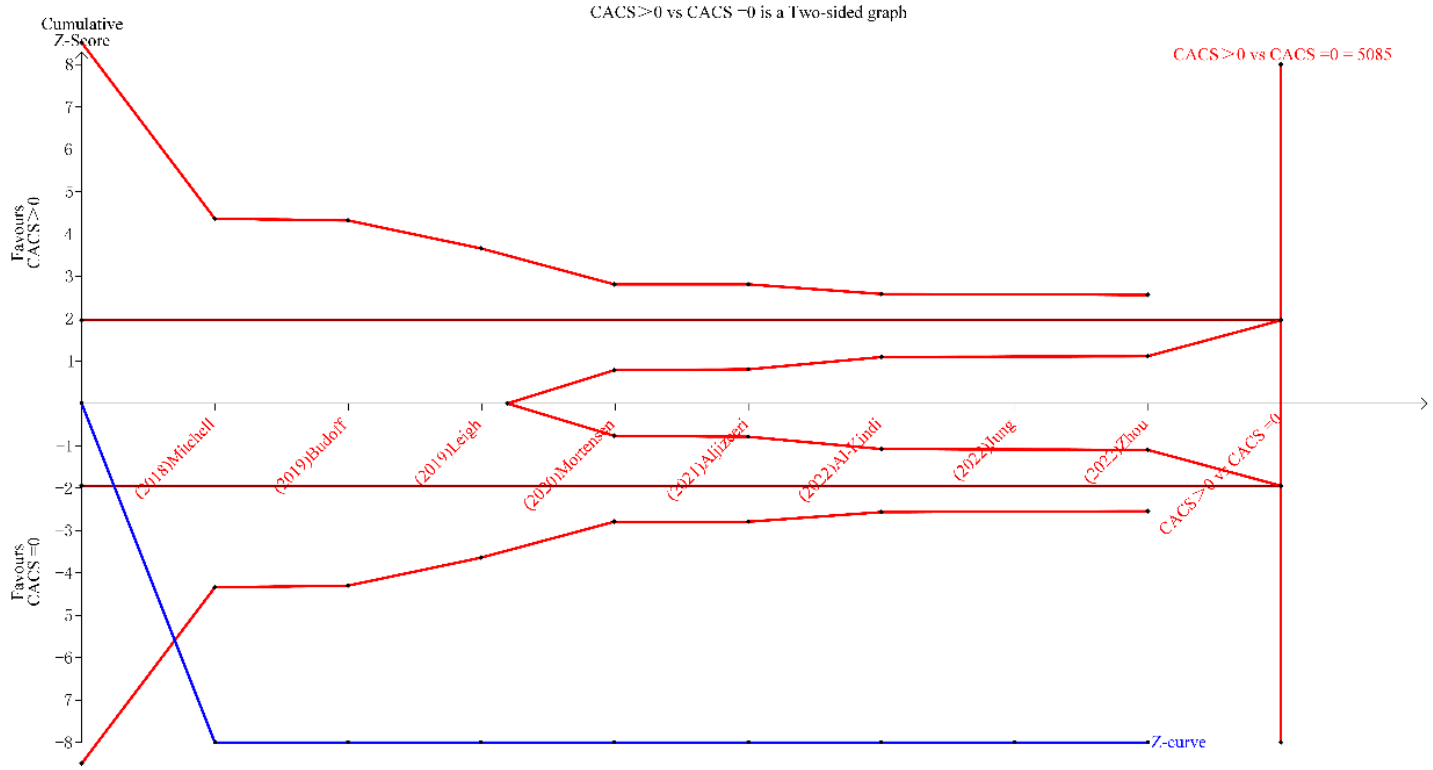


Figure S13: The effects of baPWV in prediction of all-cause mortality.

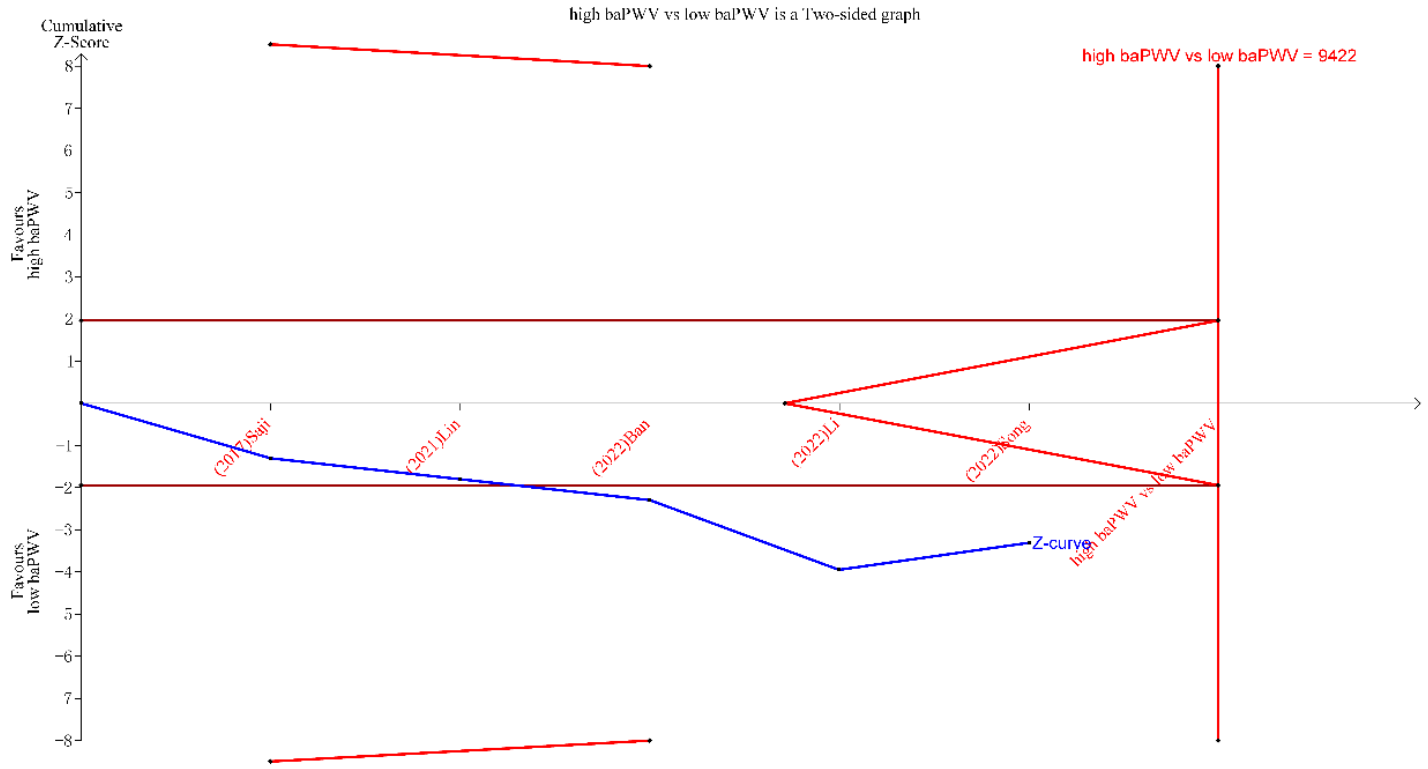
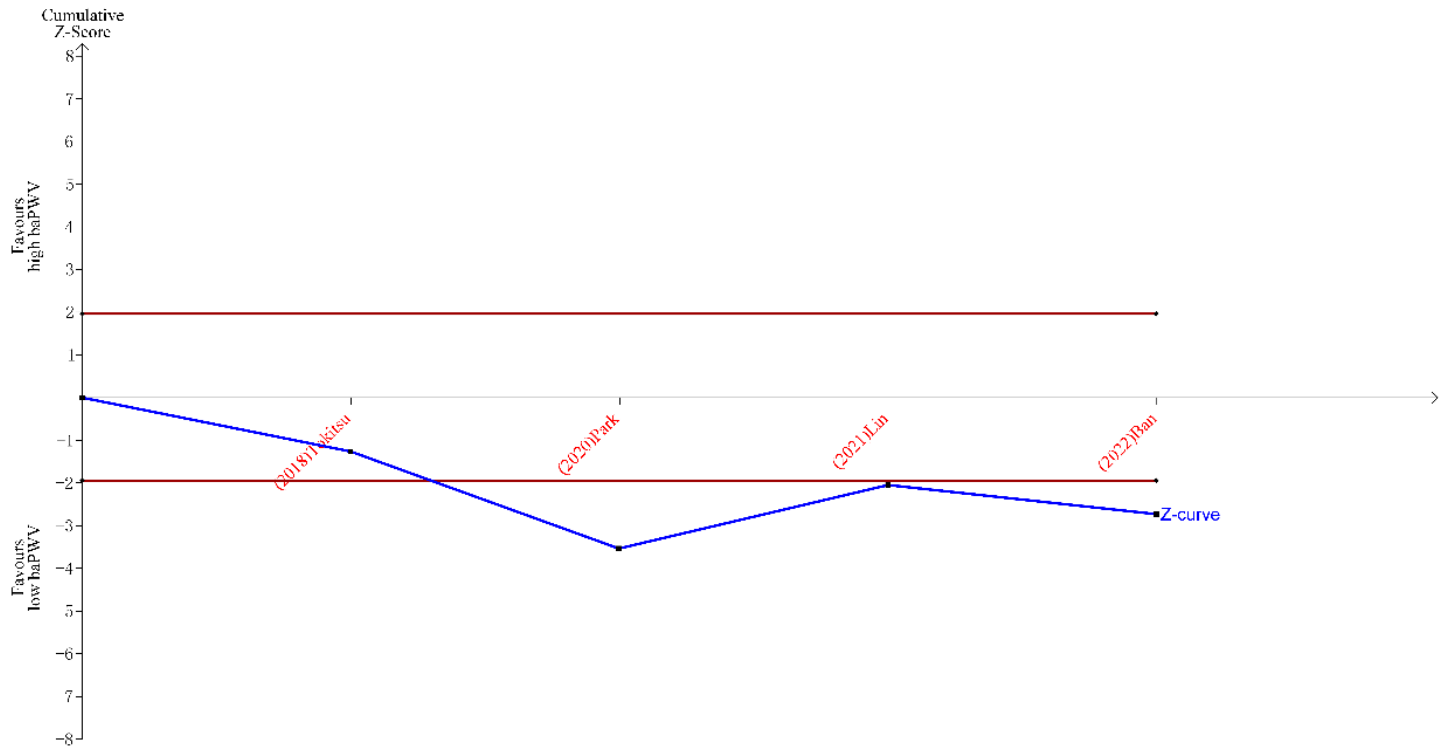


Figure S14: The effects of baPWV in prediction of CV mortality.



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Figure S15: The effects of baPWV in prediction of stroke.

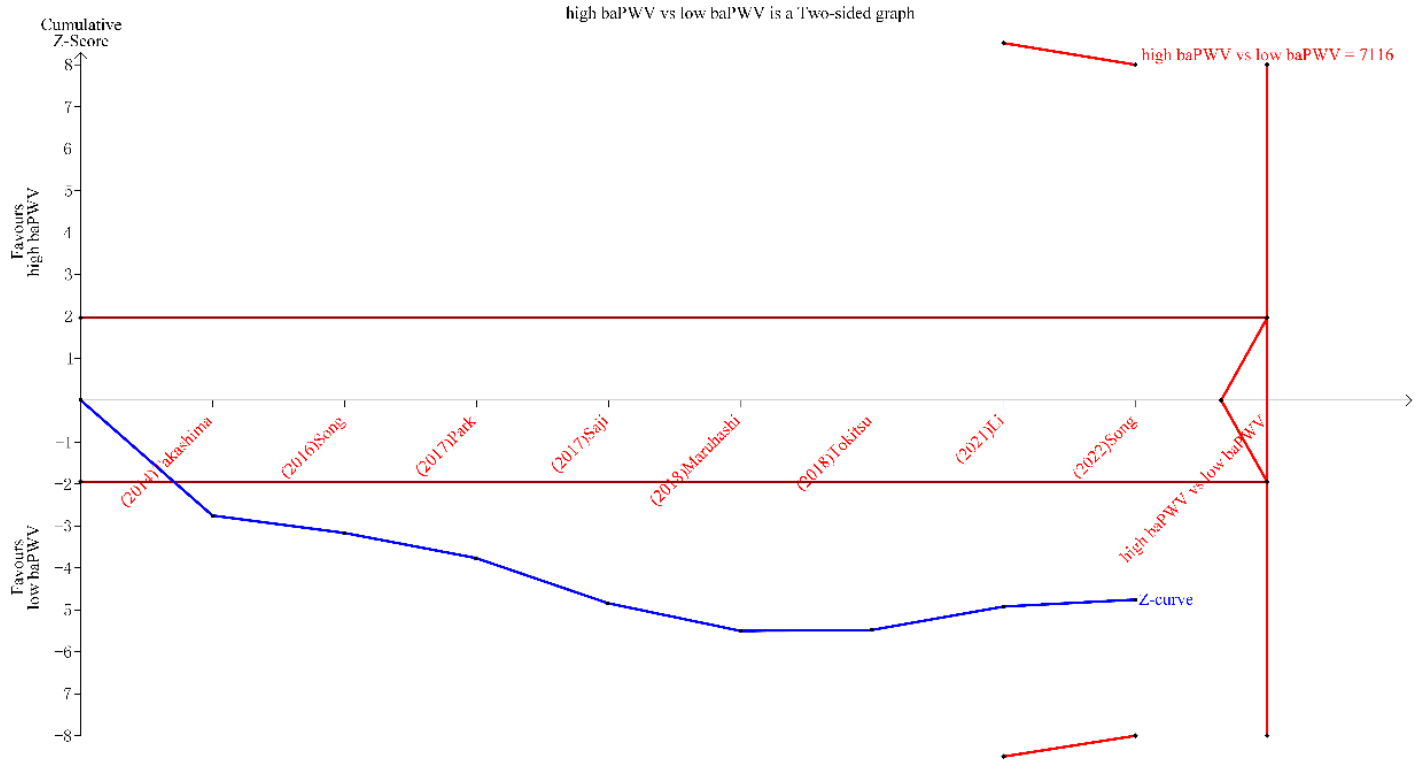
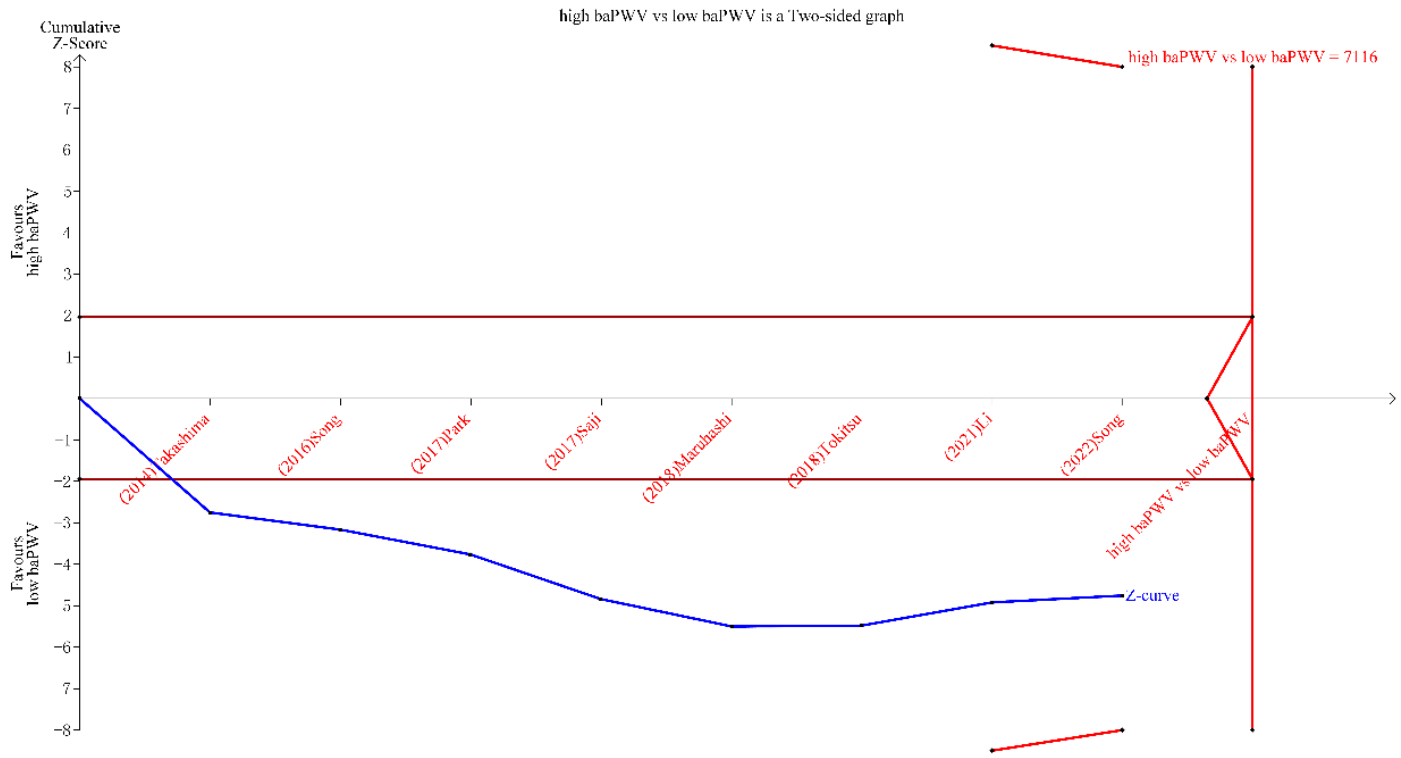


Figure S16: The effects of baPWV in prediction of MI.



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Figure S17: The effects of cfPWV in prediction of all-cause mortality.

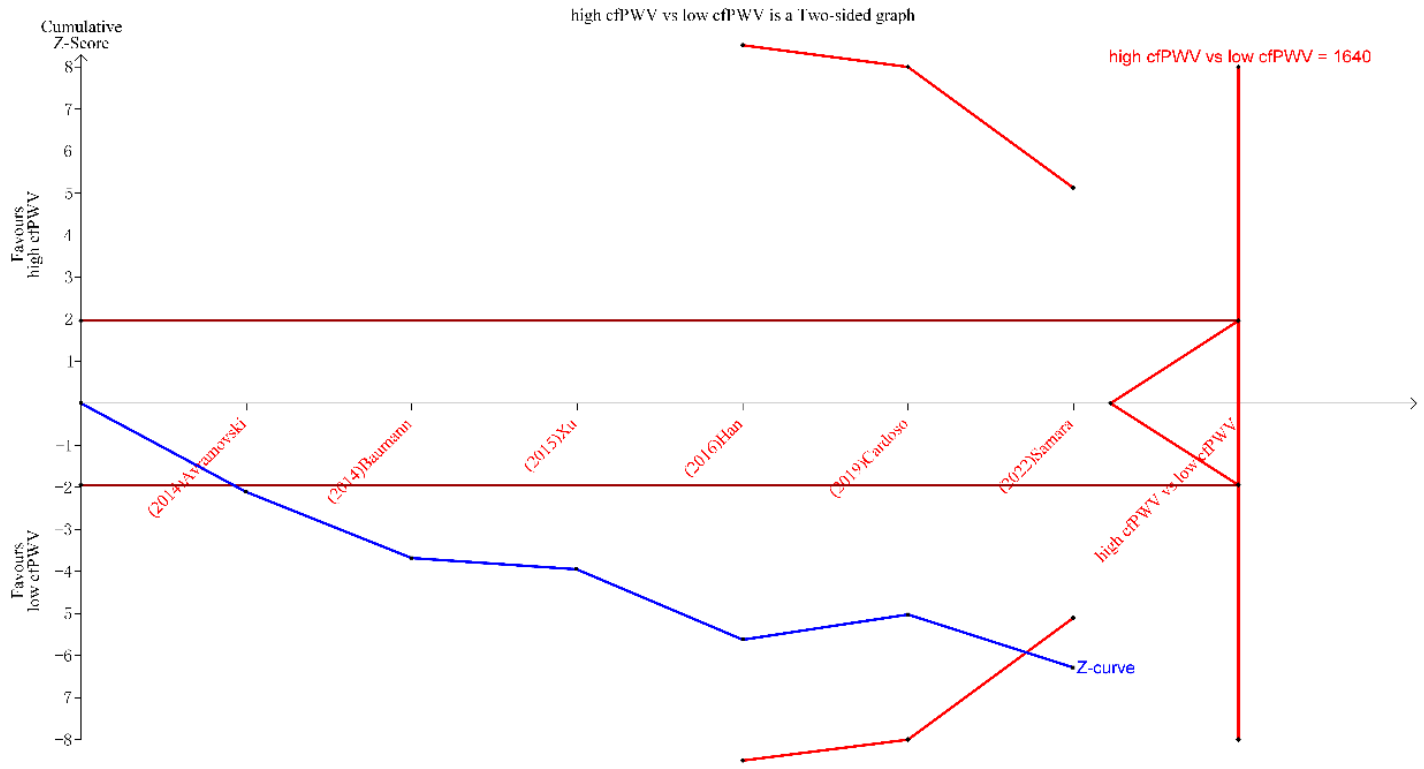
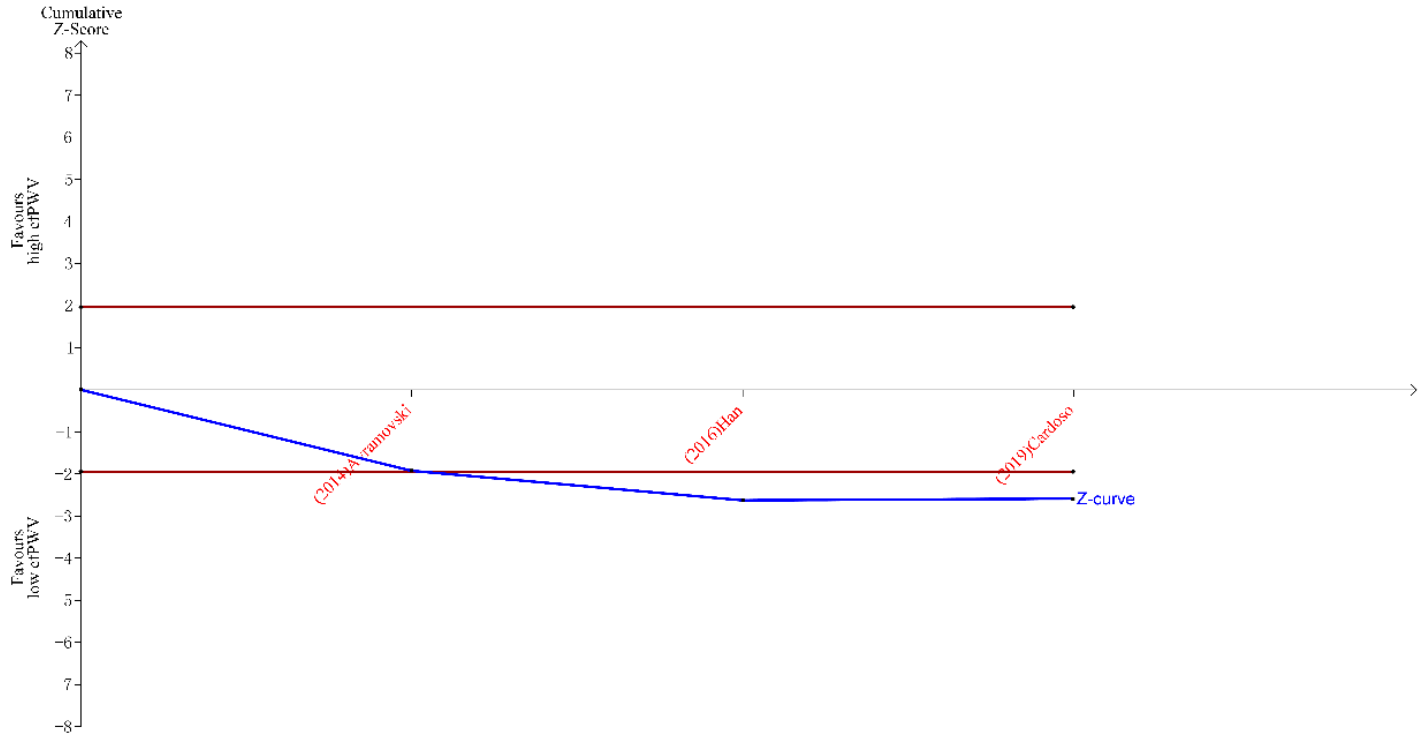


Figure S18: The effects of cfPWV in prediction of CV mortality.



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Figure S19: The effects of low ABI in prediction of all-cause mortality.

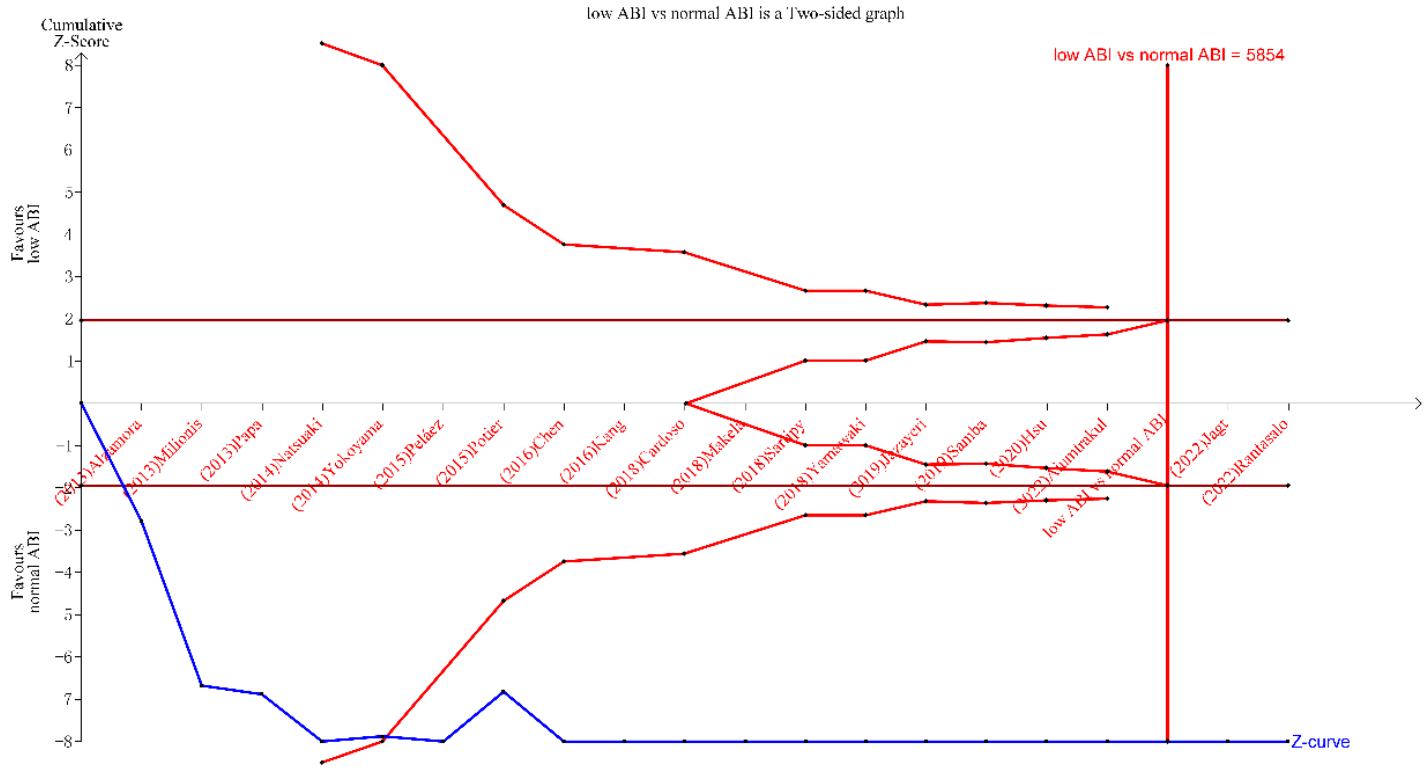


Figure S20: The effects of low ABI in prediction of CV mortality.

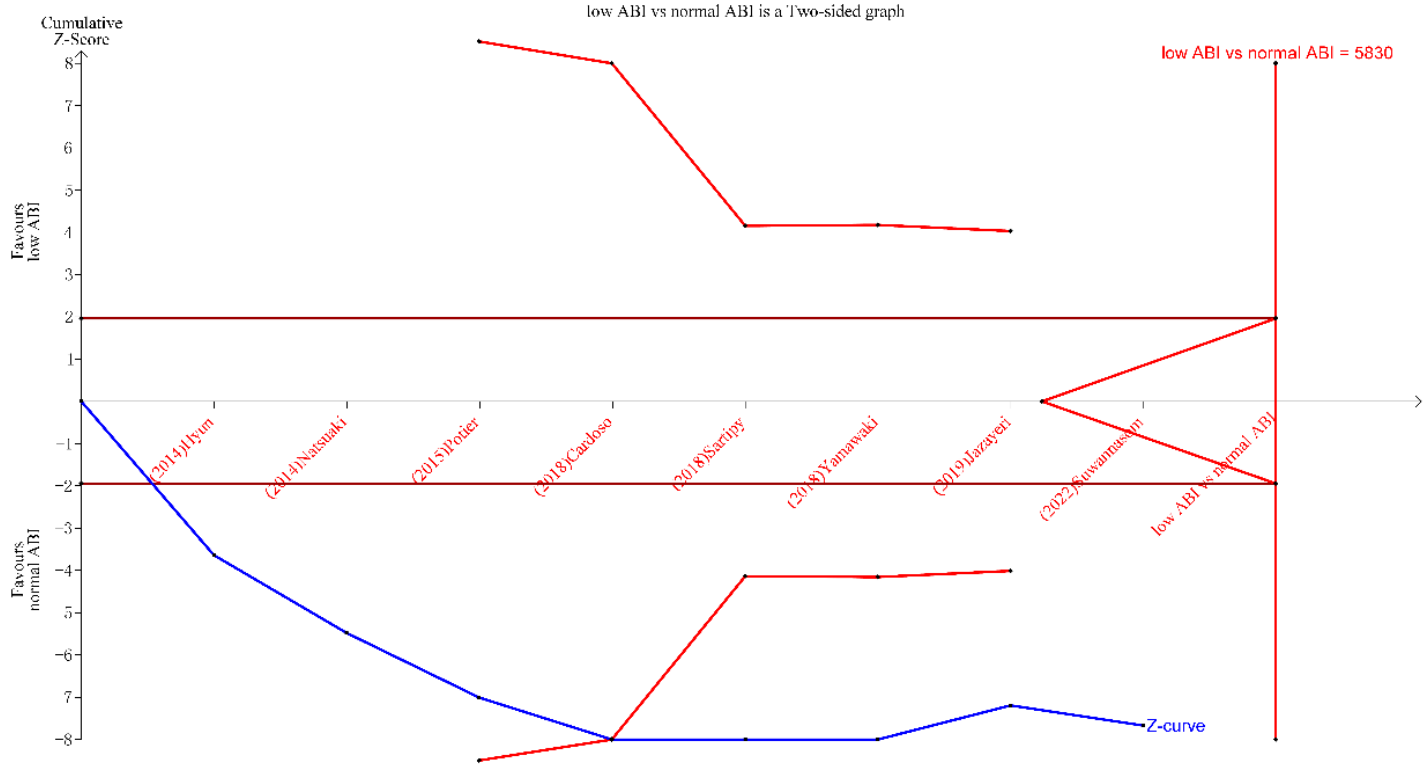


Figure S21: The effects of low ABI in prediction of stroke.

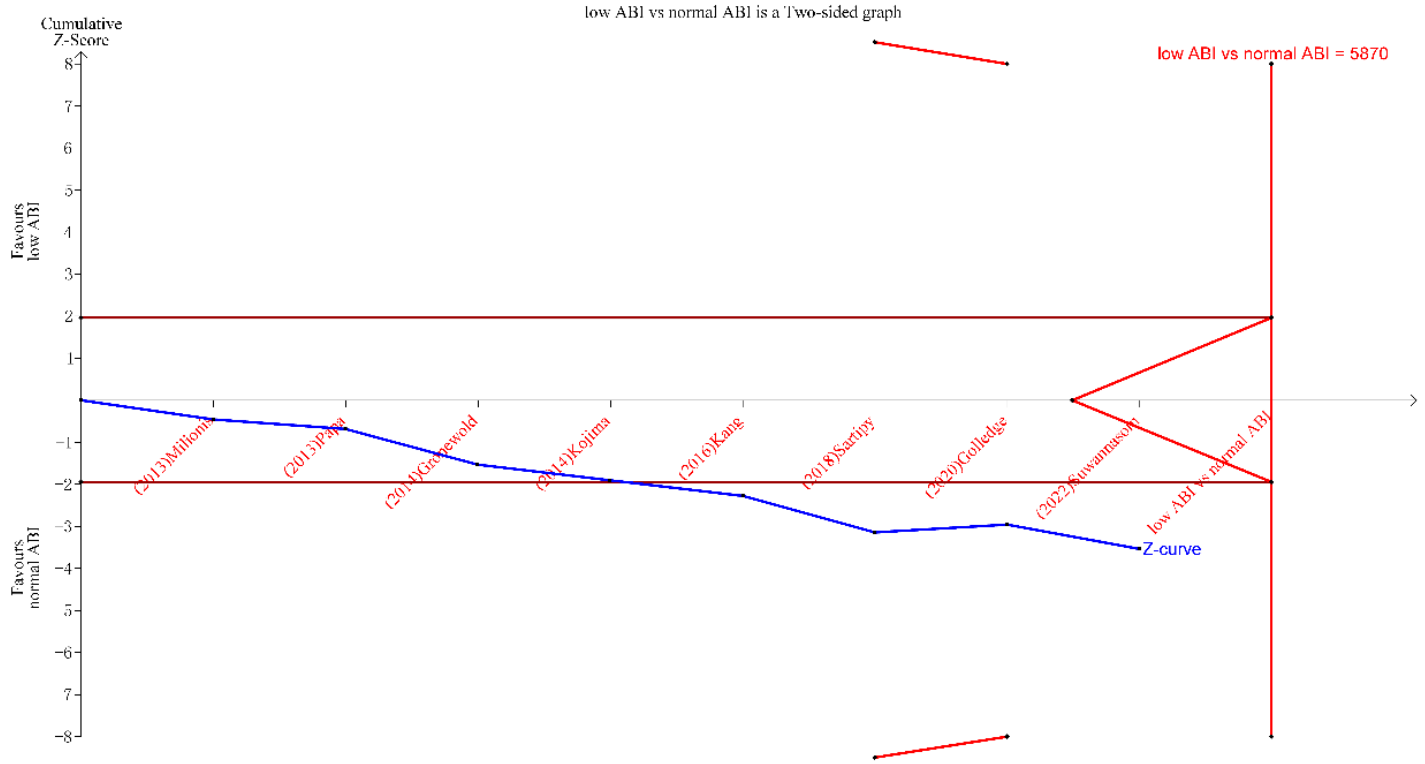


Figure S22: The effects of low ABI in prediction of MI.

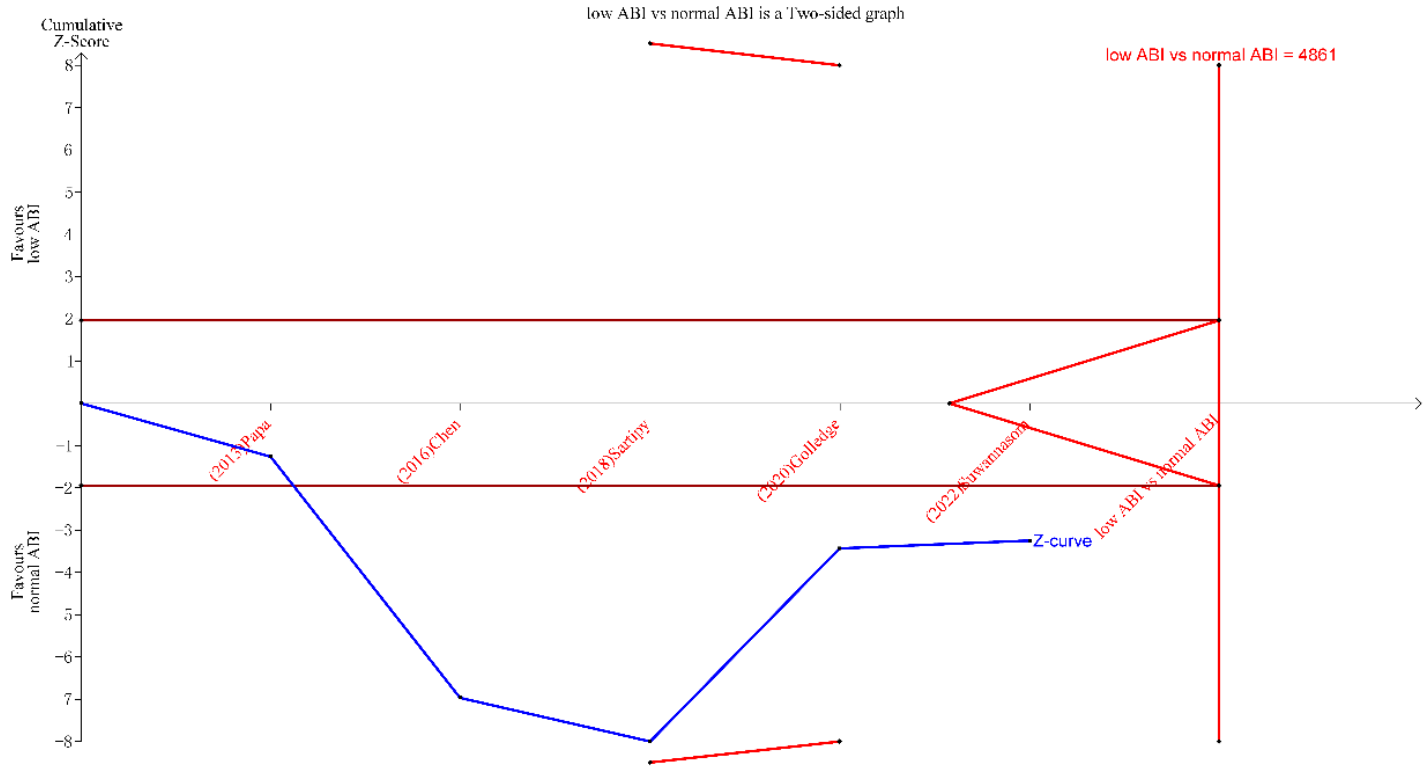


Figure S23: The effects of low ABI in prediction of MACEs.

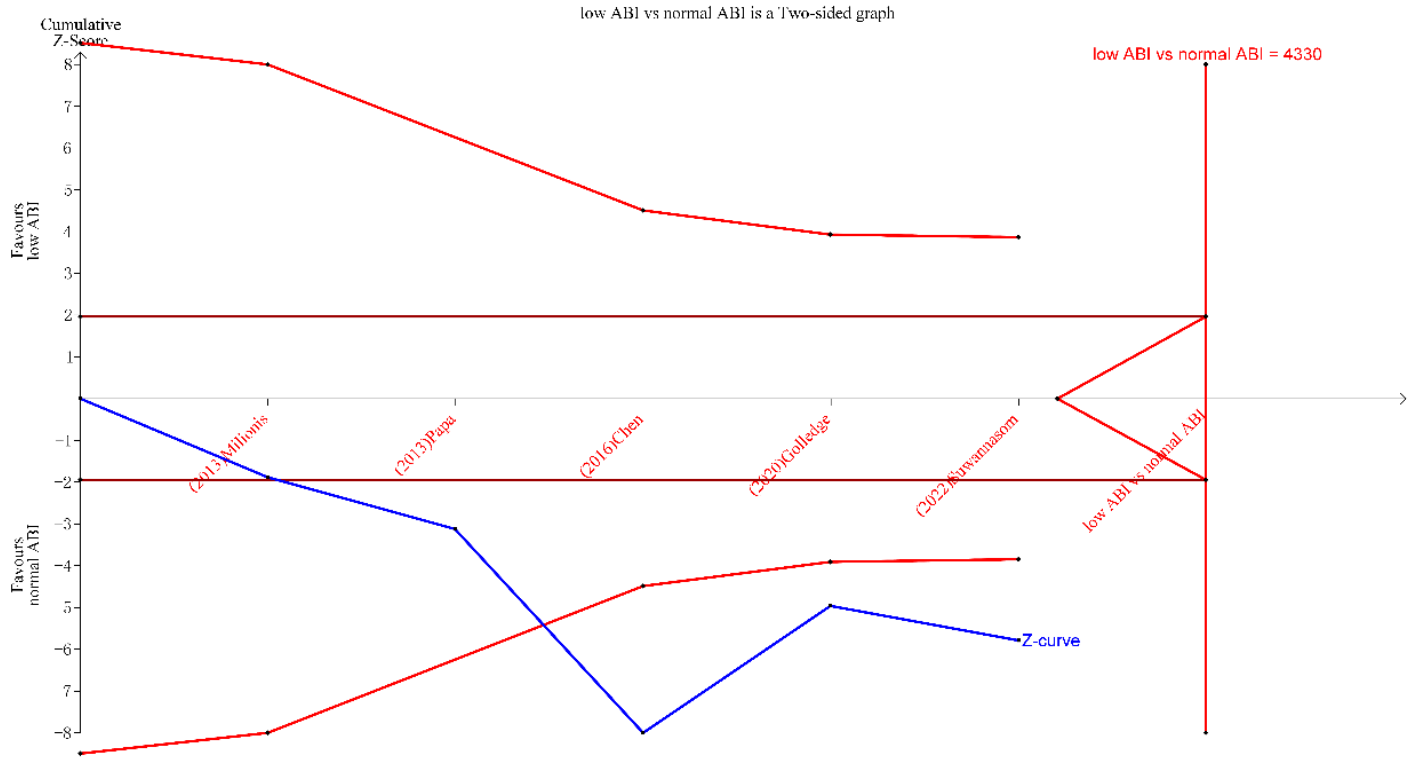


Figure S24: The effects of high ABI in prediction of all-cause mortality.

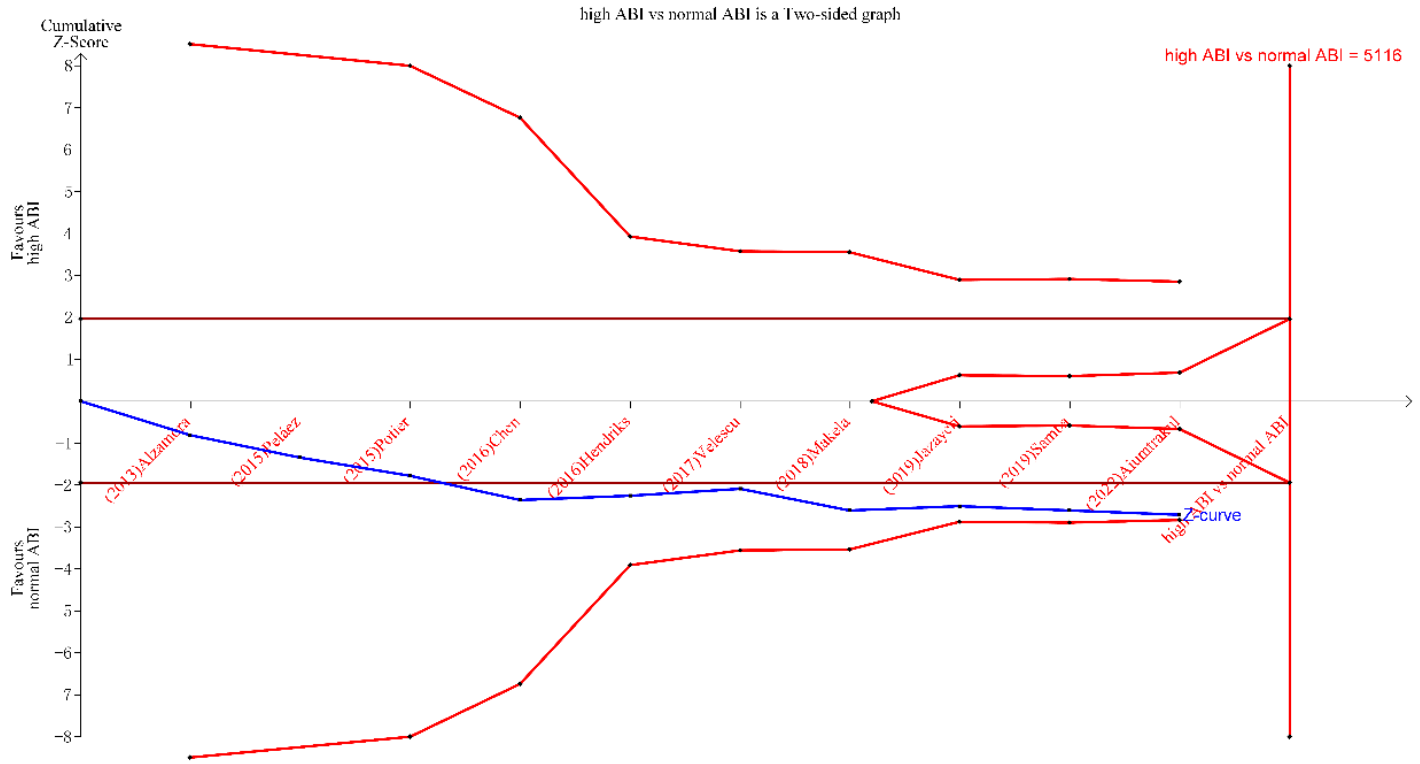


Figure S25: The effects of high ABI in prediction of CV mortality.

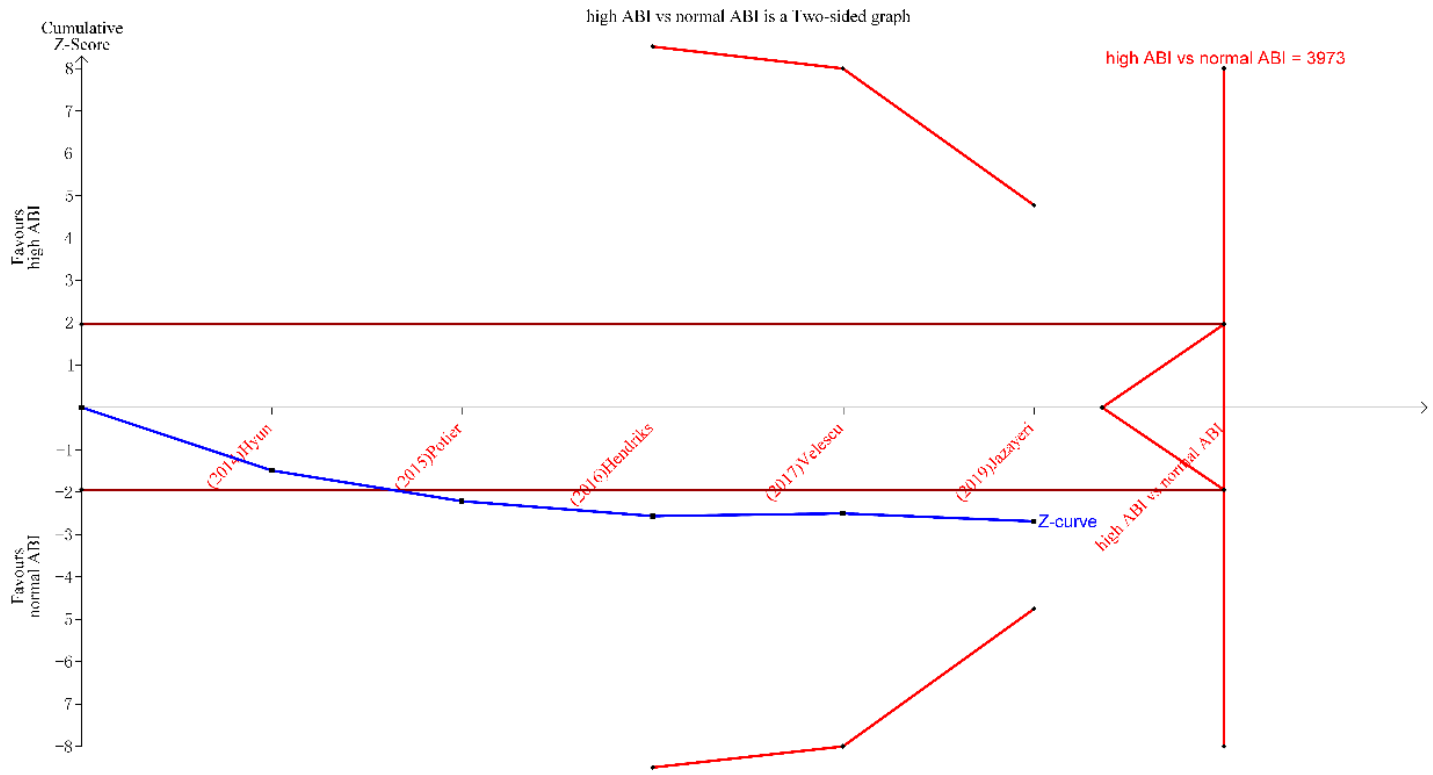


Figure S26: The effects of high ABI in prediction of stroke.

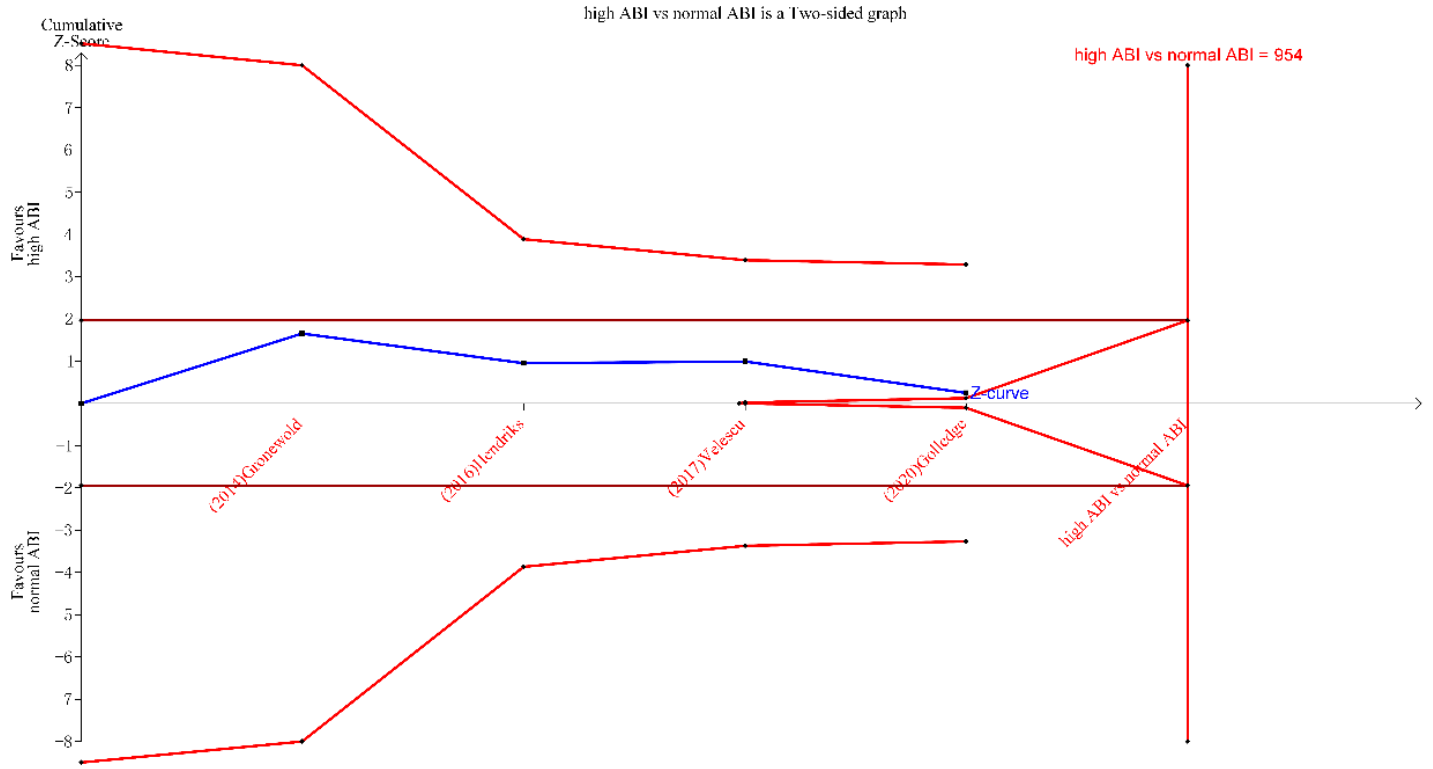


Figure S27: The effects of high ABI in prediction of MI.

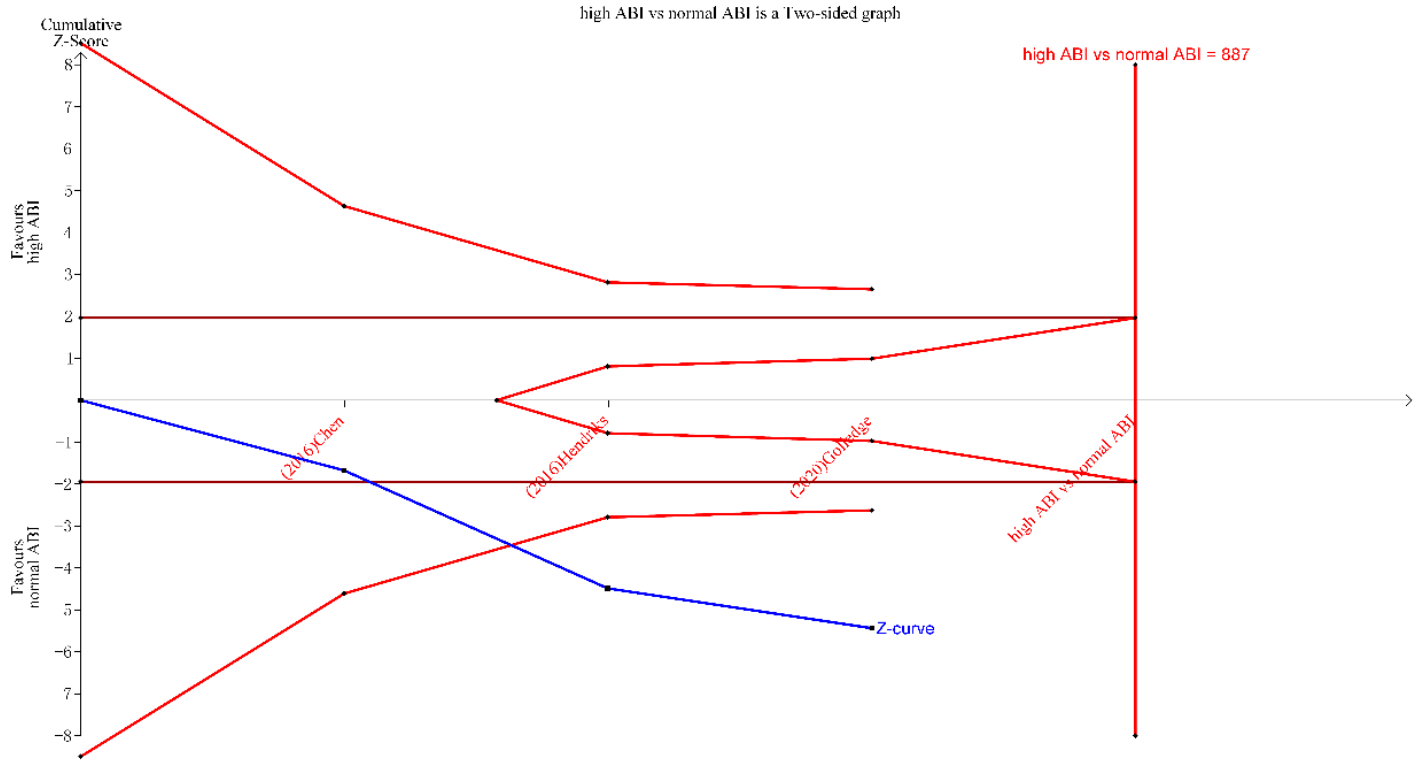


Figure S28: The effects of high ABI in prediction of MACEs.

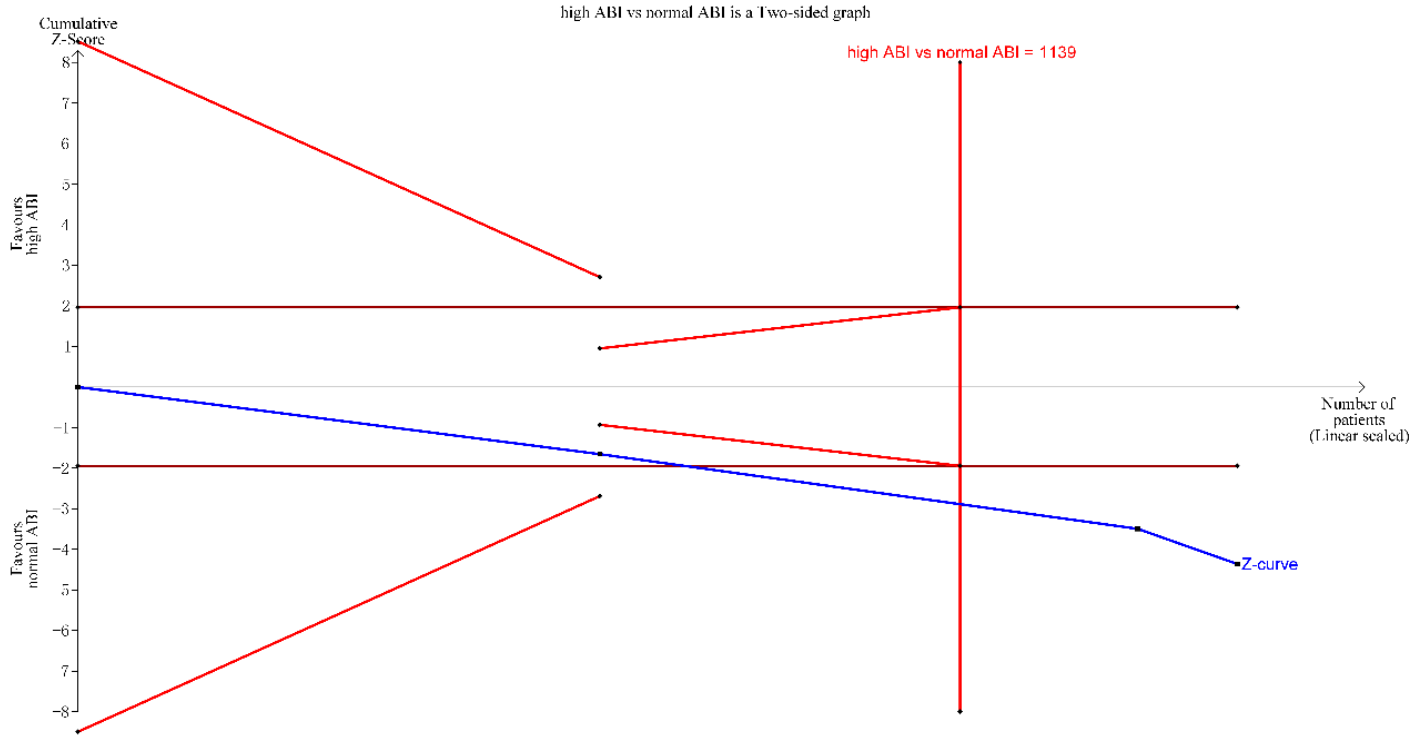


Figure S29: The effects of CAVI in prediction of MACEs.

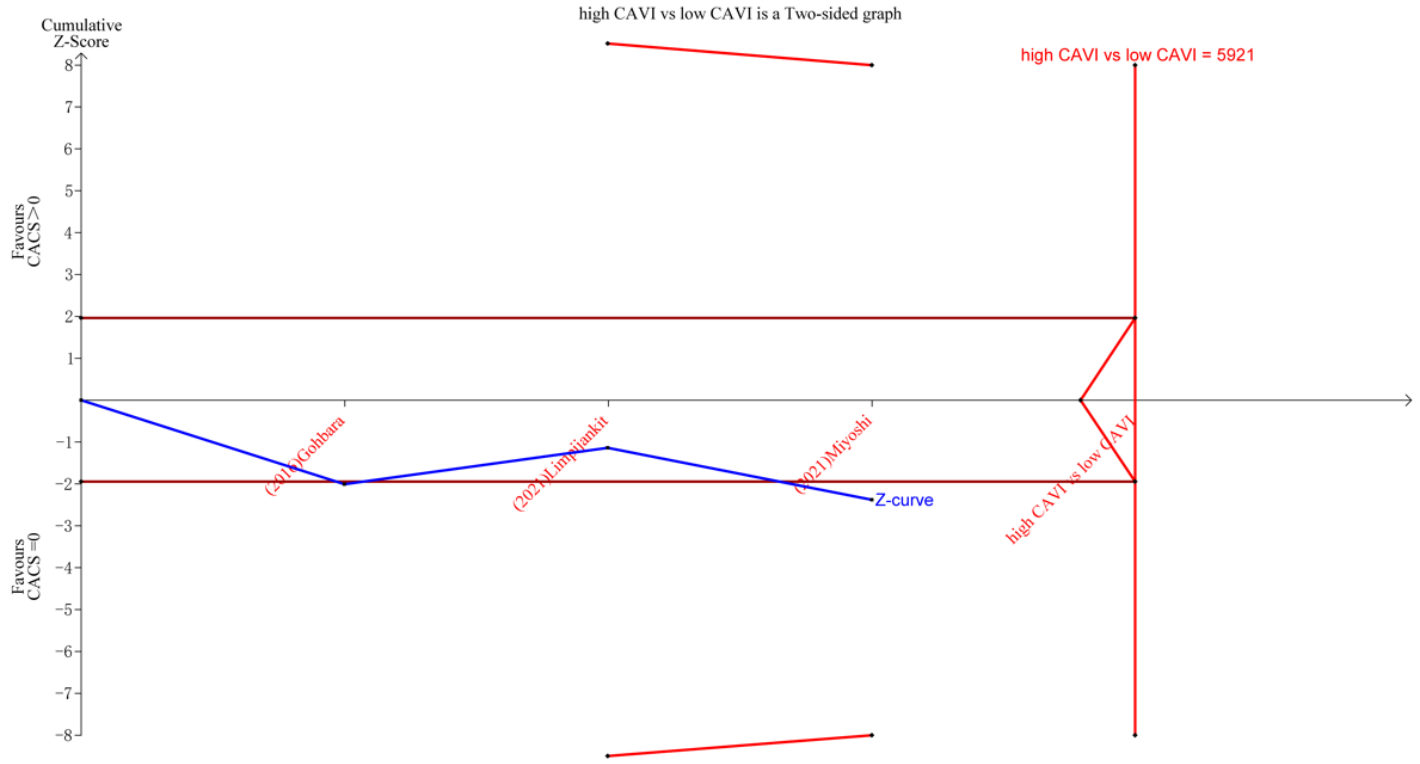
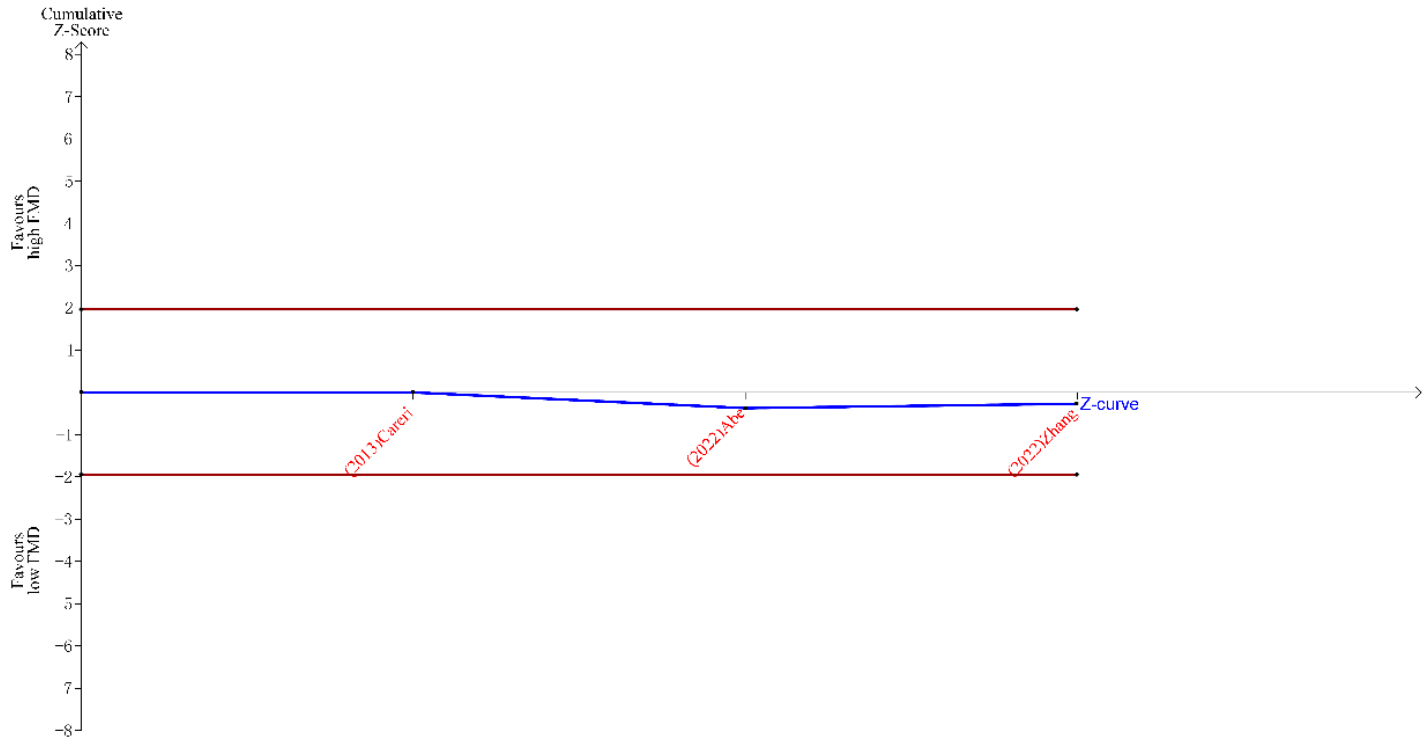
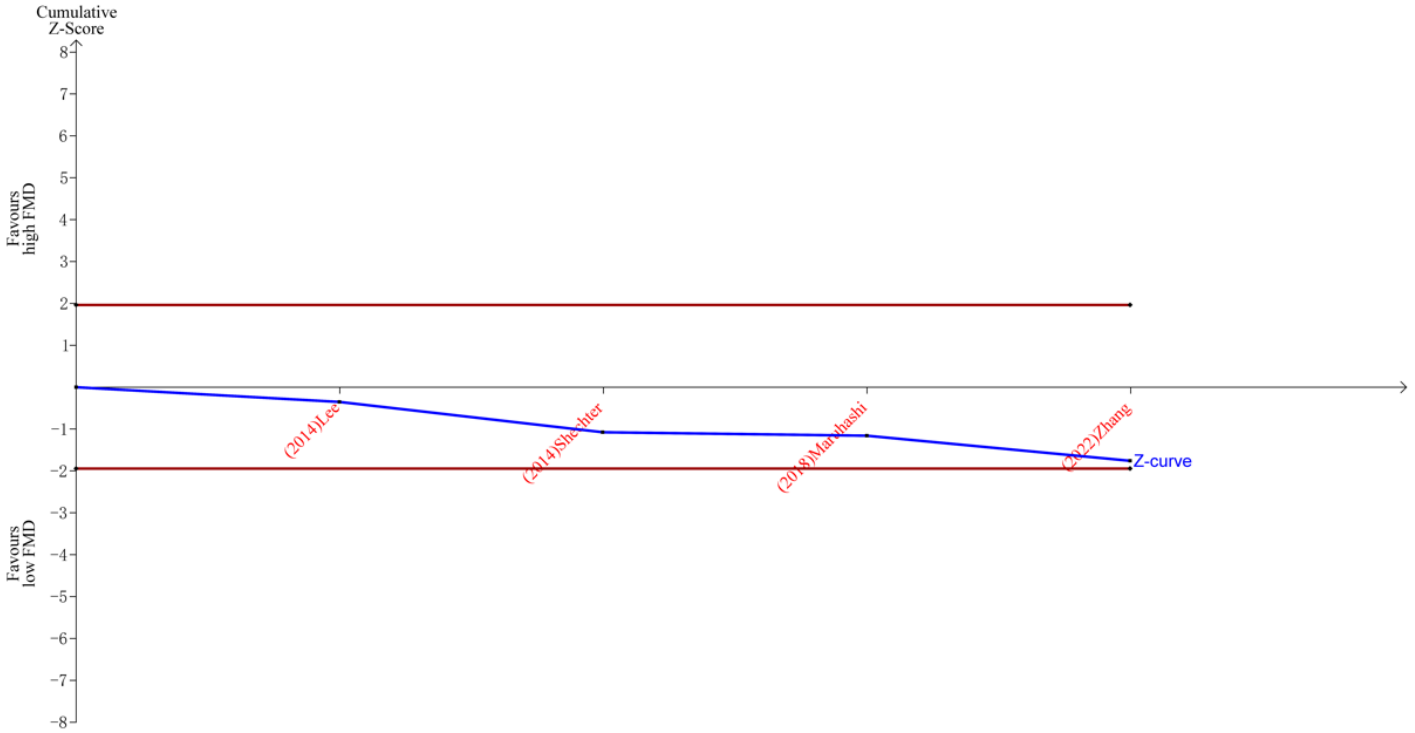


Figure S30: The effects of FMD in prediction of CV mortality.



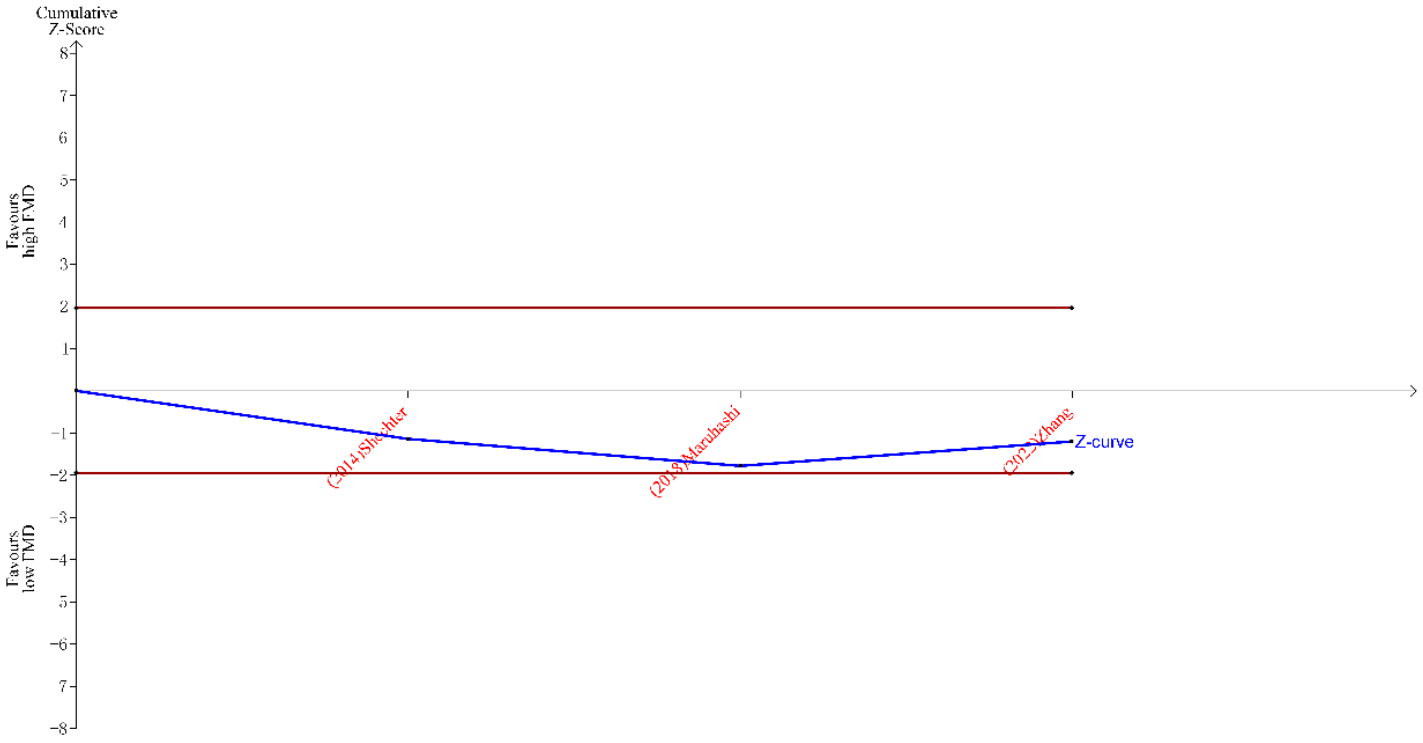
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Figure S31: The effects of FMD in prediction of stroke.



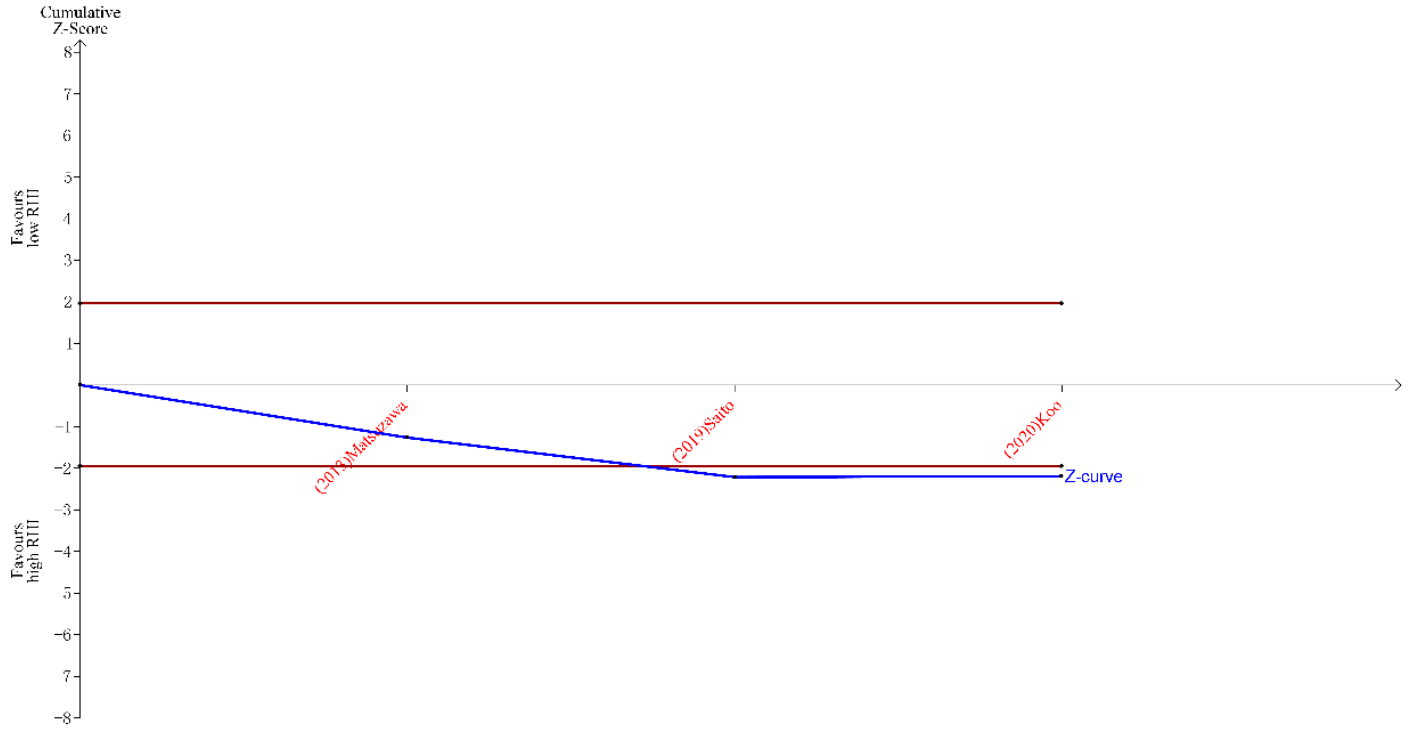
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Figure S32: The effects of FMD in prediction of MI.



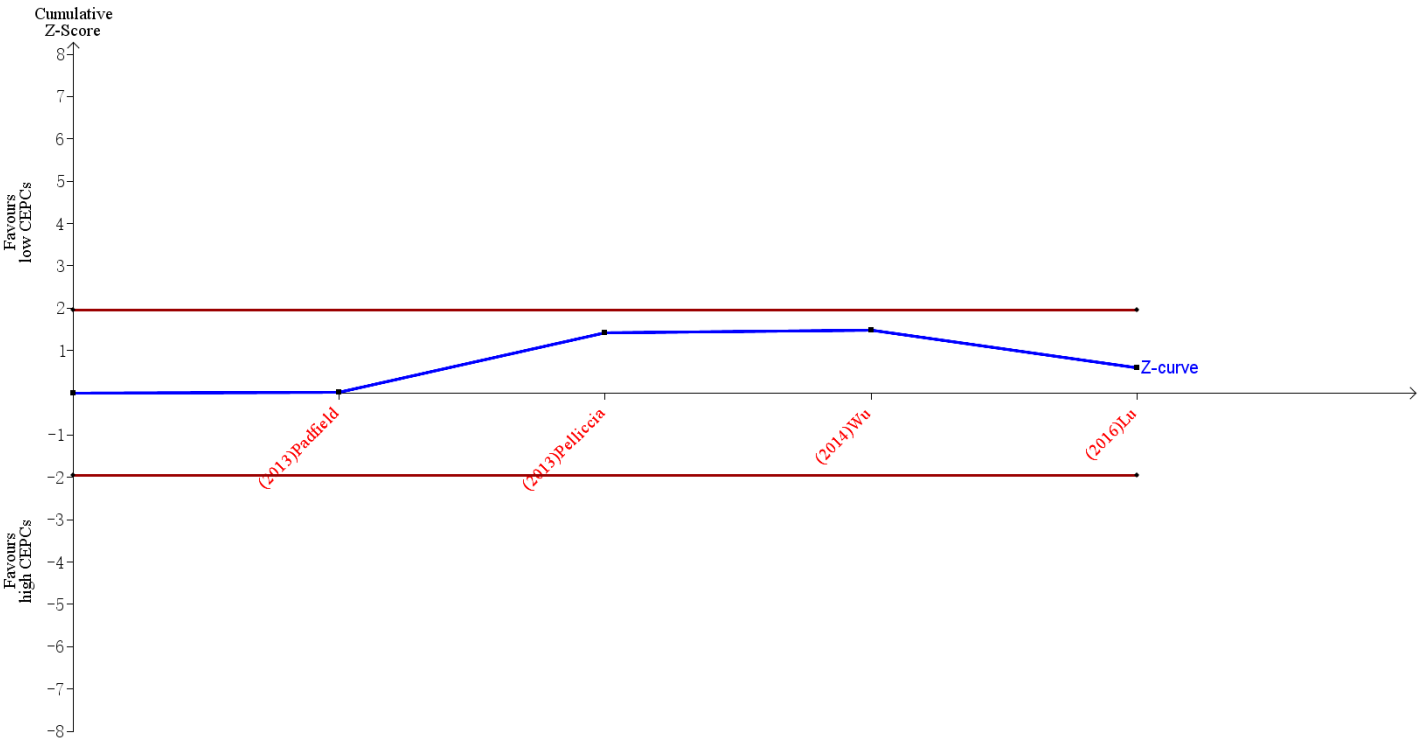
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Figure S33: The effects of RHI in prediction of stroke.



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Figure S34: The effects of CEPCs in prediction of all-cause mortality.



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Figure S35: The effects of LTL in prediction of all-cause mortality.

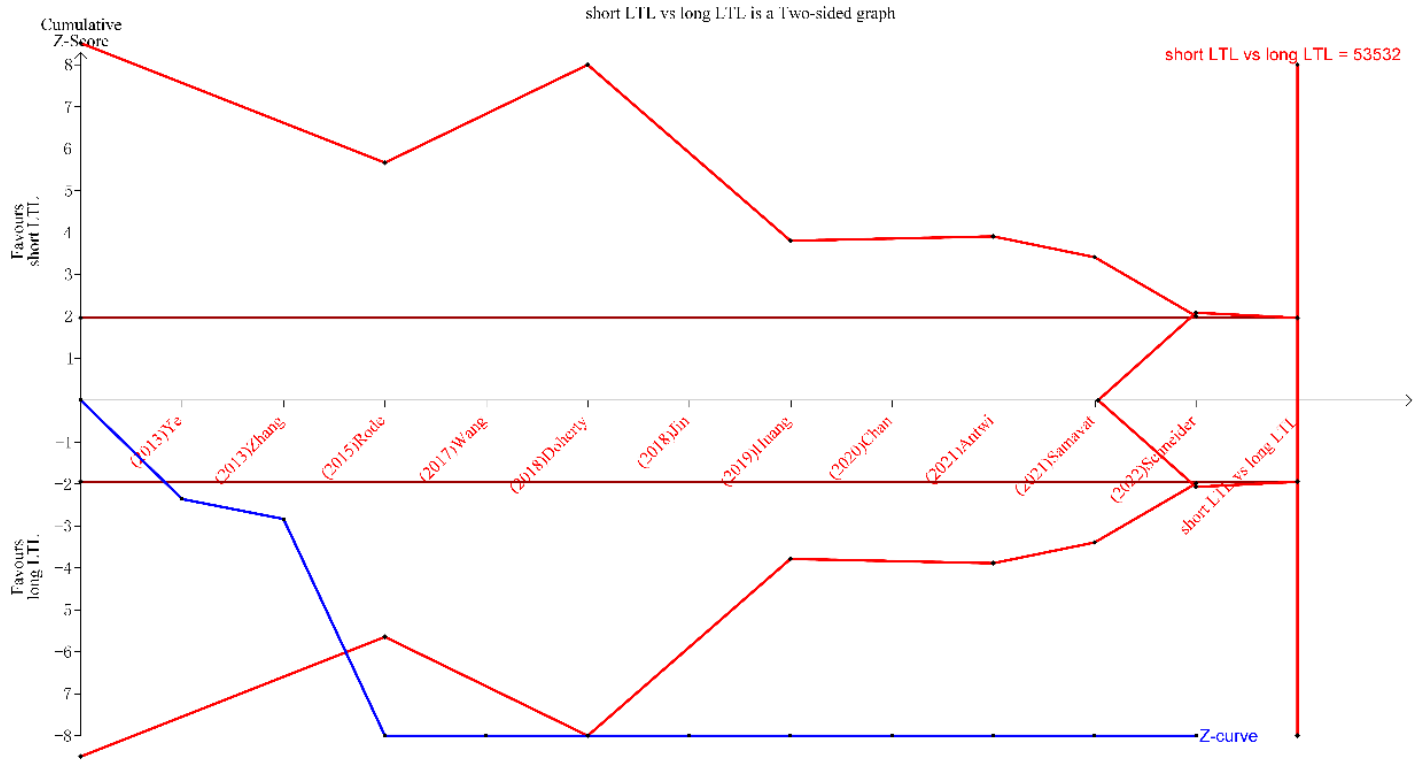
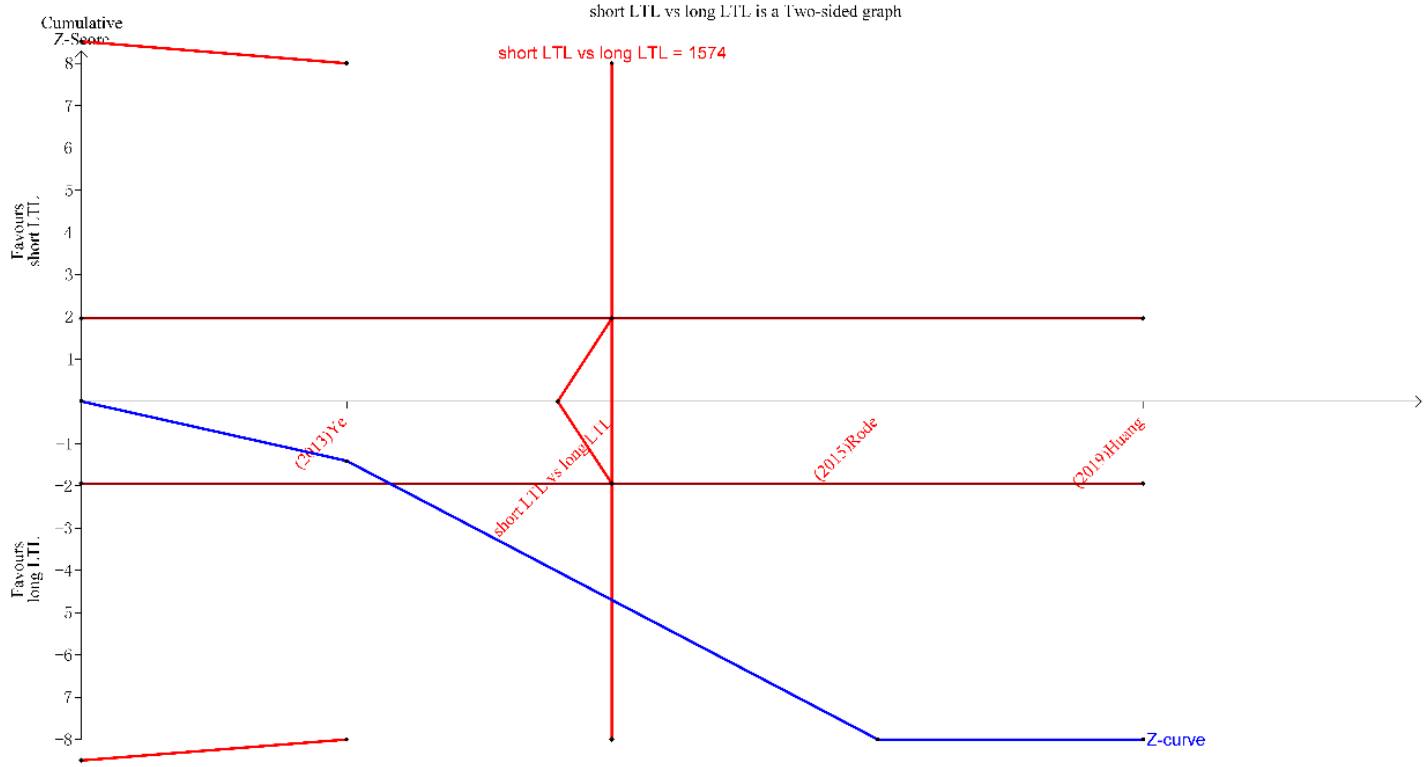


Figure S36: The effects of LTL in prediction of CV mortality.



3 Supplementary results of subgroup analyses

3.1 Summary of subgroup analyeis based on pooled risk estimates

Abbreviations: HR = hazard ratio; CI = confidence interval; NA = not appliable; NOS = Newcastle–Ottawa Scale.

Table S1: Subgroup analysis of cIMT as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	5	1.41 [1.10, 1.80]	0.006	0%	0.641
Predominantly female group	6	1.55 [1.14, 2.10]	0.005	27%	0.229
Hypertension					
Hypertension>50%	5	1.76 [1.11, 2.80]	0.017	49%	0.100
Hypertension<=50%	1	1.64 [1.00, 2.69]	0.051	NA	NA
Diabetes					
Diabetes>20%	8	1.39 [1.13, 1.71]	0.002	17%	0.295
Diabetes<=20%	1	1.15 [0.42, 3.14]	0.785	NA	NA
Population					
Specific disease cohort	9	1.37 [1.14, 1.66]	<.001	0%	0.719
General population cohort	2	2.30 [1.03, 5.12]	0.041	48%	0.165
NOS scores					
NOS=9	9	1.47 [1.20, 1.80]	<.001	0%	0.717
NOS<=8	2	2.00 [0.62, 6.40]	0.243	75%	0.044
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	1	0.58 [0.21, 1.60]	0.292	NA	NA
Predominantly female group	1	5.76 [0.80, 41.54]	0.082	NA	NA
Hypertension					
Hypertension>50%	1	0.58 [0.21, 1.60]	0.292	NA	NA
Hypertension<=50%	1	5.76 [0.80, 41.54]	0.082	NA	NA
Population					
Specific disease cohort	2	0.33 [0.06, 1.75]	0.191	47%	0.171
General population cohort	1	5.76 [0.80, 41.54]	0.082	NA	NA
NOS scores					
NOS=9	1	0.58 [0.21, 1.60]	0.292	NA	NA
NOS<=8	2	0.77 [0.01, 44.98]	0.901	85%	0.010
Outcome: stroke	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	4	1.27 [1.09, 1.47]	0.002	12%	0.332
Predominantly male group	1	1.23 [1.04, 1.46]	0.017	NA	NA
Hypertension					
Hypertension>50%	2	1.19 [1.02, 1.38]	0.024	0%	0.399

Hypertension<=50%	2	1.37 [1.13, 1.65]	0.001	15%	0.279
Diabetes					
Diabetes>20%	1	1.23 [1.04, 1.46]	0.017	NA	NA
Diabetes<=20%	3	1.32 [1.13, 1.55]	<.001	0%	0.397
Population					
Specific disease cohort	2	1.19 [1.02, 1.38]	0.024	0%	0.399
General population cohort	3	1.32 [1.13, 1.55]	<.001	0%	0.397
NOS scores					
NOS=9	4	1.21 [1.07, 1.36]	0.002	0%	0.791
NOS<=8	1	1.55 [1.16, 2.07]	0.003	NA	NA
Outcome: MACEs	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	5	1.67 [0.99, 2.82]	0.053	81%	<.001
Predominantly male group	3	1.43 [1.19, 1.71]	<.001	0%	0.693
Hypertension					
Hypertension>50%	2	1.32 [1.17, 1.50]	<.001	0%	0.696
Hypertension<=50%	3	2.51 [1.16, 5.43]	0.020	84%	0.002
Diabetes					
Diabetes>20%	1	1.40 [1.03, 1.91]	0.033	NA	NA
Diabetes<=20%	5	1.58 [1.03, 2.41]	0.036	78%	0.001
Population					
Specific disease cohort	4	1.28 [1.12, 1.46]	<.001	32%	0.222
General population cohort	4	2.01 [1.11, 3.64]	0.021	80%	0.002
NOS scores					
NOS=9	5	1.34 [1.21, 1.48]	<.001	0%	0.447
NOS<=8	3	1.86 [0.85, 4.08]	0.123	89%	<.001

Table S2: Subgroup analysis of CP as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	3	1.67 [1.25, 2.23]	<.001	0%	0.703
Predominantly female group	5	1.46 [1.20, 1.77]	<.001	34%	0.194
Hypertension					
Hypertension>50%	3	1.30 [0.76, 2.23]	0.340	49%	0.139
Hypertension<=50%	2	1.74 [1.30, 2.31]	<.001	0%	0.590
Diabetes					
Diabetes>20%	4	1.33 [0.91, 1.94]	0.137	24%	0.267
Diabetes<=20%	4	1.59 [1.31, 1.93]	<.001	0%	0.432
Population					
Specific disease cohort	4	1.34 [0.87, 2.07]	0.179	46%	0.135
General population cohort	4	1.58 [1.30, 1.92]	<.001	0%	0.737
NOS scores					
NOS=9	5	1.58 [1.27, 1.97]	<.001	42%	0.144
NOS<=8	3	1.45 [1.14, 1.85]	0.003	0%	0.885
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	3	2.70 [0.93, 7.84]	0.067	80%	0.007
Predominantly female group	1	1.84 [0.64, 5.32]	0.262	NA	NA
Hypertension					
Hypertension>50%	2	1.25 [1.11, 1.39]	<.001	0%	0.470
Hypertension<=50%	1	6.99 [1.88, 25.97]	0.004	NA	NA
Population					
Specific disease cohort	3	2.70 [0.93, 7.84]	0.067	80%	0.007
General population cohort	1	1.84 [0.64, 5.32]	0.262	NA	NA
NOS scores					
NOS=9	2	2.59 [0.48, 13.83]	0.266	85%	0.010
NOS<=8	2	2.54 [1.16, 5.55]	0.020	0%	0.380
Outcome: stroke	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	2	1.93 [1.16, 3.21]	0.012	42%	0.187
Predominantly female group	2	1.15 [0.84, 1.57]	0.391	0%	0.752
Hypertension					
Hypertension>50%	1	1.56 [1.00, 2.44]	0.052	NA	NA
Hypertension<=50%	2	1.79 [0.85, 3.77]	0.128	66%	0.085
Diabetes					
Diabetes>20%	1	1.56 [1.00, 2.44]	0.052	NA	NA
Diabetes<=20%	3	1.47 [0.89, 2.42]	0.135	62%	0.073
Population					
Specific disease cohort	1	1.56 [1.00, 2.44]	0.052	NA	NA
General population cohort	3	1.47 [0.89, 2.42]	0.135	62%	0.073

Outcome: MACEs	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Hypertension					
Hypertension>50%	1	1.53 [1.12, 2.09]	0.008	NA	NA
Hypertension<=50%	1	1.85 [1.00, 3.41]	0.049	NA	NA
Diabetes					
Diabetes>20%	1	1.53 [1.12, 2.09]	0.008	NA	NA
Diabetes<=20%	2	2.01 [1.30, 3.10]	0.002	0%	0.710
Population					
Specific disease cohort	2	1.65 [1.24, 2.19]	<.001	2%	0.312
General population cohort	1	1.85 [1.00, 3.41]	0.049	NA	NA
NOS scores					
NOS=9	2	1.59 [1.20, 2.10]	0.001	0%	0.588
NOS<=8	1	2.18 [1.18, 4.01]	0.012	NA	NA

Table S3: Subgroup analysis of CACS as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	16	1.66 [1.38, 1.99]	<.001	97%	<.001
Predominantly female group	7	1.45 [1.01, 2.09]	0.047	89%	<.001
Hypertension					
Hypertension>50%	3	1.24 [1.00, 1.53]	0.054	86%	<.001
Hypertension<=50%	16	1.73 [1.41, 2.13]	<.001	96%	<.001
Diabetes					
Diabetes>20%	7	1.24 [1.03, 1.49]	0.021	86%	<.001
Diabetes<=20%	16	1.72 [1.40, 2.11]	<.001	95%	<.001
Population					
Specific disease cohort	11	1.37 [1.16, 1.62]	<.001	89%	<.001
General population cohort	12	1.76 [1.34, 2.30]	<.001	96%	<.001
NOS scores					
NOS=9	9	1.20 [1.08, 1.33]	<.001	95%	<.001
NOS<=8	14	1.83 [1.45, 2.30]	<.001	96%	<.001
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	3	1.21 [1.09, 1.34]	<.001	48%	0.144
Predominantly female group	2	1.06 [1.02, 1.09]	<.001	0%	0.757
Hypertension					
Hypertension>50%	4	1.16 [1.05, 1.28]	0.005	82%	<.001
Hypertension<=50%	1	1.05 [1.01, 1.10]	0.025	NA	NA
Diabetes					
Diabetes>20%	3	1.21 [1.09, 1.34]	<.001	48%	0.144
Diabetes<=20%	2	1.06 [1.02, 1.09]	<.001	0%	0.757
Population					
General population cohort	3	1.21 [1.09, 1.34]	<.001	48%	0.144
Specific disease cohort	2	1.06 [1.02, 1.09]	<.001	0%	0.757
NOS scores					
NOS<=8	3	1.06 [1.02, 1.09]	<.001	0%	0.452
NOS=9	2	1.20 [1.09, 1.33]	<.001	64%	0.096
Outcome: stroke	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	2	1.38 [1.13, 1.69]	0.002	0%	0.557
Predominantly male group	1	1.28 [1.09, 1.50]	0.002	NA	NA
NOS scores					
NOS<=8	1	1.31 [1.00, 1.71]	0.048	NA	NA
NOS=9	2	1.32 [1.15, 1.52]	<.001	0%	0.410
Outcome: MI	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Hypertension					

Hypertension>50%	1	1.69 [1.28, 2.23]	<.001	NA	NA
Hypertension<=50%	1	2.72 [2.19, 3.37]	<.001	NA	NA
Diabetes					
Diabetes>20%	2	1.69 [1.48, 1.93]	<.001	0%	1.000
Diabetes<=20%	1	2.72 [2.19, 3.37]	<.001	NA	NA
Population					
Specific disease cohort	1	1.69 [1.28, 2.23]	<.001	NA	NA
General population cohort	2	2.13 [1.34, 3.40]	0.001	92%	<.001
NOS scores					
NOS=9	2	2.16 [1.36, 3.45]	0.001	86%	0.008
NOS<=8	1	1.69 [1.45, 1.97]	<.001	NA	NA
Outcome: MACEs	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	9	1.58 [1.17, 2.12]	0.003	95%	<.001
Predominantly female group	5	1.47 [1.05, 2.05]	0.023	96%	<.001
Hypertension					
Hypertension>50%	3	1.36 [0.74, 2.51]	0.319	94%	<.001
Hypertension<=50%	7	1.76 [1.27, 2.44]	<.001	89%	<.001
Diabetes					
Diabetes>20%	2	1.62 [0.63, 4.16]	0.315	96%	<.001
Diabetes<=20%	11	1.54 [1.21, 1.96]	<.001	95%	<.001
Population					
Specific disease cohort	8	1.54 [1.07, 2.21]	0.021	93%	<.001
General population cohort	6	1.55 [1.23, 1.94]	<.001	89%	<.001
NOS scores					
NOS=9	4	1.53 [1.09, 2.15]	0.013	91%	<.001
NOS<=8	10	1.54 [1.16, 2.04]	0.003	93%	<.001

Table S4: Subgroup analysis of baPWV as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	8	1.24 [1.02, 1.50]	0.033	79%	<.001
Predominantly female group	4	1.22 [0.99, 1.51]	0.058	55%	0.086
Hypertension					
Hypertension>50%	8	1.22 [1.01, 1.47]	0.038	74%	<.001
Hypertension<=50%	4	1.25 [0.99, 1.59]	0.058	67%	0.027
Diabetes					
Diabetes>20%	6	1.30 [1.02, 1.67]	0.035	81%	<.001
Diabetes<=20%	6	1.13 [1.00, 1.29]	0.054	44%	0.113
Population					
Specific disease cohort	7	1.49 [1.28, 1.74]	<.001	0%	0.780
General population cohort	5	1.03 [1.00, 1.06]	0.060	75%	0.003
NOS scores					
NOS=9	9	1.32 [1.11, 1.58]	0.002	74%	<.001
NOS<=8	3	1.01 [1.00, 1.01]	<.001	4%	0.353
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	3	2.03 [0.57, 7.29]	0.276	80%	0.007
Predominantly male group	4	1.00 [1.00, 1.01]	0.399	58%	0.067
Hypertension					
Hypertension>50%	3	1.00 [1.00, 1.01]	0.401	57%	0.096
Hypertension<=50%	4	1.55 [1.12, 2.16]	0.009	54%	0.089
Diabetes					
Diabetes<=20%	3	2.03 [0.57, 7.29]	0.276	80%	0.007
Diabetes>20%	4	1.00 [1.00, 1.01]	0.399	58%	0.067
Population					
General population cohort	4	1.01 [1.00, 1.02]	0.026	72%	0.014
Specific disease cohort	3	1.06 [0.81, 1.37]	0.683	20%	0.285
NOS scores					
NOS<=8	4	1.01 [1.00, 1.02]	0.026	0%	0.483
NOS=9	3	2.03 [0.56, 7.32]	0.281	82%	0.004
Outcome: stroke	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	7	1.23 [1.11, 1.37]	<.001	55%	0.038
Predominantly male group	3	2.96 [1.42, 6.16]	0.004	74%	0.020
Hypertension					
Hypertension>50%	6	1.17 [1.06, 1.28]	0.002	40%	0.139
Hypertension<=50%	2	1.46 [1.25, 1.71]	<.001	0%	0.932
Diabetes					
Diabetes<=20%	6	1.24 [1.10, 1.41]	<.001	60%	0.030
Diabetes>20%	2	3.70 [1.50, 9.13]	0.004	70%	0.067

Population					
General population cohort	6	1.55 [0.98, 2.45]	0.060	91%	<.001
Specific disease cohort	4	1.44 [1.10, 1.89]	0.008	12%	0.332
Outcome: MI	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	2	2.14 [1.20, 3.83]	0.010	0%	0.693
Predominantly female group	1	1.11 [0.74, 1.67]	0.615	NA	NA
Hypertension					
Hypertension>50%	1	2.39 [1.08, 5.31]	0.032	NA	NA
Hypertension<=50%	1	1.89 [0.81, 4.41]	0.141	NA	NA
Diabetes					
Diabetes>20%	1	2.39 [1.08, 5.31]	0.032	NA	NA
Diabetes<=20%	1	1.89 [0.81, 4.41]	0.141	NA	NA
Population					
Specific disease cohort	2	1.50 [0.72, 3.14]	0.277	64%	0.093
General population cohort	1	1.89 [0.81, 4.41]	0.141	NA	NA

Table S5: Subgroup analysis of cfPWV as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	10	1.20 [1.12, 1.28]	<.001	66%	0.002
Predominantly female group	6	1.12 [1.04, 1.21]	0.003	32%	0.197
Hypertension					
Hypertension<=50%	3	1.27 [1.18, 1.37]	<.001	0%	0.962
Hypertension>50%	11	1.15 [1.08, 1.22]	<.001	47%	0.040
Diabetes					
Diabetes<=20%	3	1.18 [1.05, 1.33]	0.007	43%	0.172
Diabetes>20%	13	1.18 [1.11, 1.26]	<.001	61%	0.002
Population					
Specific disease cohort	14	1.18 [1.12, 1.25]	<.001	61%	0.001
General population cohort	2	1.20 [0.99, 1.46]	0.065	0%	0.619
NOS scores					
NOS<=8	10	1.22 [1.15, 1.29]	<.001	45%	0.060
NOS=9	6	1.07 [1.03, 1.12]	0.002	0%	0.495
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	6	1.17 [1.07, 1.27]	<.001	83%	<.001
Predominantly female group	2	1.25 [1.09, 1.43]	0.002	0%	0.732
Hypertension					
Hypertension<=50%	3	1.30 [1.16, 1.47]	<.001	0%	0.512
Hypertension>50%	5	1.14 [1.05, 1.23]	0.002	82%	<.001
Diabetes					
Diabetes<=20%	4	1.21 [1.13, 1.28]	<.001	14%	0.324
Diabetes>20%	4	1.14 [1.02, 1.27]	0.021	83%	<.001
Population					
Specific disease cohort	7	1.17 [1.09, 1.27]	<.001	82%	<.001
General population cohort	1	1.35 [0.85, 2.15]	0.205	NA	NA
NOS scores					
NOS<=8	6	1.20 [1.15, 1.26]	<.001	0%	0.558
NOS=9	2	1.06 [0.84, 1.33]	0.619	36%	0.210
Outcome: stroke	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	1	1.40 [1.13, 1.73]	0.002	NA	NA
Predominantly female group	2	1.00 [0.63, 1.59]	0.998	44%	0.180
Hypertension					
Hypertension>50%	2	1.34 [1.12, 1.60]	0.002	0%	0.418
Hypertension<=50%	1	0.72 [0.38, 1.37]	0.318	NA	NA
Population					
Specific disease cohort	2	1.34 [1.12, 1.60]	0.002	0%	0.418
General population cohort	1	0.72 [0.38, 1.37]	0.318	NA	NA

Outcome: MACEs	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	2	1.52 [0.80, 2.90]	0.202	67%	0.083
Predominantly female group	2	1.29 [1.04, 1.59]	0.021	0%	0.532
Population					
Specific disease cohort	3	1.24 [1.11, 1.38]	<.001	37%	0.203
General population cohort	1	0.45 [0.02, 11.97]	0.635	NA	NA

Table S6: Subgroup analysis of low ABI as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly female group	9	1.83 [1.57, 2.13]	<.001	50%	0.040
Predominantly male group	10	1.82 [1.60, 2.07]	<.001	0%	0.689
Hypertension					
Hypertension>50%	11	1.96 [1.66, 2.30]	<.001	0%	0.924
Hypertension<=50%	4	2.00 [1.41, 2.84]	<.001	78%	0.003
Diabetes					
Diabetes<=20%	7	1.72 [1.56, 1.89]	<.001	0%	0.465
Diabetes>20%	12	2.13 [1.75, 2.60]	<.001	10%	0.344
Population					
General population cohort	5	1.73 [1.50, 1.99]	<.001	29%	0.230
Specific disease cohort	14	1.97 [1.68, 2.30]	<.001	19%	0.242
NOS scores					
NOS=9	10	1.79 [1.63, 1.98]	<.001	0%	0.656
NOS<=8	9	2.10 [1.64, 2.69]	<.001	49%	0.046
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	3	2.56 [1.81, 3.60]	<.001	0%	0.467
Predominantly female group	5	2.18 [1.80, 2.65]	<.001	39%	0.163
Hypertension					
Hypertension>50%	5	2.75 [2.07, 3.66]	<.001	0%	0.562
Hypertension<=50%	2	1.94 [1.68, 2.25]	<.001	0%	0.782
Diabetes					
Diabetes>20%	5	2.75 [2.07, 3.66]	<.001	0%	0.562
Diabetes<=20%	3	2.01 [1.75, 2.31]	<.001	21%	0.282
Population					
Specific disease cohort	5	2.75 [2.07, 3.66]	<.001	0%	0.562
General population cohort	3	2.01 [1.75, 2.31]	<.001	21%	0.282
NOS scores					
NOS<=8	4	2.18 [1.69, 2.82]	<.001	17%	0.307
NOS=9	4	2.53 [1.82, 3.50]	<.001	45%	0.142
Outcome: stroke	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	1	1.23 [0.68, 2.23]	0.494	NA	NA
Predominantly female group	3	2.71 [1.50, 4.93]	0.001	76%	0.015
Hypertension					
Hypertension>50%	2	2.06 [0.72, 5.87]	0.178	80%	0.026
Hypertension<=50%	2	2.46 [1.04, 5.84]	0.041	86%	0.007
Diabetes					
Diabetes>20%	2	2.06 [0.72, 5.87]	0.178	80%	0.026
Diabetes<=20%	2	2.46 [1.04, 5.84]	0.041	86%	0.007

Population					
Specific disease cohort	2	2.06 [0.72, 5.87]	0.178	80%	0.026
General population cohort	2	2.46 [1.04, 5.84]	0.041	86%	0.007
NOS scores					
NOS<=8	2	1.47 [1.05, 2.06]	0.025	0%	0.475
NOS=9	2	3.78 [2.50, 5.70]	<.001	0%	0.868
Outcome: MI	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	2	2.14 [1.42, 3.21]	<.001	1%	0.314
Predominantly female group	3	1.95 [1.32, 2.88]	<.001	0%	0.504
Hypertension					
Hypertension>50%	3	2.35 [1.42, 3.88]	<.001	0%	0.381
Hypertension<=50%	1	2.00 [1.30, 3.09]	0.002	NA	NA
Diabetes					
Diabetes>20%	4	2.07 [1.43, 2.98]	<.001	0%	0.480
Diabetes<=20%	1	2.00 [1.30, 3.09]	0.002	NA	NA
Population					
Specific disease cohort	4	2.07 [1.43, 2.98]	<.001	0%	0.480
General population cohort	1	2.00 [1.30, 3.09]	0.002	NA	NA
NOS scores					
NOS<=8	4	2.10 [1.58, 2.80]	<.001	0%	0.756
NOS=9	1	0.87 [0.20, 3.87]	0.855	NA	NA
Outcome: MACEs	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	4	2.53 [1.64, 3.90]	<.001	77%	0.004
Predominantly male group	1	1.72 [1.11, 2.67]	0.015	NA	NA
Diabetes					
Diabetes>20%	3	2.38 [1.42, 3.97]	<.001	39%	0.194
Diabetes<=20%	2	2.27 [1.19, 4.34]	0.013	89%	0.003
Population					
Specific disease cohort	3	2.38 [1.42, 3.97]	<.001	39%	0.194
General population cohort	2	2.27 [1.19, 4.34]	0.013	89%	0.003
NOS scores					
NOS<=8	3	1.70 [1.49, 1.94]	<.001	0%	0.605
NOS=9	2	3.36 [2.35, 4.82]	<.001	0%	0.751

Table S7: Subgroup analysis of high ABI as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	6	1.24 [0.94, 1.64]	0.127	0%	0.420
Predominantly female group	6	1.29 [1.05, 1.59]	0.017	0%	0.438
Hypertension					
Hypertension<=50%	3	1.35 [1.01, 1.81]	0.046	0%	0.623
Hypertension>50%	7	1.33 [0.97, 1.82]	0.077	27%	0.226
Diabetes					
Diabetes>20%	5	1.62 [1.21, 2.16]	0.001	0%	0.743
Diabetes<=20%	7	1.13 [0.95, 1.36]	0.166	0%	0.706
Population					
Specific disease cohort	7	1.34 [1.01, 1.77]	0.039	19%	0.284
General population cohort	5	1.22 [0.98, 1.52]	0.081	0%	0.665
NOS scores					
NOS=9	10	1.23 [1.03, 1.48]	0.023	2%	0.420
NOS<=8	2	1.49 [0.97, 2.29]	0.066	0%	0.944
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	3	1.56 [1.07, 2.28]	0.020	0%	0.935
Predominantly male group	2	1.28 [0.84, 1.95]	0.257	0%	0.356
Hypertension					
Hypertension<=50%	2	1.60 [1.00, 2.57]	0.050	0%	0.745
Hypertension>50%	2	1.28 [0.84, 1.95]	0.257	0%	0.356
Diabetes					
Diabetes<=20%	4	1.39 [1.03, 1.87]	0.030	0%	0.764
Diabetes>20%	1	1.81 [0.77, 4.25]	0.173	NA	NA
Population					
General population cohort	3	1.56 [1.07, 2.28]	0.020	0%	0.935
Specific disease cohort	2	1.28 [0.84, 1.95]	0.257	0%	0.356
NOS scores					
NOS<=8	2	1.80 [0.99, 3.29]	0.054	0%	0.993
NOS=9	3	1.34 [0.97, 1.84]	0.072	0%	0.691
Outcome: stroke	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	1	0.50 [0.18, 1.39]	0.184	NA	NA
Predominantly male group	2	0.96 [0.56, 1.66]	0.886	0%	0.581
Hypertension					
Hypertension<=50%	1	0.50 [0.18, 1.39]	0.184	NA	NA
Hypertension>50%	2	0.96 [0.56, 1.66]	0.886	0%	0.581
Diabetes					
Diabetes<=20%	2	0.73 [0.42, 1.28]	0.272	0%	0.385
Diabetes>20%	1	1.19 [0.47, 3.03]	0.715	NA	NA

Population					
General population cohort	1	0.50 [0.18, 1.39]	0.184	NA	NA
Specific disease cohort	2	0.96 [0.56, 1.66]	0.886	0%	0.581
Outcome: MI	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	1	1.00 [0.62, 1.62]	1.000	NA	NA
Predominantly male group	2	1.85 [1.27, 2.68]	0.001	0%	0.919

Table S8: Subgroup analysis of AIx as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly female group	3	1.03 [0.98, 1.09]	0.300	87%	<.001
Predominantly male group	4	1.08 [0.83, 1.40]	0.585	64%	0.042
Hypertension					
Hypertension>50%	5	1.02 [0.97, 1.06]	0.439	65%	0.021
Hypertension<=50%	1	1.74 [1.16, 2.60]	0.007	NA	NA
Diabetes					
Diabetes>20%	6	1.02 [0.98, 1.07]	0.333	71%	0.004
Diabetes<=20%	1	1.74 [1.16, 2.60]	0.007	NA	NA
Population					
Specific disease cohort	7	1.03 [0.99, 1.06]	0.135	76%	<.001
General population cohort	1	0.93 [0.73, 1.18]	0.554	NA	NA
NOS scores					
NOS=9	3	1.13 [0.84, 1.54]	0.418	65%	0.058
NOS<=8	5	1.02 [0.99, 1.06]	0.203	78%	<.001
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	1	2.36 [1.22, 4.55]	0.010	NA	NA
Predominantly male group	2	1.46 [0.77, 2.77]	0.251	74%	0.051
Hypertension					
Hypertension>50%	1	1.10 [0.82, 1.49]	0.531	NA	NA
Hypertension<=50%	1	2.14 [1.18, 3.89]	0.012	NA	NA
Diabetes					
Diabetes>20%	2	1.52 [0.73, 3.18]	0.266	77%	0.038
Diabetes<=20%	1	2.14 [1.18, 3.89]	0.012	NA	NA
NOS scores					
NOS=9	2	1.52 [0.73, 3.18]	0.266	77%	0.038
NOS<=8	1	2.14 [1.18, 3.89]	0.012	NA	NA
Outcome: MACEs	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	1	0.99 [0.65, 1.50]	0.962	NA	NA
Predominantly female group	2	1.23 [0.86, 1.78]	0.257	85%	0.009
Diabetes					
Diabetes>20%	1	0.99 [0.65, 1.50]	0.962	NA	NA
Diabetes<=20%	1	1.05 [1.00, 1.11]	0.067	NA	NA
Population					
Specific disease cohort	2	1.27 [0.83, 1.93]	0.272	65%	0.090
General population cohort	1	1.05 [1.00, 1.11]	0.067	NA	NA
NOS scores					
NOS<=8	1	0.99 [0.65, 1.50]	0.962	NA	NA
NOS=9	2	1.23 [0.86, 1.78]	0.257	85%	0.009

Table S9: Subgroup analysis of FMD as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Hypertension					
Hypertension<=50%	1	1.01 [0.93, 1.10]	0.816	NA	NA
Hypertension>50%	1	1.79 [0.86, 3.73]	0.121	NA	NA
Diabetes					
Diabetes<=20%	1	1.01 [0.93, 1.10]	0.816	NA	NA
Diabetes>20%	1	1.79 [0.86, 3.73]	0.121	NA	NA
Population					
General population cohort	1	1.01 [0.93, 1.10]	0.816	NA	NA
Specific disease cohort	2	1.22 [0.84, 1.79]	0.294	35%	0.213
NOS scores					
NOS=9	1	1.01 [0.93, 1.10]	0.816	NA	NA
NOS<=8	2	1.22 [0.84, 1.79]	0.294	35%	0.213
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Hypertension					
Hypertension<=50%	1	1.05 [0.81, 1.37]	0.716	NA	NA
Hypertension>50%	2	1.61 [0.29, 8.97]	0.588	0%	0.833
Diabetes					
Diabetes<=20%	1	1.05 [0.81, 1.37]	0.716	NA	NA
Diabetes>20%	2	1.61 [0.29, 8.97]	0.588	0%	0.833
Population					
General population cohort	1	1.05 [0.81, 1.37]	0.716	NA	NA
Specific disease cohort	2	1.61 [0.29, 8.97]	0.588	0%	0.833
NOS scores					
NOS=9	2	1.06 [0.81, 1.37]	0.676	0%	0.625
NOS<=8	1	1.34 [0.12, 14.96]	0.812	NA	NA

Table S10: Subgroup analysis of CEPCs as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	3	1.63 [0.81, 3.28]	0.172	76%	0.015
Predominantly female group	2	1.06 [0.66, 1.69]	0.817	96%	<.001
Hypertension					
Hypertension>50%	4	1.55 [0.99, 2.41]	0.054	75%	0.007
Hypertension<=50%	1	0.83 [0.72, 0.96]	0.013	NA	NA
NOS scores					
NOS=9	1	2.83 [1.57, 5.11]	<.001	NA	NA
NOS<=8	4	1.16 [0.78, 1.72]	0.467	92%	<.001

Table S11: Subgroup analysis of E-selectin as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	6	1.10 [0.95, 1.28]	0.201	64%	0.015
Predominantly female group	1	0.87 [0.71, 1.06]	0.173	NA	NA
NOS scores					
NOS=9	6	1.07 [0.90, 1.28]	0.428	72%	0.004
NOS<=8	1	1.04 [0.90, 1.21]	0.603	NA	NA
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	4	1.07 [0.81, 1.40]	0.650	73%	0.011
Predominantly female group	1	0.68 [0.53, 0.88]	0.003	NA	NA

Table S12: Subgroup analysis of LTL as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	HR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	10	1.13 [1.09, 1.17]	<.001	58%	0.010
Predominantly female group	13	1.13 [1.06, 1.20]	<.001	92%	<.001
Hypertension					
Hypertension<=50%	3	1.21 [1.04, 1.42]	0.017	84%	0.002
Hypertension>50%	5	1.14 [0.97, 1.34]	0.116	83%	<.001
Diabetes					
Diabetes>20%	9	1.09 [1.04, 1.15]	<.001	63%	0.006
Diabetes<=20%	3	1.19 [1.04, 1.36]	0.012	75%	0.017
Population					
Specific disease cohort	10	1.12 [1.07, 1.18]	<.001	65%	0.002
General population cohort	16	1.13 [1.07, 1.19]	<.001	91%	<.001
NOS scores					
NOS<=8	13	1.20 [1.14, 1.27]	<.001	68%	<.001
NOS=9	13	1.07 [1.03, 1.10]	<.001	88%	<.001
Outcome: CV Mortality	**No. of Studies**	**HR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	4	1.10 [0.99, 1.22]	0.083	84%	<.001
Predominantly male group	3	1.52 [0.79, 2.94]	0.211	79%	0.009
Hypertension					
Hypertension<=50%	2	1.30 [1.09, 1.53]	0.003	0%	0.355
Hypertension>50%	2	1.92 [0.55, 6.75]	0.307	88%	0.004
Diabetes					
Diabetes>20%	3	1.52 [0.79, 2.94]	0.211	79%	0.009
Diabetes<=20%	1	2.22 [0.70, 7.04]	0.176	NA	NA
Population					
General population cohort	4	1.10 [0.99, 1.22]	0.083	84%	<.001
Specific disease cohort	4	1.13 [1.06, 1.21]	<.001	68%	0.024
NOS scores					
NOS<=8	3	1.55 [0.82, 2.95]	0.179	81%	0.005
NOS=9	5	1.08 [1.01, 1.15]	0.017	80%	<.001

3.2 Summary of subgroup analyeis based on pooled event counts

Abbreviations: RR = risk ratio; CI = confidence interval; NA = not appliable; NOS = Newcastle–Ottawa Scale.

Table S1: Subgroup analysis of cIMT as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	4	2.24 [1.60, 3.14]	<0.001	0%	0.476
Predominantly female group	1	1.55 [1.05, 2.29]	0.028	NA	NA
Diabetes					
Diabetes<=20%	1	3.04 [1.17, 7.92]	0.023	NA	NA
Diabetes>20%	4	1.88 [1.39, 2.53]	<0.001	15%	0.319
NOS scores					
NOS<=8	1	3.04 [1.17, 7.92]	0.023	NA	NA
NOS=9	4	1.88 [1.39, 2.53]	<0.001	15%	0.319
Outcome: CV Mortality	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	2	3.77 [1.49, 9.54]	0.005	0%	0.451
Predominantly female group	2	2.16 [1.33, 3.51]	0.002	0%	0.715
Diabetes					
Diabetes<=20%	1	6.08 [1.29, 28.71]	0.023	NA	NA
Diabetes>20%	3	2.26 [1.44, 3.53]	<0.001	0%	0.846
NOS scores					
NOS<=8	2	2.77 [1.01, 7.60]	0.048	41%	0.194
NOS=9	2	2.49 [1.38, 4.49]	0.002	0%	0.774
Outcome: Stroke	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	2	1.71 [1.29, 2.27]	<0.001	0%	0.942
Predominantly female group	2	2.06 [1.12, 3.79]	0.021	73%	0.057
Hypertension					
Hypertension>50%	2	1.58 [1.10, 2.28]	0.014	0%	0.639
Hypertension<=50%	1	2.66 [2.06, 3.44]	<0.001	NA	NA
Diabetes					
Diabetes<=20%	2	2.18 [1.43, 3.33]	<0.001	73%	0.053
Diabetes>20%	2	1.58 [1.10, 2.28]	0.014	0%	0.639
Population					
General population cohort	2	2.18 [1.43, 3.33]	<0.001	73%	0.053
Specific disease cohort	2	1.58 [1.10, 2.28]	0.014	0%	0.639
NOS scores					
NOS=9	2	1.71 [1.29, 2.27]	<0.001	0%	0.942
NOS<=8	2	2.06 [1.12, 3.79]	0.021	73%	0.057

Table S2: Subgroup analysis of CP as the biomarker.

Outcome: All-Cause Mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	3	4.10 [3.14, 5.34]	<0.001	45%	0.164
Predominantly female group	2	2.94 [1.30, 6.66]	0.010	88%	0.004
Hypertension					
Hypertension<=50%	3	4.44 [3.56, 5.53]	<0.001	12%	0.320
Hypertension>50%	1	1.90 [1.17, 3.07]	0.009	NA	NA
Diabetes					
Diabetes>20%	3	3.49 [1.49, 8.20]	0.004	75%	0.018
Diabetes<=20%	2	4.29 [3.43, 5.36]	<0.001	0%	0.854
Population					
Specific disease cohort	2	5.06 [1.68, 15.30]	0.004	72%	0.060
General population cohort	3	3.36 [2.04, 5.55]	<0.001	78%	0.010
NOS scores					
NOS=9	3	4.44 [3.56, 5.53]	<0.001	12%	0.320
NOS<=8	2	2.43 [1.47, 4.00]	<0.001	51%	0.154
Outcome: CV Mortality	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	2	7.59 [3.46, 16.66]	<0.001	0%	0.360
Predominantly female group	1	3.49 [1.30, 9.34]	0.013	NA	NA
Hypertension					
Hypertension<=50%	1	11.79 [3.45, 40.24]	<0.001	NA	NA
Hypertension>50%	1	3.49 [1.30, 9.34]	0.013	NA	NA
Population					
Specific disease cohort	2	7.59 [3.46, 16.66]	<0.001	0%	0.360
General population cohort	1	3.49 [1.30, 9.34]	0.013	NA	NA
NOS scores					
NOS=9	1	11.79 [3.45, 40.24]	<0.001	NA	NA
NOS<=8	2	4.38 [2.15, 8.90]	<0.001	0%	0.515
Outcome: Stroke	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	2	1.54 [0.64, 3.70]	0.335	85%	0.010
Predominantly male group	4	1.96 [1.31, 2.95]	0.001	72%	0.012
Hypertension					
Hypertension>50%	1	1.43 [0.95, 2.16]	0.084	NA	NA
Hypertension<=50%	3	2.53 [1.62, 3.94]	<0.001	54%	0.111
Diabetes					
Diabetes<=20%	4	1.97 [1.16, 3.32]	0.011	83%	<0.001
Diabetes>20%	2	1.48 [1.05, 2.09]	0.025	0%	0.768
Population					
General population cohort	4	1.97 [1.16, 3.32]	0.011	83%	<0.001
Specific disease cohort	2	1.48 [1.05, 2.09]	0.025	0%	0.768

Outcome: MACEs	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Hypertension					
Hypertension>50%	1	8.31 [1.05, 65.54]	0.044	NA	NA
Hypertension<=50%	2	2.71 [1.95, 3.78]	<0.001	28%	0.238
Diabetes					
Diabetes<=20%	2	2.75 [1.91, 3.95]	<0.001	24%	0.253
Diabetes>20%	2	2.88 [1.02, 8.12]	0.046	34%	0.219
Population					
General population cohort	1	2.10 [1.17, 3.76]	0.013	NA	NA
Specific disease cohort	3	2.79 [2.03, 3.83]	<0.001	19%	0.290
NOS scores					
NOS<=8	1	2.10 [1.17, 3.76]	0.013	NA	NA
NOS=9	3	2.79 [2.03, 3.83]	<0.001	19%	0.290

Table S3: Subgroup analysis of CACS as the biomarker.

Outcome: All-cause mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	6	3.04 [2.52, 3.66]	<0.001	68%	0.008
Predominantly female group	3	2.73 [2.01, 3.72]	<0.001	0%	0.802
Hypertension					
Hypertension<=50%	5	2.97 [2.35, 3.77]	<0.001	75%	0.003
Hypertension>50%	4	2.92 [2.37, 3.61]	<0.001	0%	0.917
Diabetes					
Diabetes<=20%	7	3.03 [2.57, 3.57]	<0.001	64%	0.011
Diabetes>20%	2	2.69 [1.70, 4.27]	<0.001	0%	0.560
Population					
General population cohort	6	3.01 [2.50, 3.62]	<0.001	70%	0.006
Specific disease cohort	3	2.84 [2.01, 4.03]	<0.001	0%	0.791
NOS scores					
NOS<=8	5	2.66 [2.09, 3.38]	<0.001	54%	0.071
NOS=9	4	3.50 [3.21, 3.83]	<0.001	0%	0.552
Outcome: CV mortality	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	3	5.42 [4.44, 6.61]	<0.001	37%	0.205
Predominantly female group	1	2.06 [0.08, 50.25]	0.659	NA	NA
Hypertension					
Hypertension<=50%	3	5.42 [4.44, 6.61]	<0.001	37%	0.205
Hypertension>50%	1	2.06 [0.08, 50.25]	0.659	NA	NA
Population					
Specific disease cohort	2	1.99 [0.66, 5.99]	0.223	0%	0.982
General population cohort	2	5.58 [4.56, 6.83]	<0.001	0%	0.611
NOS scores					
NOS<=8	2	1.99 [0.66, 5.99]	0.223	0%	0.982
NOS=9	2	5.58 [4.56, 6.83]	<0.001	0%	0.611
Outcome: Stroke	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	2	2.21 [1.68, 2.89]	<0.001	0%	0.868
Predominantly male group	2	2.20 [1.50, 3.22]	<0.001	7%	0.301
Hypertension					
Hypertension<=50%	2	2.28 [1.99, 2.62]	<0.001	0%	0.886
Hypertension>50%	1	0.82 [0.12, 5.66]	0.842	NA	NA
Population					
Specific disease cohort	2	1.15 [0.22, 6.00]	0.867	0%	0.509
General population cohort	2	2.27 [2.00, 2.56]	<0.001	0%	0.815
NOS scores					
NOS<=8	2	1.15 [0.22, 6.00]	0.867	0%	0.509
NOS=9	2	2.27 [2.00, 2.56]	<0.001	0%	0.815

Outcome: MI	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	3	3.98 [2.16, 7.30]	<0.001	65%	0.058
Predominantly female group	4	2.71 [1.40, 5.24]	0.003	6%	0.362
Hypertension					
Hypertension<=50%	3	4.59 [2.73, 7.74]	<0.001	27%	0.252
Hypertension>50%	4	2.19 [1.14, 4.20]	0.019	31%	0.226
Diabetes					
Diabetes<=20%	6	3.93 [2.86, 5.42]	<0.001	39%	0.149
Diabetes>20%	1	2.01 [0.79, 5.14]	0.143	NA	NA
Population					
Specific disease cohort	6	3.40 [1.61, 7.19]	0.001	49%	0.080
General population cohort	1	3.73 [3.10, 4.49]	<0.001	NA	NA
NOS scores					
NOS<=8	6	3.40 [1.61, 7.19]	0.001	49%	0.080
NOS=9	1	3.73 [3.10, 4.49]	<0.001	NA	NA
Outcome: MACEs	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	6	2.95 [2.27, 3.83]	<0.001	66%	0.013
Predominantly female group	2	3.26 [1.55, 6.84]	0.002	85%	0.010
Hypertension					
Hypertension>50%	2	5.65 [3.52, 9.08]	<0.001	0%	0.468
Hypertension<=50%	3	2.83 [2.05, 3.89]	<0.001	73%	0.023
Diabetes					
Diabetes>20%	4	3.51 [2.04, 6.06]	<0.001	79%	0.002
Diabetes<=20%	4	2.62 [2.33, 2.94]	<0.001	62%	0.048
Population					
Specific disease cohort	6	3.35 [2.27, 4.94]	<0.001	76%	<0.001
General population cohort	2	2.69 [2.44, 2.96]	<0.001	0%	0.820
NOS scores					
NOS=9	5	3.22 [2.44, 4.23]	<0.001	59%	0.046
NOS<=8	3	2.69 [1.71, 4.24]	<0.001	73%	0.025

Table S4: Subgroup analysis of baPWV as the biomarker.

Outcome: All-cause mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	3	2.80 [1.67, 4.68]	<0.001	59%	0.086
Predominantly female group	2	3.58 [0.79, 16.27]	0.098	96%	<0.001
Hypertension					
Hypertension>50%	3	1.84 [1.33, 2.54]	<0.001	0%	0.652
Hypertension<=50%	1	7.71 [5.38, 11.05]	<0.001	NA	NA
Diabetes					
Diabetes>20%	2	2.09 [1.29, 3.39]	0.003	0%	0.565
Diabetes<=20%	2	3.58 [0.79, 16.27]	0.098	96%	<0.001
Population					
Specific disease cohort	3	1.84 [1.33, 2.54]	<0.001	0%	0.652
General population cohort	2	5.68 [3.08, 10.46]	<0.001	81%	0.022
Outcome: CV mortality	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	3	4.89 [2.27, 10.54]	<0.001	0%	0.782
Predominantly female group	1	81.57 [11.42, 582.49]	<0.001	NA	NA
Hypertension					
Hypertension>50%	2	7.62 [1.76, 32.94]	0.007	0%	0.949
Hypertension<=50%	2	16.07 [0.87, 295.45]	0.062	86%	0.007
Diabetes					
Diabetes>20%	3	4.89 [2.27, 10.54]	<0.001	0%	0.782
Diabetes<=20%	1	81.57 [11.42, 582.49]	<0.001	NA	NA
Population					
Specific disease cohort	3	4.89 [2.27, 10.54]	<0.001	0%	0.782
General population cohort	1	81.57 [11.42, 582.49]	<0.001	NA	NA
NOS scores					
NOS=9	2	25.74 [2.63, 251.48]	0.005	62%	0.105
NOS<=8	2	4.50 [1.96, 10.33]	<0.001	0%	0.636
Outcome: Stroke	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	5	5.29 [2.36, 11.83]	<0.001	59%	0.043
Predominantly female group	3	2.94 [1.62, 5.35]	<0.001	71%	0.031
Hypertension					
Hypertension>50%	5	2.39 [1.85, 3.08]	<0.001	5%	0.377
Hypertension<=50%	2	8.05 [5.44, 11.92]	<0.001	0%	0.871
Diabetes					
Diabetes>20%	4	3.78 [1.44, 9.94]	0.007	0%	0.407
Diabetes<=20%	2	3.96 [0.97, 16.10]	0.054	96%	<0.001
Population					
Specific disease cohort	6	2.40 [1.86, 3.09]	<0.001	0%	0.472
General population cohort	2	7.61 [5.37, 10.79]	<0.001	0%	0.521

NOS scores					
NOS<=8	3	8.19 [2.07, 32.43]	0.003	0%	0.908
NOS=9	5	3.53 [1.99, 6.28]	<0.001	87%	<0.001
Outcome: MI	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Hypertension					
Hypertension>50%	2	1.29 [0.31, 5.38]	0.726	67%	0.083
Hypertension<=50%	2	2.35 [0.59, 9.35]	0.227	83%	0.016
Diabetes					
Diabetes>20%	3	1.34 [0.60, 2.97]	0.478	46%	0.159
Diabetes<=20%	1	4.47 [2.53, 7.91]	<0.001	NA	NA
Population					
Specific disease cohort	3	1.34 [0.60, 2.97]	0.478	46%	0.159
General population cohort	1	4.47 [2.53, 7.91]	<0.001	NA	NA
NOS scores					
NOS=9	2	3.32 [1.75, 6.32]	<0.001	51%	0.152
NOS<=8	2	0.87 [0.37, 2.02]	0.746	0%	0.433

Table S5: Subgroup analysis of cfPWV as the biomarker.

Outcome: CV mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	1	14.48 [2.01, 104.02]	0.008	NA	NA
Predominantly female group	2	2.43 [1.25, 4.72]	0.009	56%	0.132
Hypertension					
Hypertension<=50%	1	14.48 [2.01, 104.02]	0.008	NA	NA
Hypertension>50%	1	1.87 [1.23, 2.85]	0.004	NA	NA
Diabetes					
Diabetes<=20%	1	14.48 [2.01, 104.02]	0.008	NA	NA
Diabetes>20%	1	1.87 [1.23, 2.85]	0.004	NA	NA
Population					
Specific disease cohort	2	4.11 [0.58, 28.92]	0.156	75%	0.047
General population cohort	1	3.77 [1.68, 8.46]	0.001	NA	NA
NOS scores					
NOS<=8	2	4.11 [0.58, 28.92]	0.156	75%	0.047
NOS=9	1	3.77 [1.68, 8.46]	0.001	NA	NA

Table S6: Subgroup analysis of low ABI as the biomarker.

Outcome: All-cause mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly female group	11	2.41 [2.02, 2.87]	<0.001	76%	<0.001
Predominantly male group	8	2.70 [2.15, 3.39]	<0.001	75%	<0.001
Hypertension					
Hypertension>50%	10	2.43 [1.93, 3.06]	<0.001	76%	<0.001
Hypertension<=50%	4	2.83 [1.77, 4.53]	<0.001	86%	<0.001
Diabetes					
Diabetes<=20%	6	2.32 [2.01, 2.68]	<0.001	80%	<0.001
Diabetes>20%	12	2.69 [2.15, 3.35]	<0.001	77%	<0.001
Population					
General population cohort	5	2.31 [1.91, 2.79]	<0.001	83%	<0.001
Specific disease cohort	14	2.64 [2.18, 3.20]	<0.001	74%	<0.001
NOS scores					
NOS=9	10	2.50 [2.23, 2.79]	<0.001	64%	0.003
NOS<=8	9	2.56 [1.82, 3.61]	<0.001	85%	<0.001
Outcome: CV mortality	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	2	2.54 [1.83, 3.54]	<0.001	42%	0.190
Predominantly female group	6	2.87 [2.01, 4.09]	<0.001	85%	<0.001
Hypertension					
Hypertension>50%	4	2.36 [1.91, 2.92]	<0.001	16%	0.311
Hypertension<=50%	2	2.33 [1.74, 3.12]	<0.001	79%	0.029
Diabetes					
Diabetes>20%	5	2.51 [2.08, 3.03]	<0.001	19%	0.296
Diabetes<=20%	3	3.10 [1.71, 5.64]	<0.001	93%	<0.001
Population					
Specific disease cohort	5	2.51 [2.08, 3.03]	<0.001	19%	0.296
General population cohort	3	3.10 [1.71, 5.64]	<0.001	93%	<0.001
NOS scores					
NOS<=8	3	2.40 [1.94, 2.97]	<0.001	28%	0.248
NOS=9	5	3.20 [2.16, 4.75]	<0.001	87%	<0.001
Outcome: Stroke	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	5	3.66 [2.31, 5.81]	<0.001	56%	0.061
Predominantly male group	3	1.31 [0.91, 1.87]	0.142	0%	0.398
Hypertension					
Hypertension<=50%	3	3.58 [1.91, 6.70]	<0.001	77%	0.013
Hypertension>50%	5	1.94 [1.05, 3.56]	0.034	54%	0.067
Diabetes					
Diabetes<=20%	3	3.58 [1.91, 6.70]	<0.001	77%	0.013
Diabetes>20%	5	1.94 [1.05, 3.56]	0.034	54%	0.067

Population					
General population cohort	3	3.58 [1.91, 6.70]	<0.001	77%	0.013
Specific disease cohort	5	1.94 [1.05, 3.56]	0.034	54%	0.067
NOS scores					
NOS=9	4	2.95 [1.45, 5.98]	0.003	86%	<0.001
NOS<=8	4	2.07 [1.07, 4.01]	0.031	53%	0.092
Outcome: MI	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	4	2.41 [1.97, 2.96]	<0.001	0%	0.476
Predominantly male group	1	1.26 [0.92, 1.73]	0.146	NA	NA
Hypertension					
Hypertension>50%	4	1.72 [1.09, 2.72]	0.020	72%	0.013
Hypertension<=50%	1	2.76 [1.87, 4.09]	<0.001	NA	NA
Diabetes					
Diabetes>20%	4	1.72 [1.09, 2.72]	0.020	72%	0.013
Diabetes<=20%	1	2.76 [1.87, 4.09]	<0.001	NA	NA
Population					
Specific disease cohort	4	1.72 [1.09, 2.72]	0.020	72%	0.013
General population cohort	1	2.76 [1.87, 4.09]	<0.001	NA	NA
NOS scores					
NOS=9	3	1.60 [0.93, 2.78]	0.092	81%	0.005
NOS<=8	2	2.74 [1.89, 3.97]	<0.001	0%	0.887
Outcome: MACEs	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	3	2.20 [1.84, 2.62]	<0.001	0%	0.484
Predominantly male group	2	1.55 [1.28, 1.87]	<0.001	0%	0.686
NOS scores					
NOS=9	3	1.98 [1.46, 2.70]	<0.001	77%	0.012
NOS<=8	2	1.77 [1.24, 2.54]	0.002	0%	0.357

Table S7: Subgroup analysis of high ABI as the biomarker.

Outcome: All-cause mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	3	1.40 [0.94, 2.07]	0.096	36%	0.212
Predominantly female group	7	1.62 [1.09, 2.40]	0.016	83%	<0.001
Hypertension					
Hypertension<=50%	3	1.97 [0.99, 3.92]	0.055	87%	<0.001
Hypertension>50%	4	1.24 [0.97, 1.58]	0.086	0%	0.827
Diabetes					
Diabetes>20%	3	1.57 [1.18, 2.07]	0.002	0%	0.684
Diabetes<=20%	6	1.52 [0.99, 2.33]	0.054	87%	<0.001
Population					
Specific disease cohort	5	1.40 [1.08, 1.80]	0.010	0%	0.463
General population cohort	5	1.64 [0.99, 2.71]	0.054	89%	<0.001
NOS scores					
NOS=9	8	1.27 [1.07, 1.50]	0.007	0%	0.537
NOS<=8	2	3.63 [2.58, 5.10]	<0.001	0%	0.528
Outcome: CV mortality	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	3	2.27 [0.89, 5.77]	0.087	85%	0.002
Predominantly male group	2	1.80 [0.96, 3.36]	0.065	64%	0.097
Hypertension					
Hypertension<=50%	2	2.95 [0.73, 11.97]	0.129	90%	0.002
Hypertension>50%	2	1.80 [0.96, 3.36]	0.065	64%	0.097
Diabetes					
Diabetes<=20%	4	1.96 [0.99, 3.91]	0.055	80%	0.002
Diabetes>20%	1	2.55 [1.40, 4.65]	0.002	NA	NA
Population					
General population cohort	3	2.27 [0.89, 5.77]	0.087	85%	0.002
Specific disease cohort	2	1.80 [0.96, 3.36]	0.065	64%	0.097
NOS scores					
NOS<=8	2	3.89 [1.65, 9.16]	0.002	72%	0.061
NOS=9	3	1.39 [1.03, 1.88]	0.032	0%	0.971
Outcome: Stroke	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	2	0.63 [0.29, 1.33]	0.223	0%	0.649
Predominantly male group	2	1.15 [0.68, 1.96]	0.596	7%	0.301
Hypertension					
Hypertension<=50%	2	0.63 [0.29, 1.33]	0.223	0%	0.649
Hypertension>50%	2	1.15 [0.68, 1.96]	0.596	7%	0.301
Diabetes					
Diabetes<=20%	3	0.78 [0.48, 1.28]	0.328	0%	0.673
Diabetes>20%	1	1.60 [0.71, 3.61]	0.254	NA	NA

Population					
General population cohort	2	0.63 [0.29, 1.33]	0.223	0%	0.649
Specific disease cohort	2	1.15 [0.68, 1.96]	0.596	7%	0.301
NOS scores					
NOS<=8	1	0.82 [0.20, 3.31]	0.781	NA	NA
NOS=9	3	0.96 [0.57, 1.62]	0.878	32%	0.229
Outcome: MI	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	1	2.11 [1.20, 3.73]	0.010	NA	NA
Predominantly male group	2	2.08 [1.54, 2.80]	<0.001	0%	0.991
Diabetes					
Diabetes>20%	2	2.10 [1.46, 3.01]	<0.001	0%	0.971
Diabetes<=20%	1	2.08 [1.41, 3.06]	<0.001	NA	NA
Outcome: MACEs	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly female group	1	1.49 [1.08, 2.05]	0.014	NA	NA
Predominantly male group	2	1.70 [1.20, 2.40]	0.003	60%	0.112
Diabetes					
Diabetes>20%	2	1.74 [1.27, 2.38]	<0.001	46%	0.172
Diabetes<=20%	1	1.44 [1.08, 1.91]	0.013	NA	NA

Table S8: Subgroup analysis of FMD as the biomarker.

Outcome: CV mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Hypertension					
Hypertension>50%	2	1.34 [0.29, 6.33]	0.709	0%	0.741
Hypertension<=50%	1	1.00 [0.19, 5.36]	1.000	NA	NA
NOS scores					
NOS<=8	2	1.00 [0.26, 3.91]	1.000	0%	1.000
NOS=9	1	1.69 [0.21, 13.40]	0.618	NA	NA
Outcome: Stroke	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Sex					
Predominantly male group	3	1.86 [0.92, 3.74]	0.084	0%	0.767
Predominantly female group	1	1.44 [0.25, 8.35]	0.685	NA	NA
Hypertension					
Hypertension<=50%	2	1.86 [0.90, 3.83]	0.092	0%	0.467
Hypertension>50%	1	1.81 [0.10, 33.26]	0.690	NA	NA
Diabetes					
Diabetes>20%	2	1.70 [0.81, 3.56]	0.160	0%	0.965
Diabetes<=20%	1	1.44 [0.25, 8.35]	0.685	NA	NA
Population					
Specific disease cohort	3	1.66 [0.84, 3.28]	0.146	0%	0.984
General population cohort	1	4.00 [0.45, 35.58]	0.214	NA	NA
NOS scores					
NOS<=8	3	1.86 [0.92, 3.74]	0.084	0%	0.767
NOS=9	1	1.44 [0.25, 8.35]	0.685	NA	NA
Outcome: MI	**No. of Studies**	**RR (95% CI)**	**P Value**	**Within subgroups heterogeneity**	
				I^2	**P Value of Q Statistic**
Hypertension					
Hypertension<=50%	2	1.81 [0.47, 6.93]	0.385	28%	0.239
Hypertension>50%	1	4.22 [0.25, 71.29]	0.318	NA	NA
Population					
Specific disease cohort	2	1.40 [0.46, 4.23]	0.554	0%	0.404
General population cohort	1	5.00 [0.59, 42.55]	0.141	NA	NA

Table S9: Subgroup analysis of CEPCs as the biomarker.

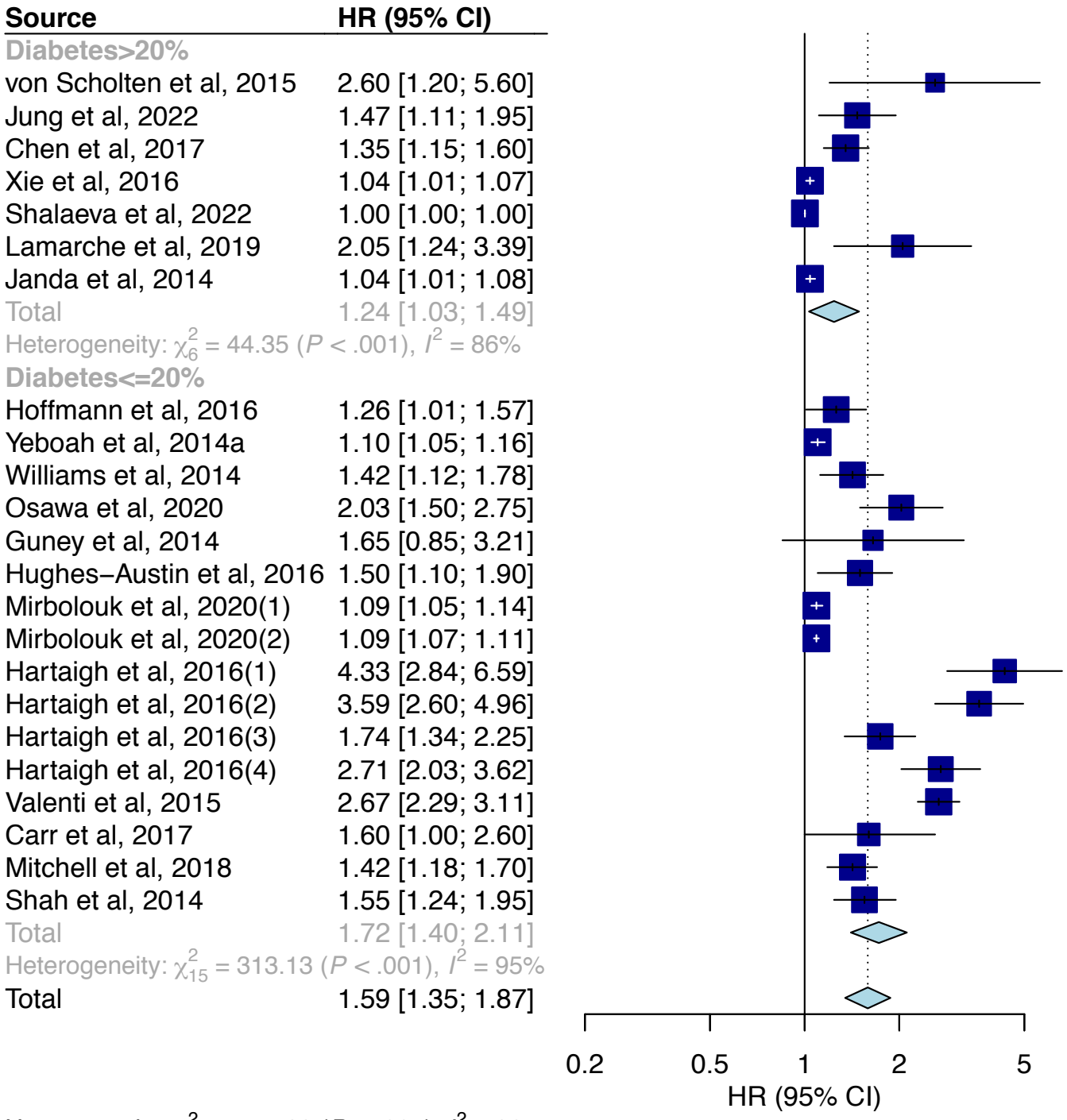
Outcome: All-cause mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly male group	2	0.44 [0.14, 1.36]	0.154	38%	0.205
Predominantly female group	2	1.25 [0.92, 1.68]	0.149	0%	0.781
Hypertension					
Hypertension<=50%	1	0.29 [0.11, 0.73]	0.008	NA	NA
Hypertension>50%	3	1.24 [0.92, 1.66]	0.156	0%	0.929
Diabetes					
Diabetes<=20%	2	0.44 [0.14, 1.36]	0.154	38%	0.205
Diabetes>20%	2	1.25 [0.92, 1.68]	0.149	0%	0.781
NOS scores					
NOS=9	1	0.29 [0.11, 0.73]	0.008	NA	NA
NOS<=8	3	1.24 [0.92, 1.66]	0.156	0%	0.929

Table S10: Subgroup analysis of LTL as the biomarker.

Outcome: All-cause mortality	No. of Studies	RR (95% CI)	P Value	Within subgroups heterogeneity	
				I^2	P Value of Q Statistic
Sex					
Predominantly female group	5	1.70 [1.34, 2.17]	<0.001	97%	<0.001
Predominantly male group	6	1.04 [1.01, 1.07]	0.006	0%	0.579
Hypertension					
Hypertension<=50%	2	1.81 [0.99, 3.32]	0.056	99%	<0.001
Hypertension>50%	2	1.24 [0.98, 1.58]	0.078	0%	0.556
Diabetes					
Diabetes<=20%	4	1.58 [1.14, 2.18]	0.006	97%	<0.001
Diabetes>20%	2	1.04 [1.00, 1.09]	0.067	0%	0.455
Population					
General population cohort	5	1.70 [1.34, 2.17]	<0.001	97%	<0.001
Specific disease cohort	6	1.04 [1.01, 1.07]	0.006	0%	0.579
NOS scores					
NOS=9	6	1.56 [1.20, 2.02]	<0.001	99%	<0.001
NOS<=8	5	1.09 [0.99, 1.20]	0.081	0%	0.525

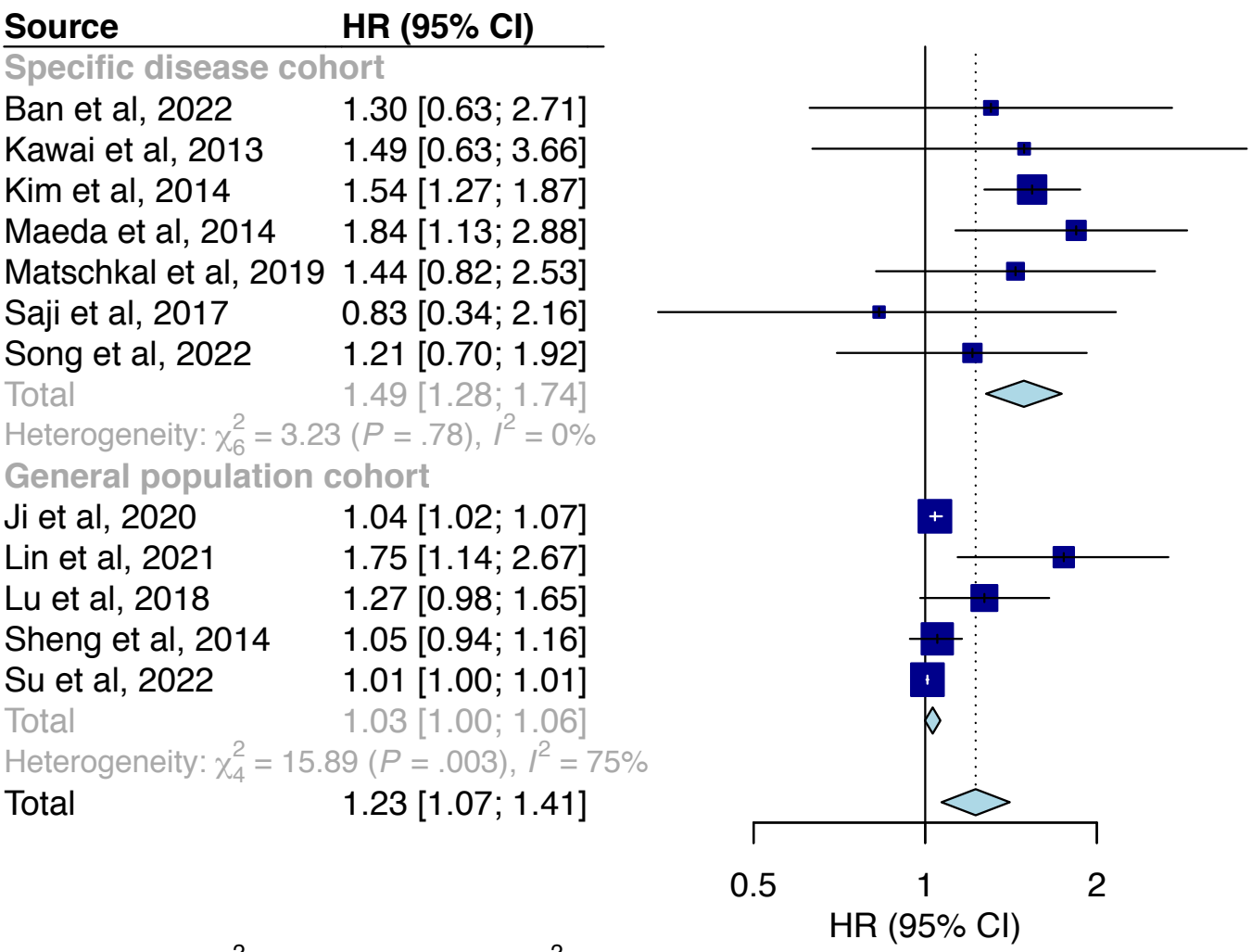
3.3 Subgroup forest plots for substantial heterogeneity based on pooled risk estimates

Figure S1: Subgroup analysis of the association between CACS and all-cause mortality by diabetes.



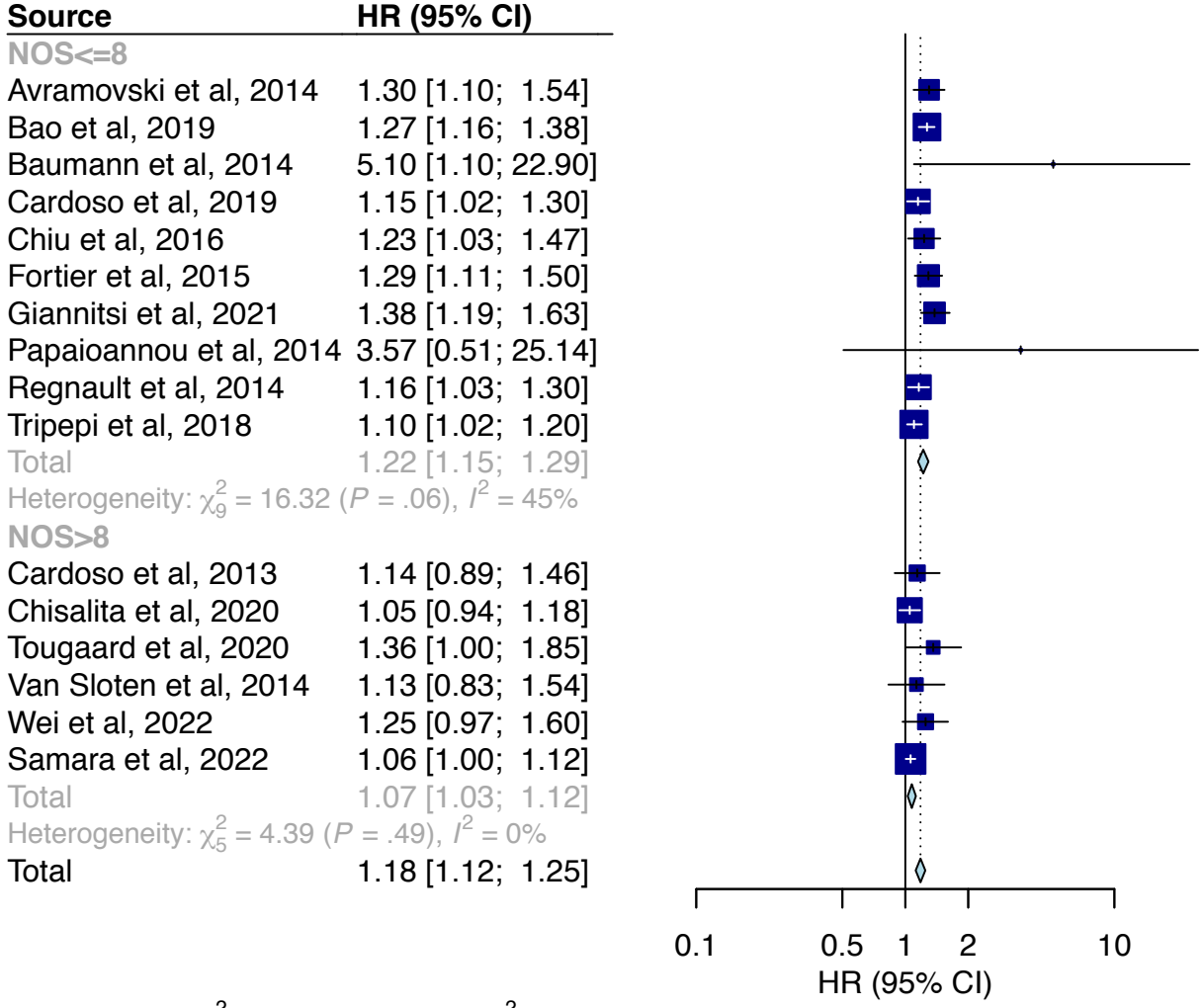
Heterogeneity: χ^2_{22} = 555.23 (P < .001), I^2 = 96%
Test for subgroup differences: χ^2_1 = 5.47 (P = .02)

Figure S2: Subgroup analysis of the association between baPWV and all-cause mortality by type of study population.



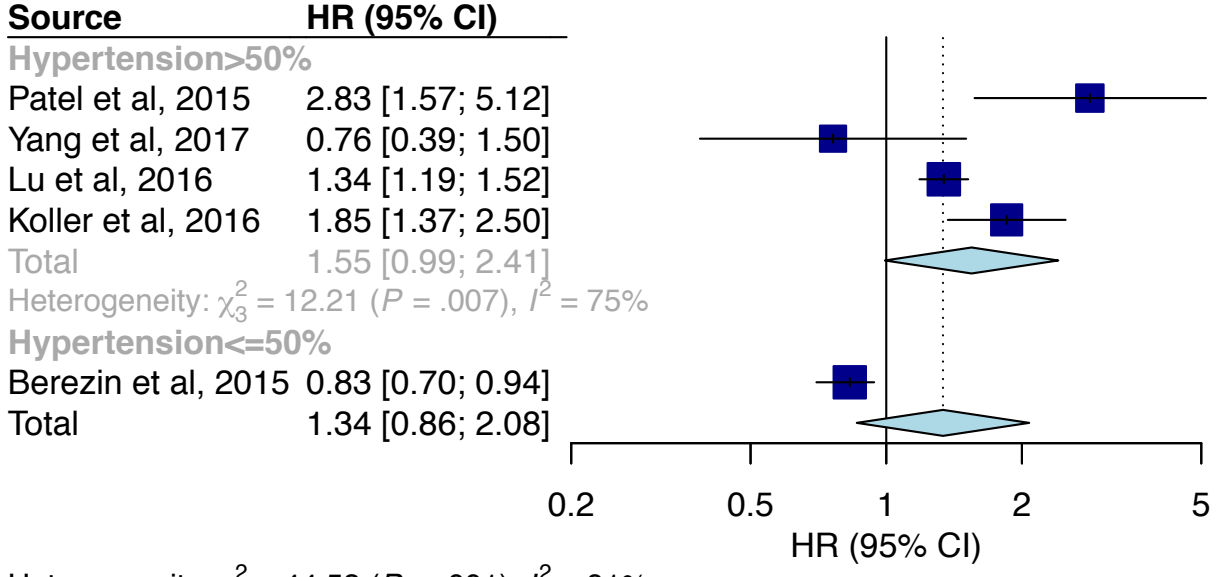
Heterogeneity: $\chi^2_{11} = 43.87$ ($P < .001$), $I^2 = 75\%$
Test for subgroup differences: $\chi^2_1 = 21.36$ ($P < .001$)

Figure S3: Subgroup analysis of the association between cfPWV and all-cause mortality by NOS score.



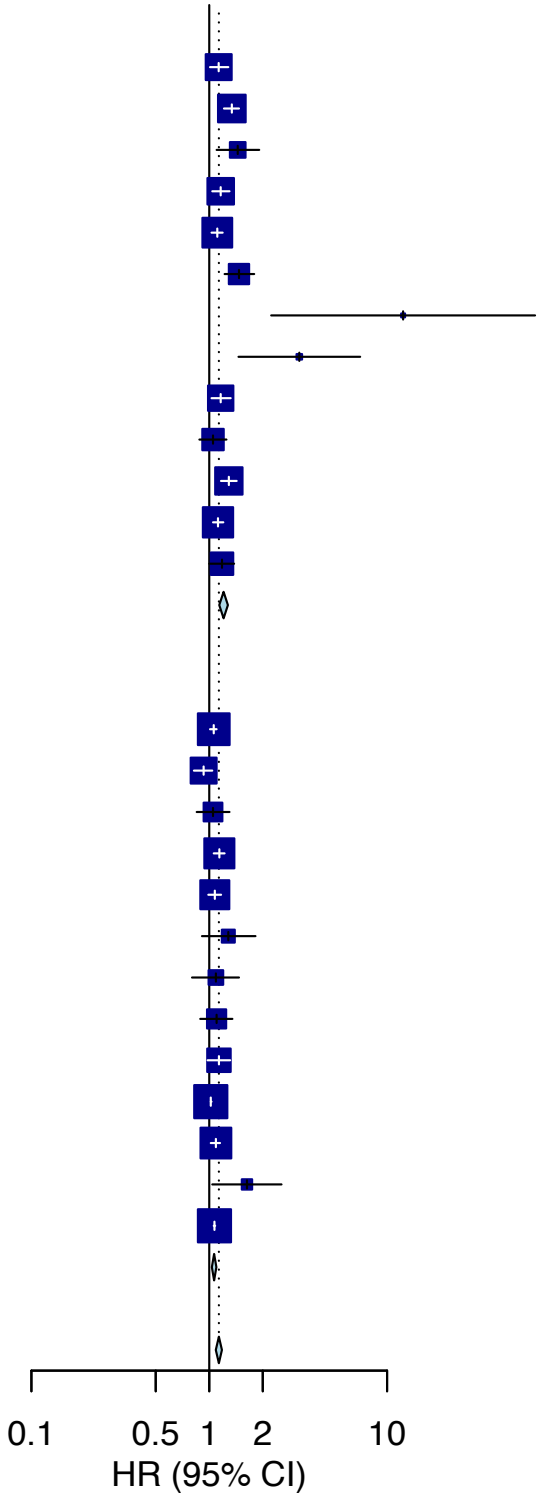
Heterogeneity: χ^2_{15} = 34.07 (P = .003), I^2 = 56%
Test for subgroup differences: χ^2_1 = 11.37 (P < .001)

Figure S4: Subgroup analysis of the association between CEPCs and all-cause mortality by hypertension.



Heterogeneity: χ^2_4 = 44.53 (P < .001), I^2 = 91%
Test for subgroup differences: χ^2_1 = 6.83 (P = .009)

Figure S5: Subgroup analysis of the association between LTL and all-cause mortality by NOS score.



Source	HR (95% CI)
NOS<=8	
Antwi et al, 2021	1.13 [1.01; 1.28]
Arbeev et al, 2020	1.34 [1.21; 1.47]
Córdoba−Lanús et al, 2021	1.45 [1.10; 1.91]
Dean et al, 2017	1.16 [1.04; 1.30]
Deelen et al, 2014(1)	1.11 [1.03; 1.19]
Deelen et al, 2014(2)	1.47 [1.22; 1.79]
Jin et al, 2018	12.31 [2.23; 67.97]
Margaritis et al, 2017	3.21 [1.46; 7.06]
Marioni et al, 2016(1)	1.16 [1.03; 1.32]
Marioni et al, 2016(2)	1.05 [0.88; 1.25]
Pavanello et al, 2021	1.29 [1.16; 1.43]
Romaine et al, 2022	1.12 [1.05; 1.20]
Zhan et al, 2018	1.18 [1.00; 1.38]
Total	1.20 [1.14; 1.27]
Heterogeneity: $\chi^2_{12} = 37.49$ ($P < .001$), $I^2 = 68\%$	
NOS>8	
Cheng et al, 2021	1.06 [1.01; 1.10]
El Assar et al, 2021(1)	0.93 [0.82; 1.04]
El Assar et al, 2021(2)	1.05 [0.85; 1.30]
Fazzini et al, 2020	1.14 [1.06; 1.22]
Glei et al, 2015	1.07 [0.99; 1.17]
Huang et al, 2019	1.28 [0.91; 1.82]
Kachuri et al, 2019	1.09 [0.80; 1.47]
Mwasongwe et al, 2017	1.10 [0.89; 1.35]
Pusceddu et al, 2018	1.13 [0.98; 1.31]
Rode et al, 2015	1.02 [1.02; 1.03]
Samavat et al, 2021	1.09 [1.02; 1.15]
Sanchez et al, 2022	1.63 [1.04; 2.55]
Schneider et al, 2022	1.07 [1.06; 1.08]
Total	1.07 [1.03; 1.10]
Heterogeneity: $\chi^2_{12} = 103.43$ ($P < .001$), $I^2 = 88\%$	
Total	1.13 [1.09; 1.18]

Heterogeneity: $\chi^2_{25} = 205.75$ ($P < .001$), $I^2 = 88\%$
Test for subgroup differences: $\chi^2_1 = 14.50$ ($P < .001$)

Figure S6: Subgroup analysis of the association between CACS and CV mortality by sex.

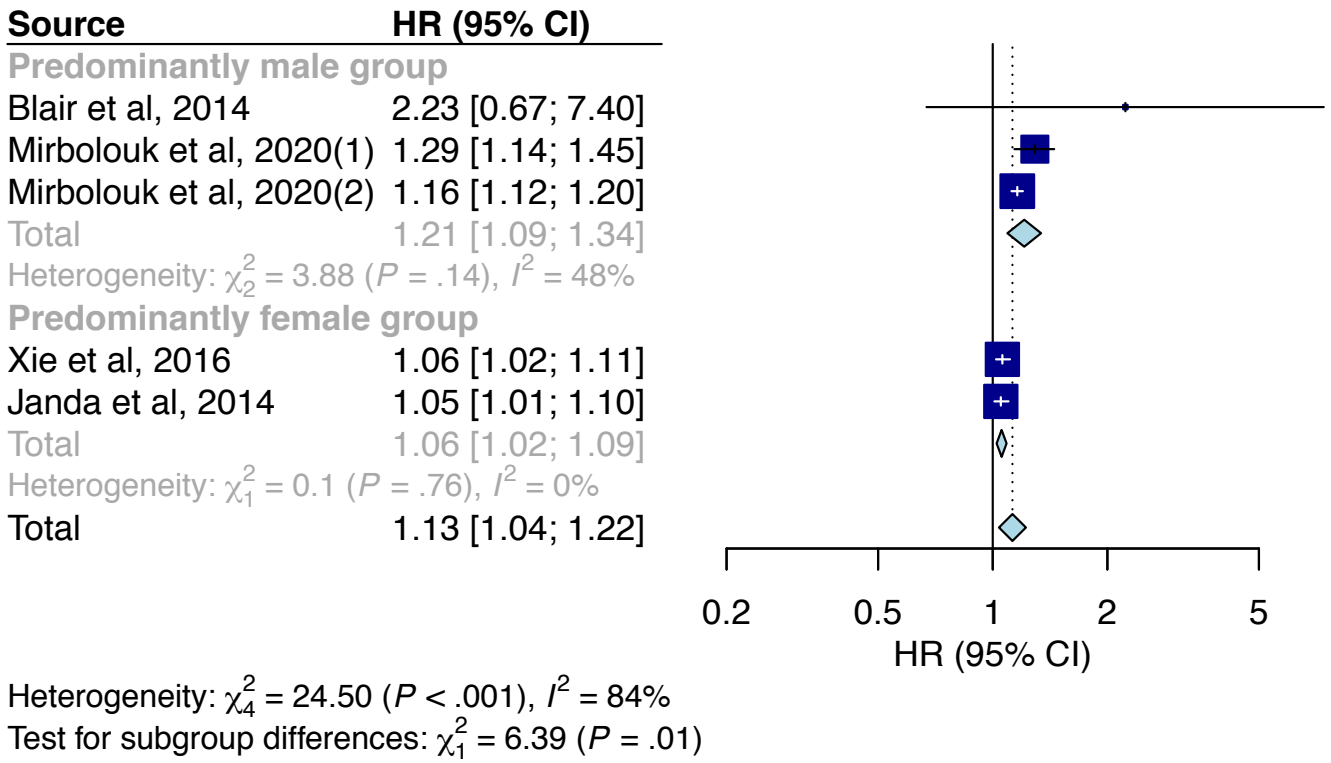


Figure S7: Subgroup analysis of the association between baPWV and CV mortality by hypertension.

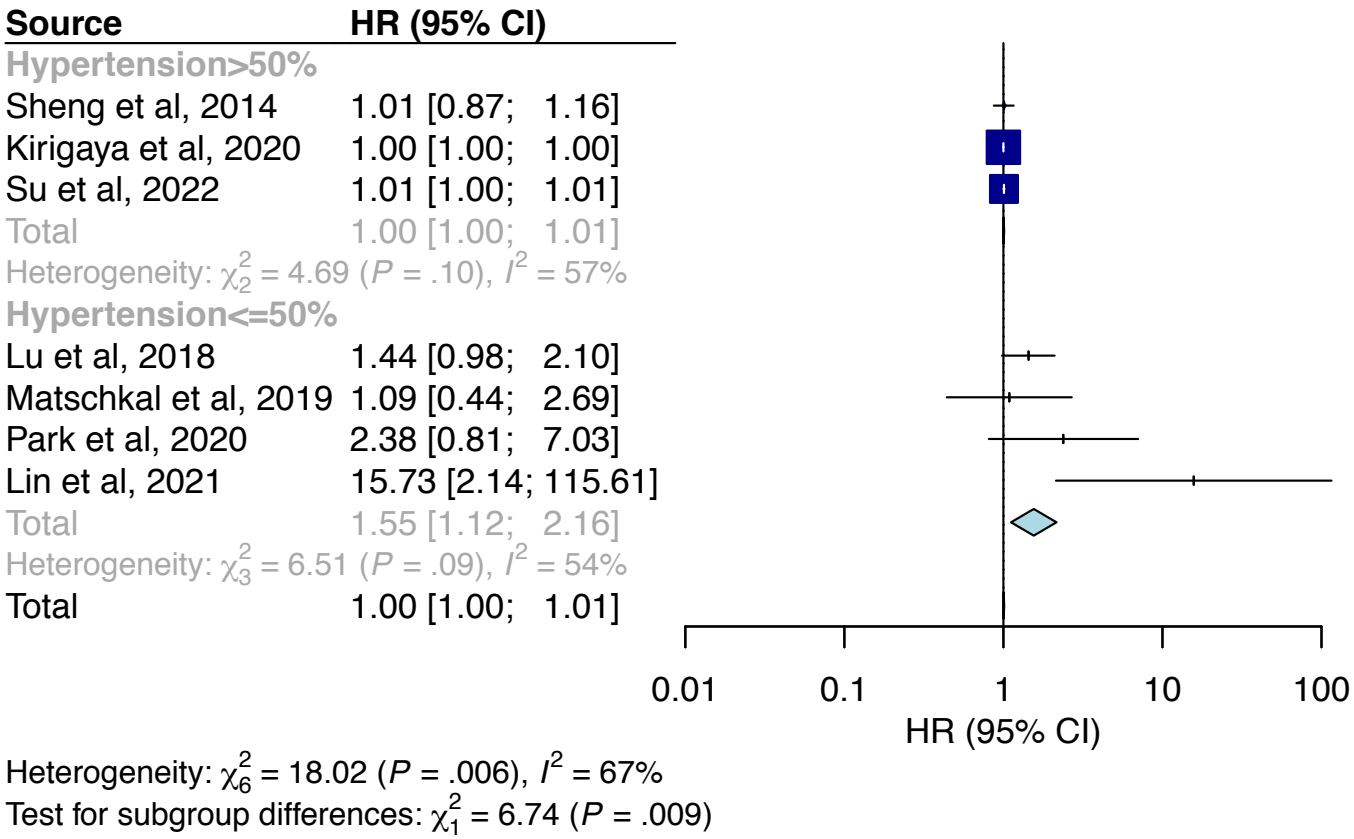
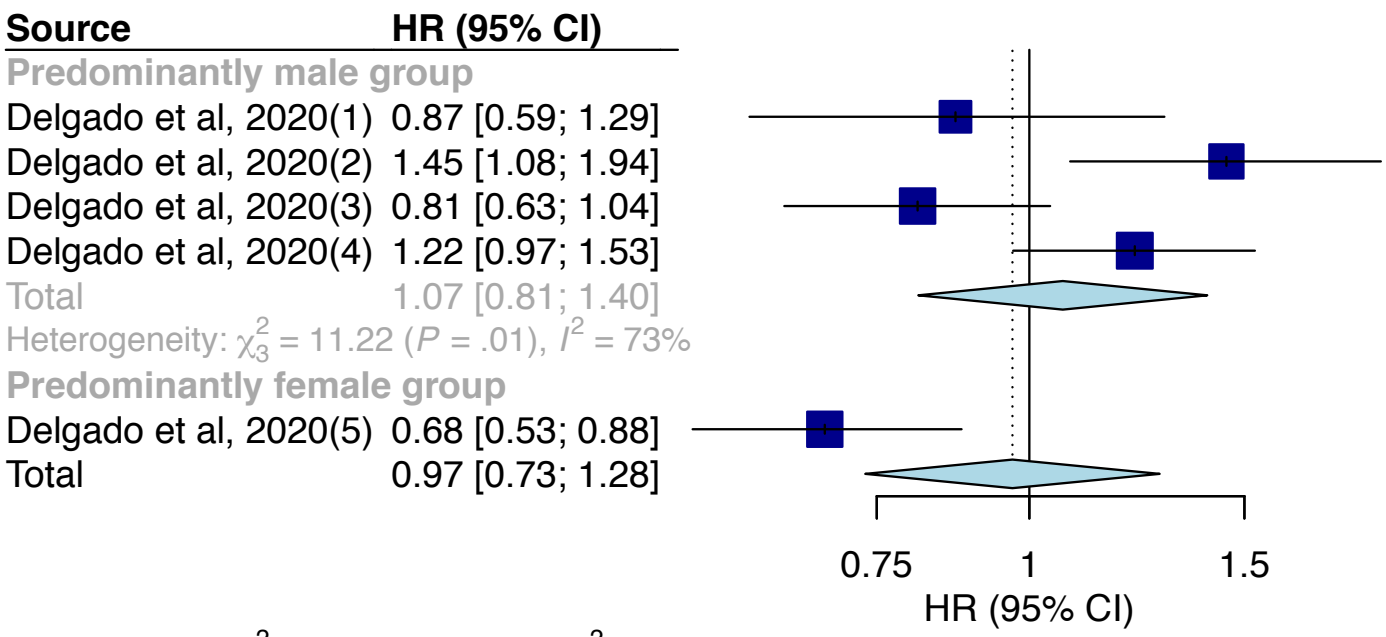
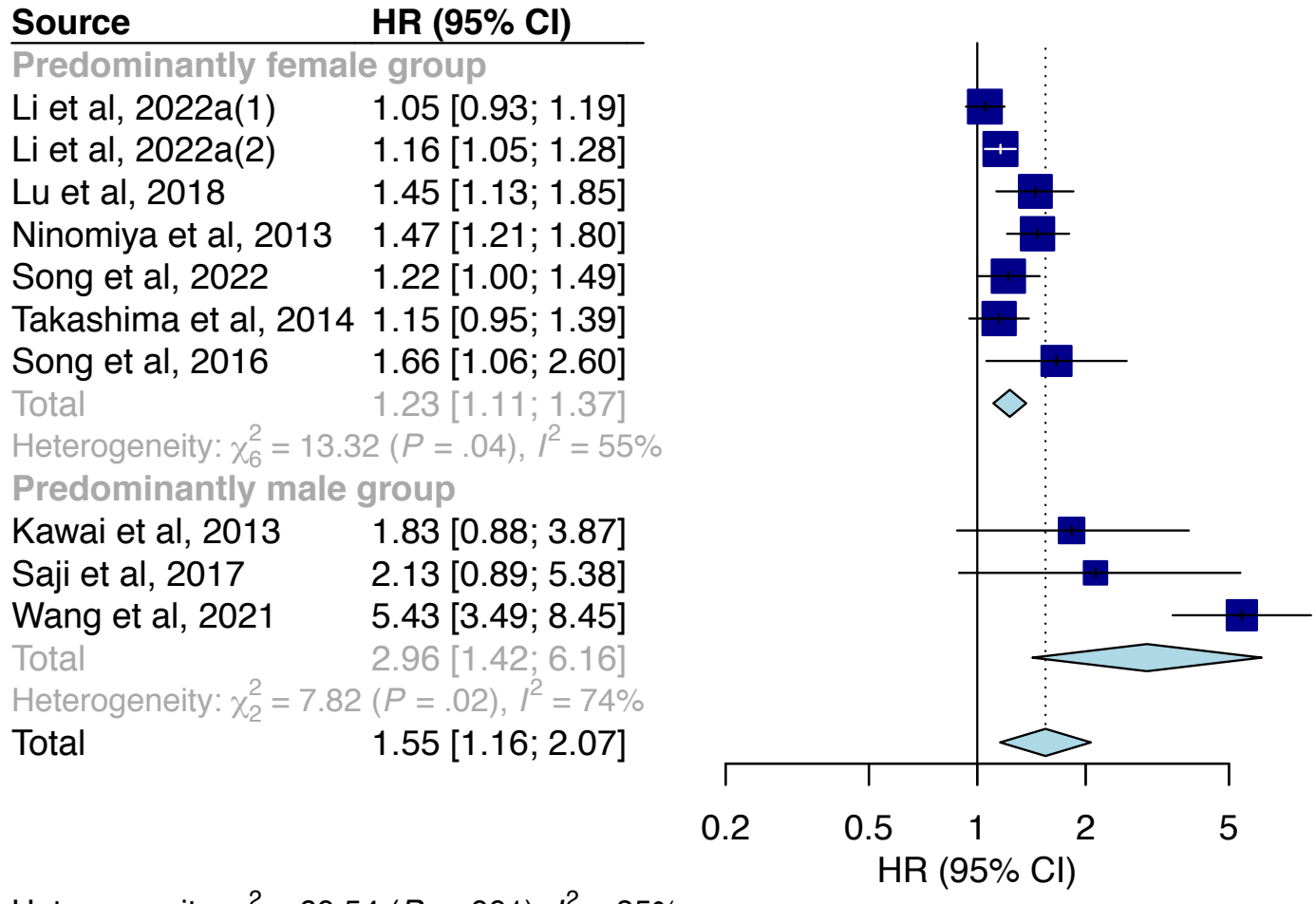


Figure S7: Subgroup analysis of the association between E-selectin and CV mortality by sex.



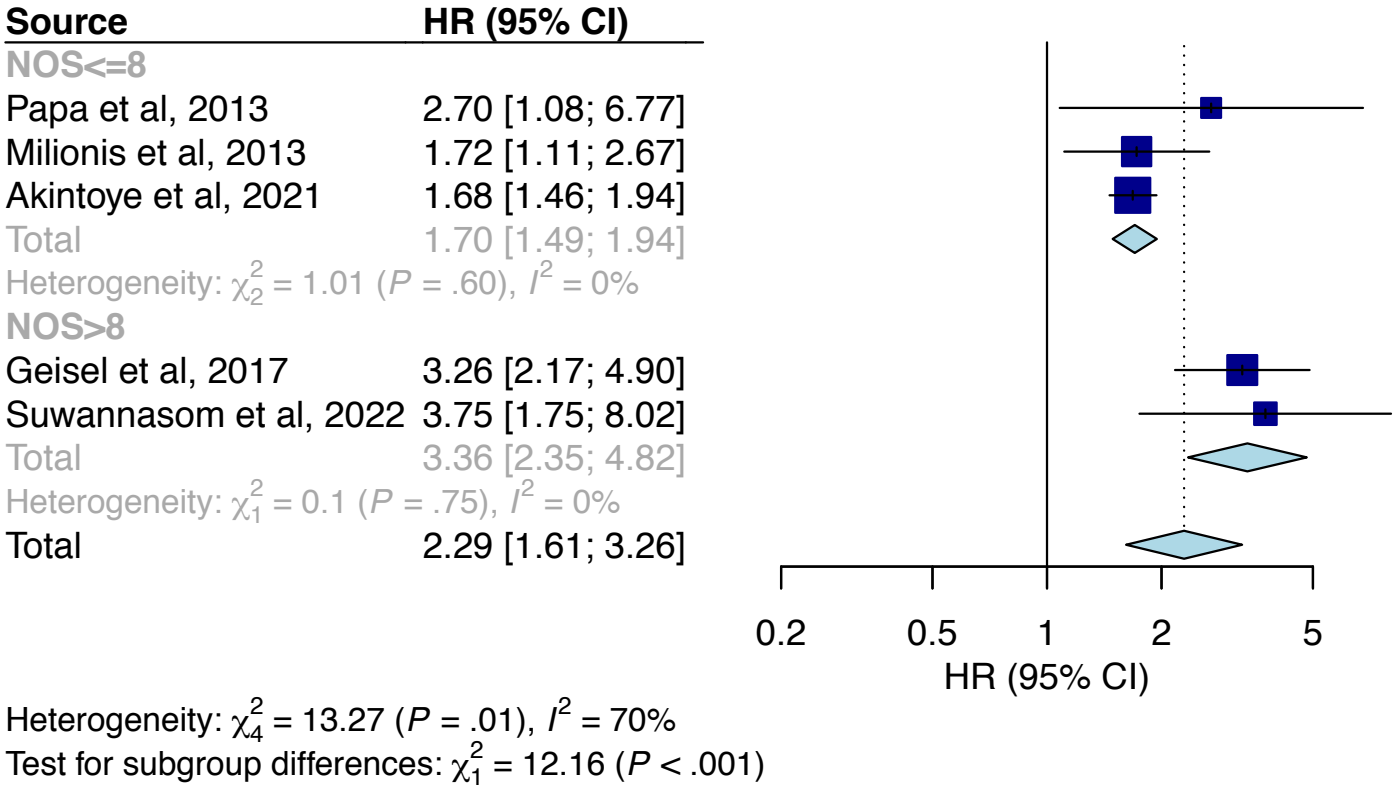
Heterogeneity: $\chi^2_4 = 20.95$ ($P < .001$), $I^2 = 81\%$
Test for subgroup differences: $\chi^2_1 = 5.59$ ($P = .02$)

Figure S8: Subgroup analysis of the association between baPWV and stroke by sex.



Heterogeneity: $\chi^2_9 = 60.54$ ($P < .001$), $I^2 = 85\%$
Test for subgroup differences: $\chi^2_1 = 5.39$ ($P = .02$)

Figure S9: Subgroup analysis of the association between low ABI and MACEs by NOS score.



Heterogeneity: χ^2_4 = 13.27 (*P* = .01), I^2 = 70%
Test for subgroup differences: χ^2_1 = 12.16 (*P* < .001)

3.4 Subgroup forest plots for substantial heterogeneity based on pooled event counts

Figure S1: Subgroup analysis of the association between CP and all-cause mortality by NOS score.

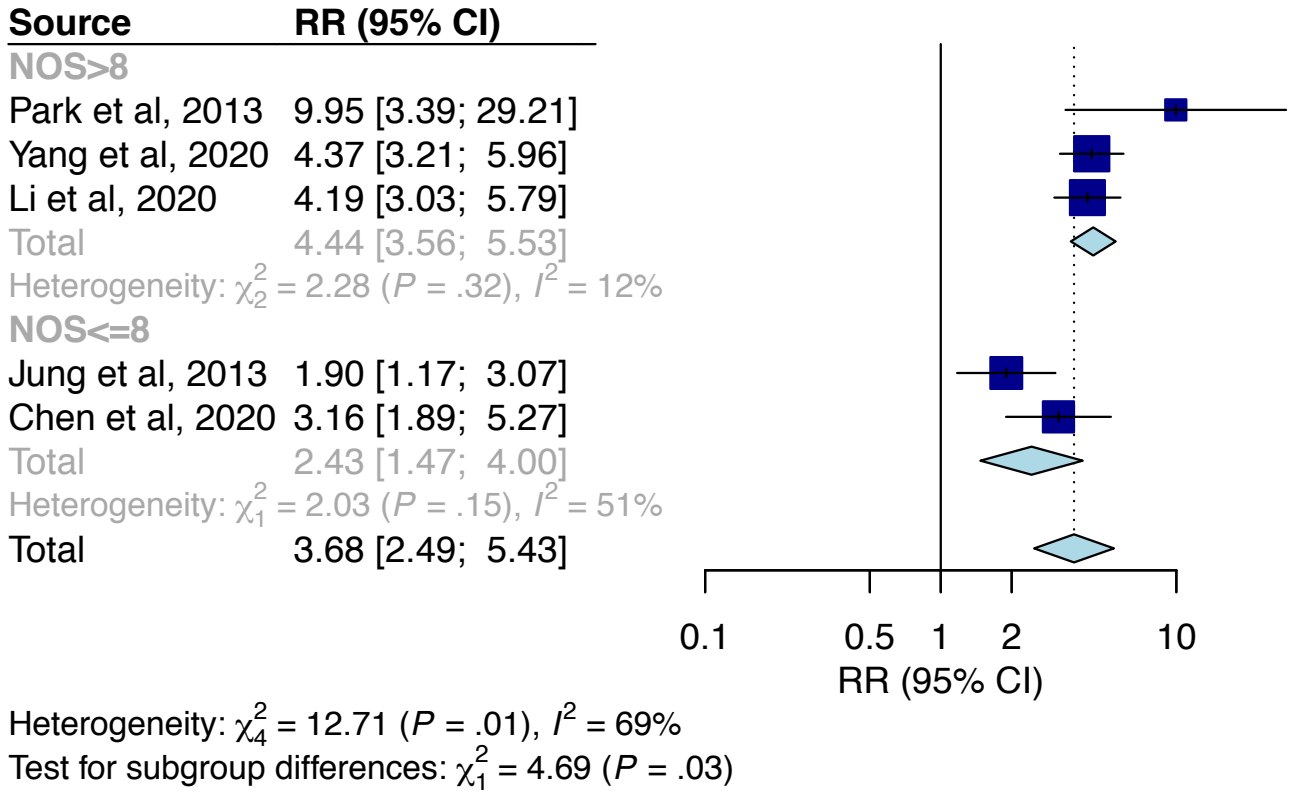


Figure S2: Subgroup analysis of the association between CACS and all-cause mortality by NOS score.

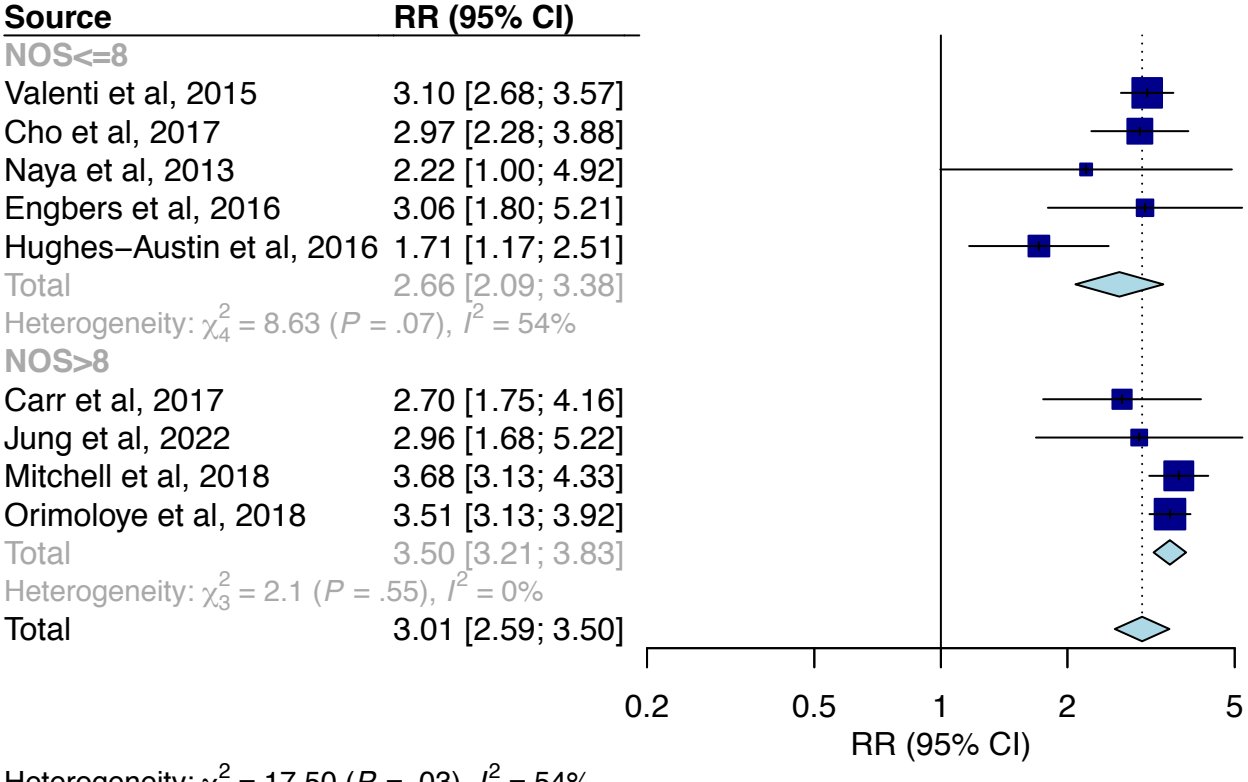


Figure S3: Subgroup analysis of the association between baPWV and all-cause mortality by type of study population.

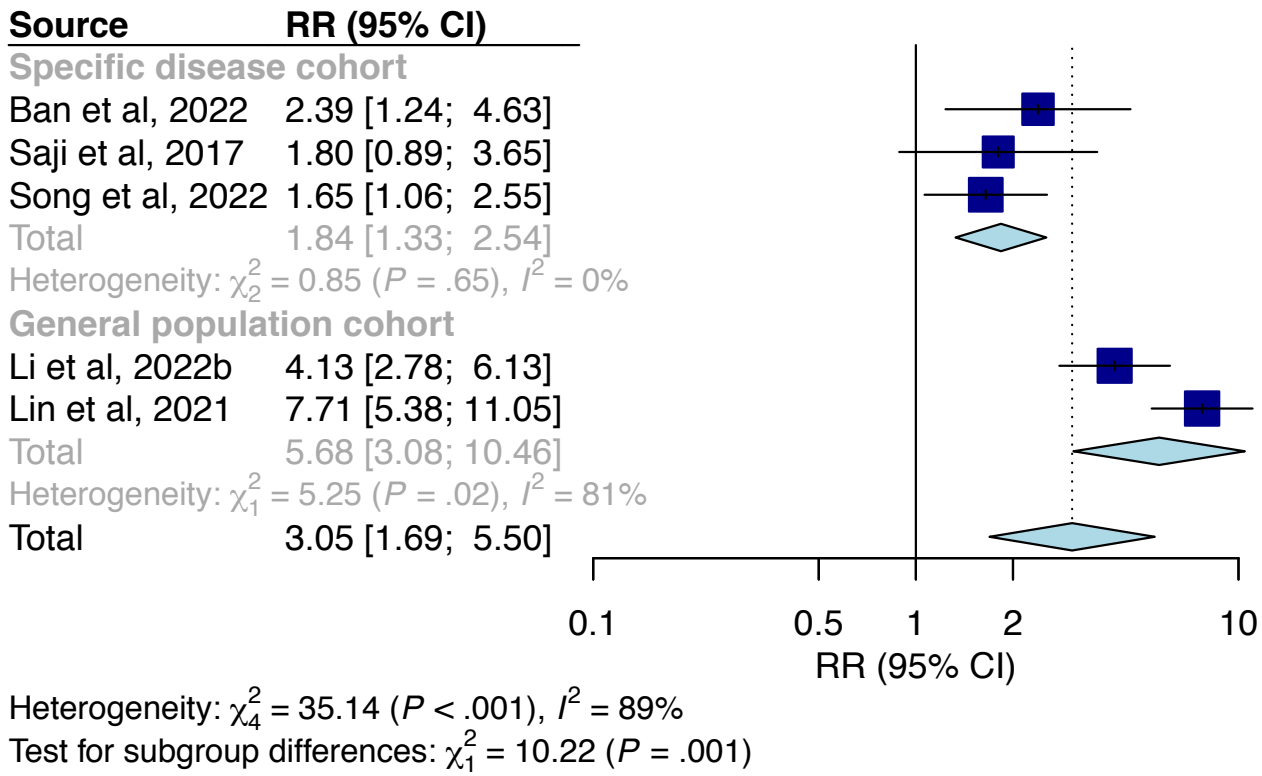


Figure S4: Subgroup analysis of the association between high ABI and all-cause mortality by NOS score.

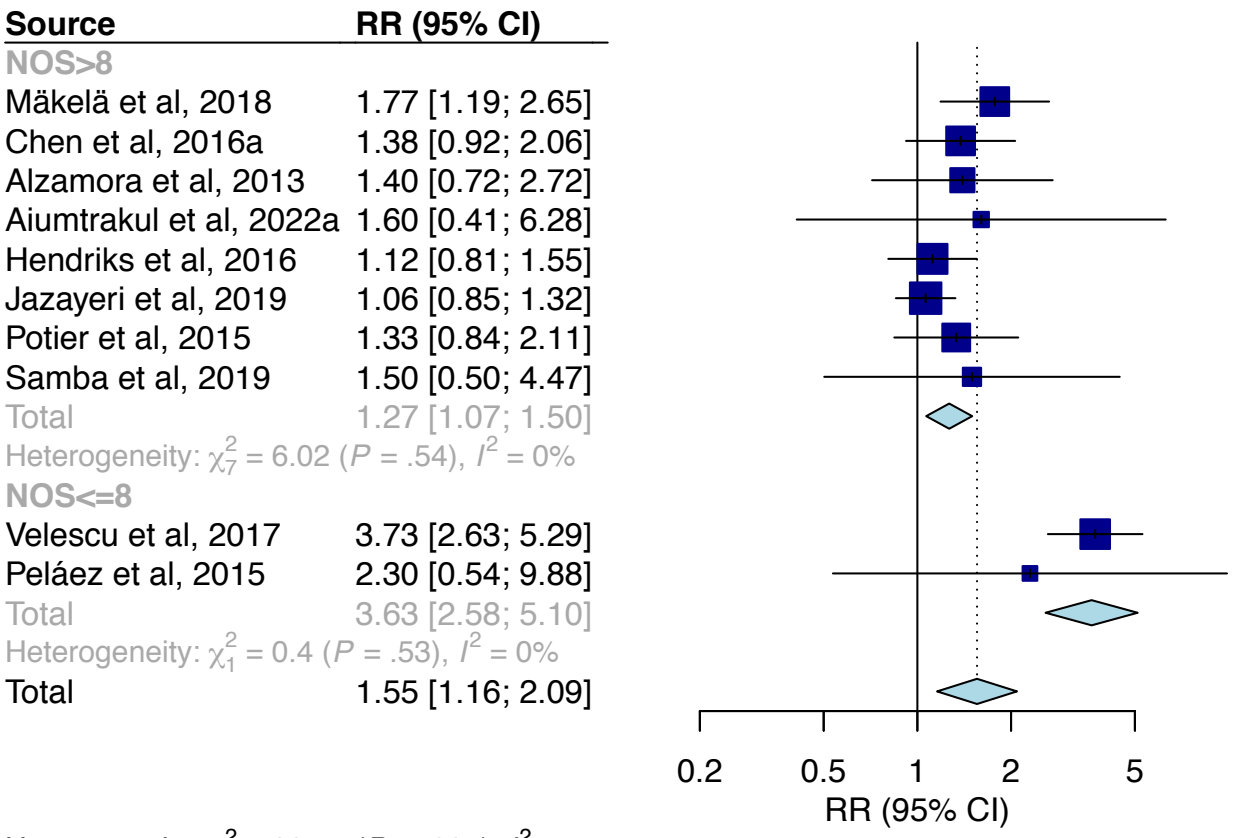


Figure S5: Subgroup analysis of the association between CEPCs and all-cause mortality by hypertension.

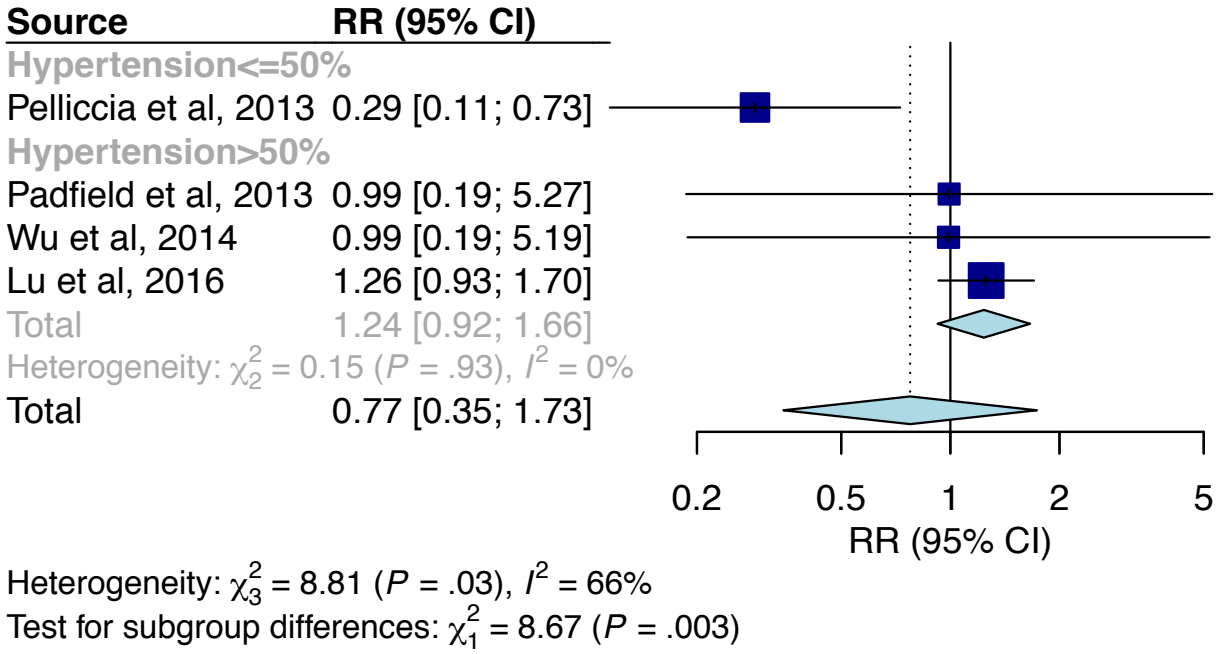


Figure S6: Subgroup analysis of the association between LTL and all-cause mortality by sex.

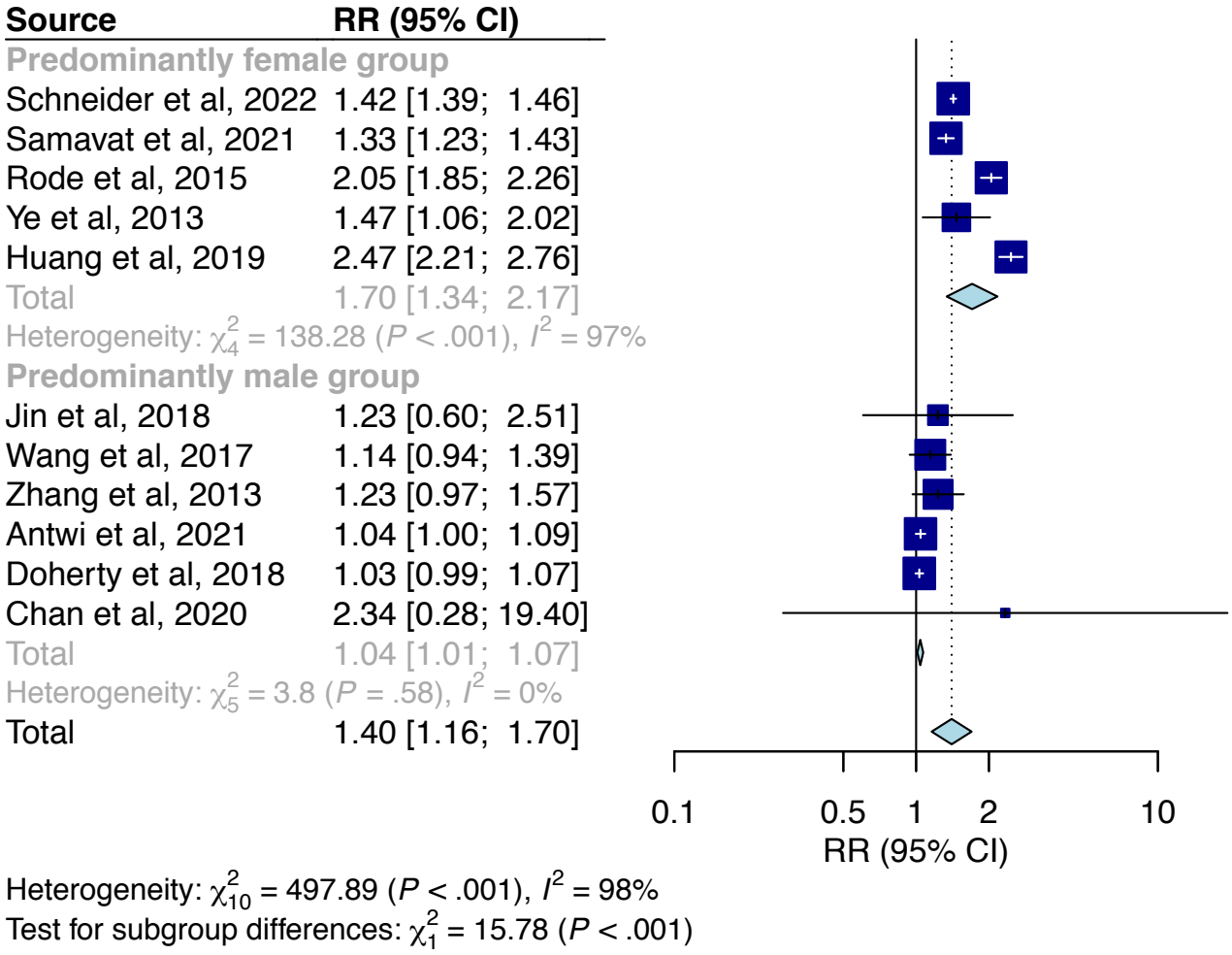


Figure S7: Subgroup analysis of the association between baPWV and CV mortality by sex.

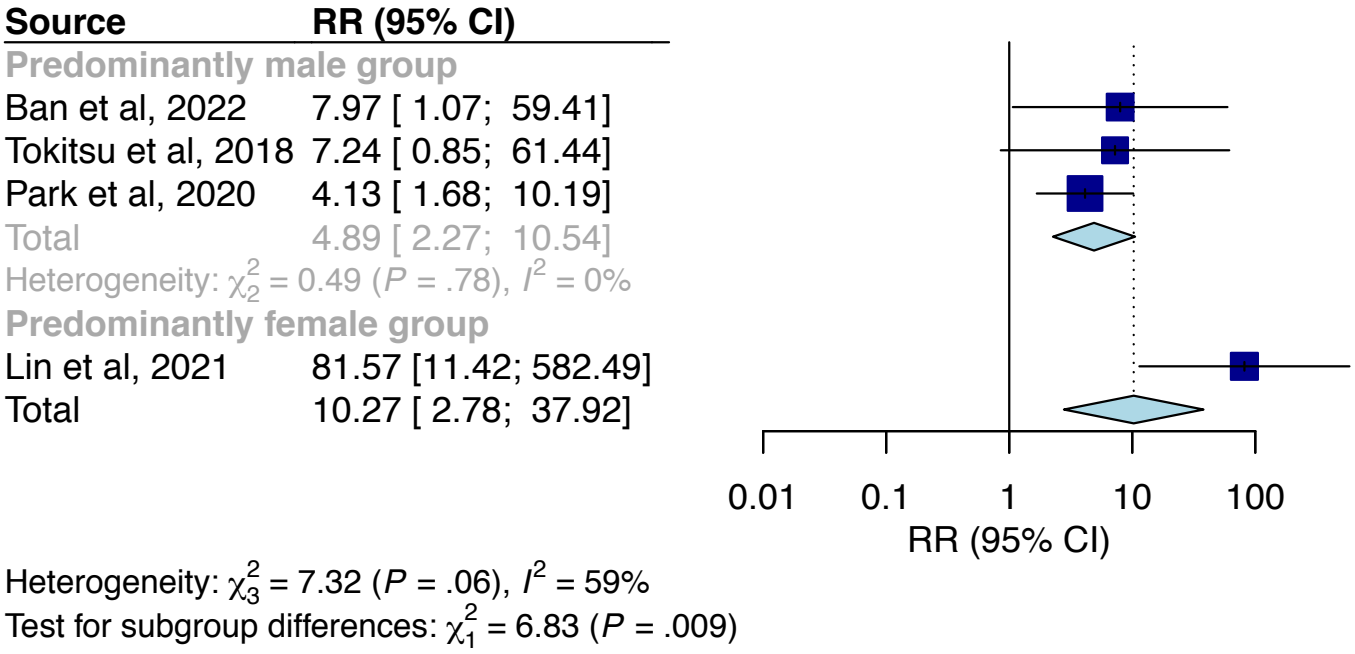


Figure S8: Subgroup analysis of the association between high ABI and CV mortality by NOS score.

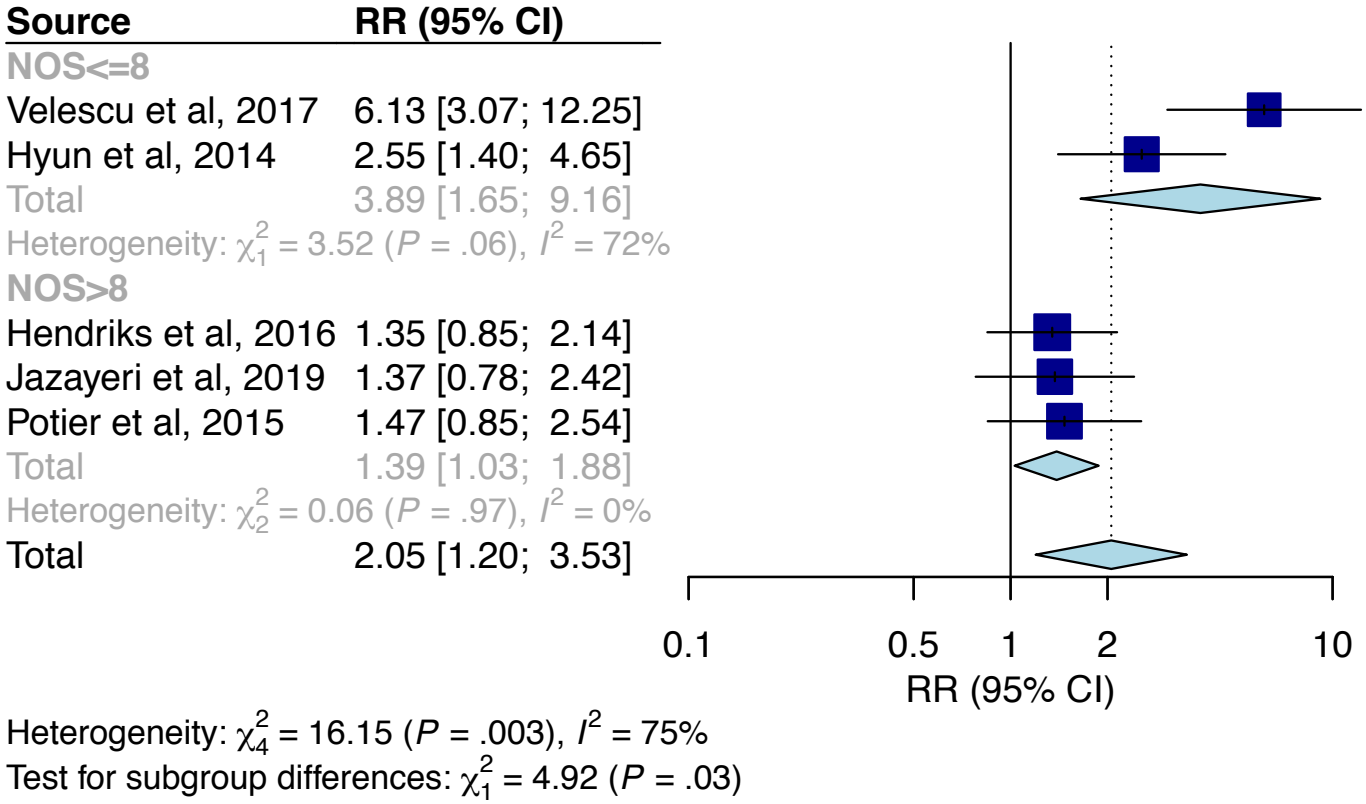
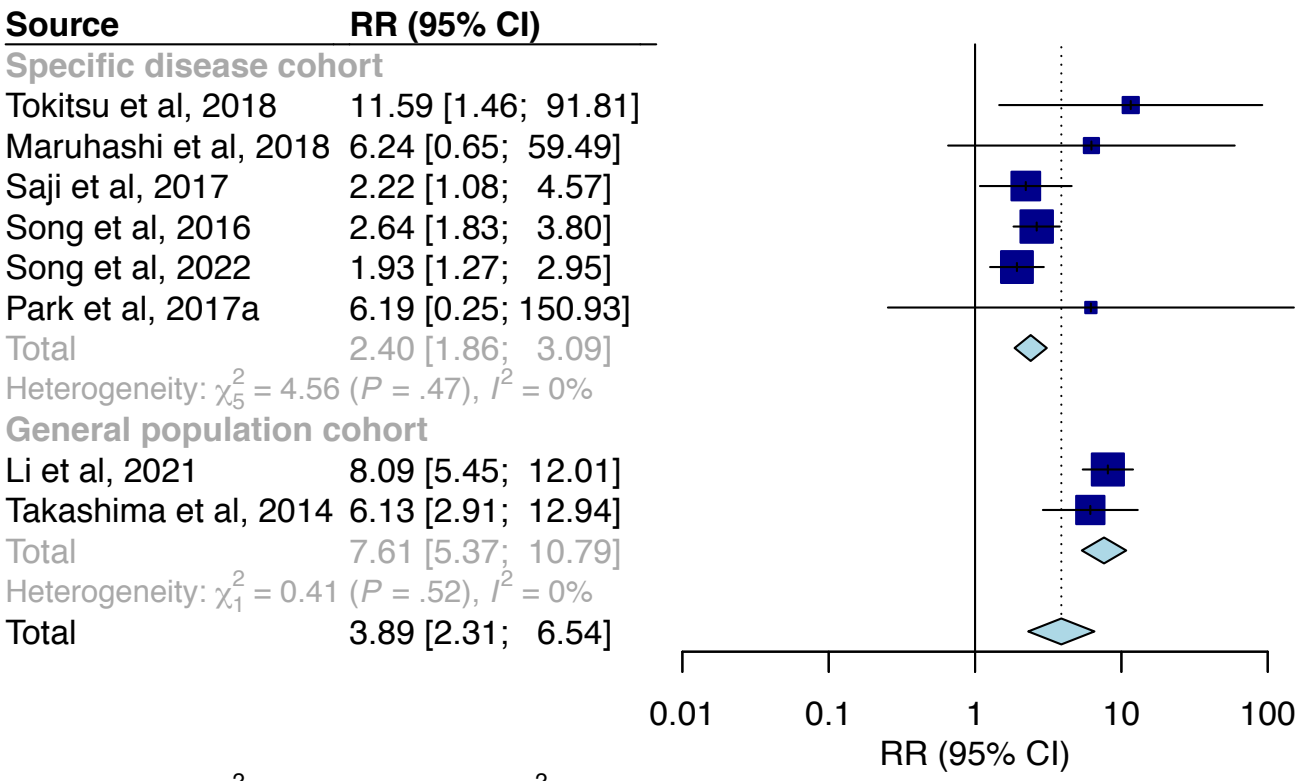
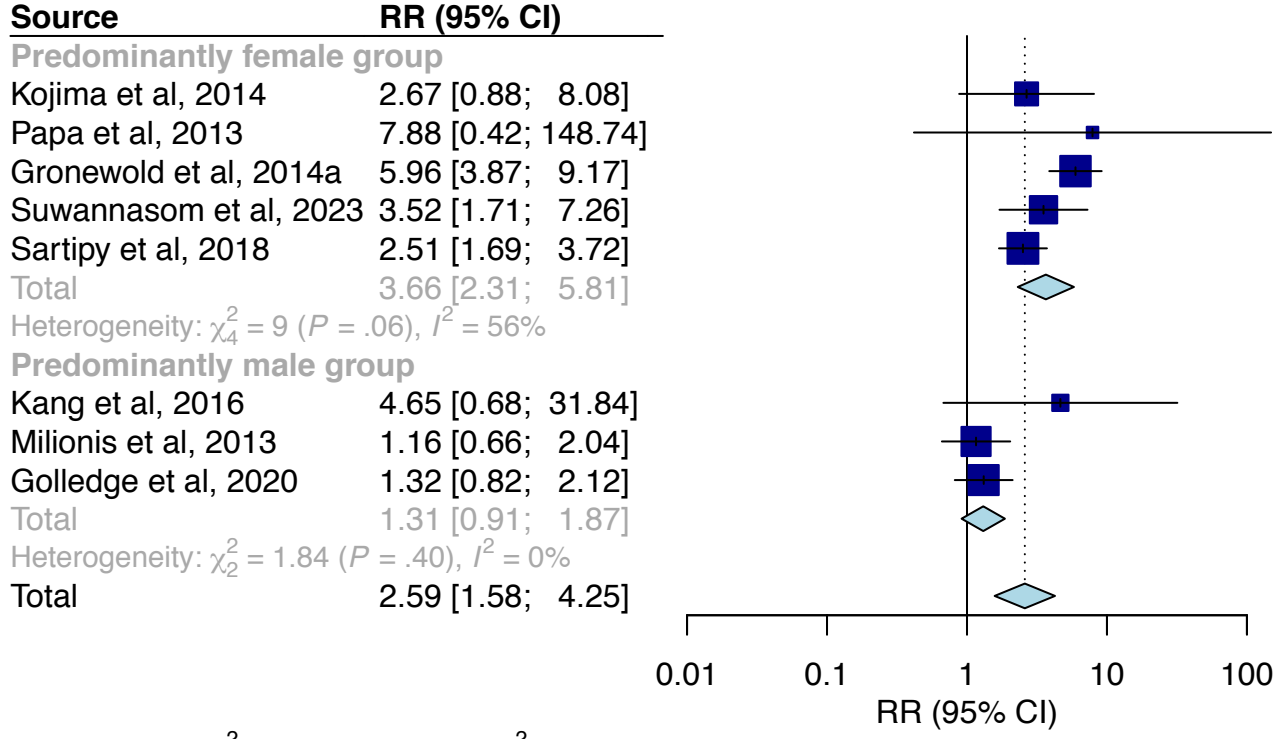


Figure S9: Subgroup analysis of the association between baPWV and stroke by type of study population.



Heterogeneity: $\chi^2_7 = 32.43$ ($P < .001$), $I^2 = 78\%$
Test for subgroup differences: $\chi^2_1 = 27.46$ ($P < .001$)

Figure S10: Subgroup analysis of the association between low ABI and stroke by sex.



Heterogeneity: $\chi^2_7 = 31.55$ ($P < .001$), $I^2 = 78\%$
Test for subgroup differences: $\chi^2_1 = 11.96$ ($P < .001$)

Figure S11:Subgroup analysis of the association between baPWV and MI by type of study population.

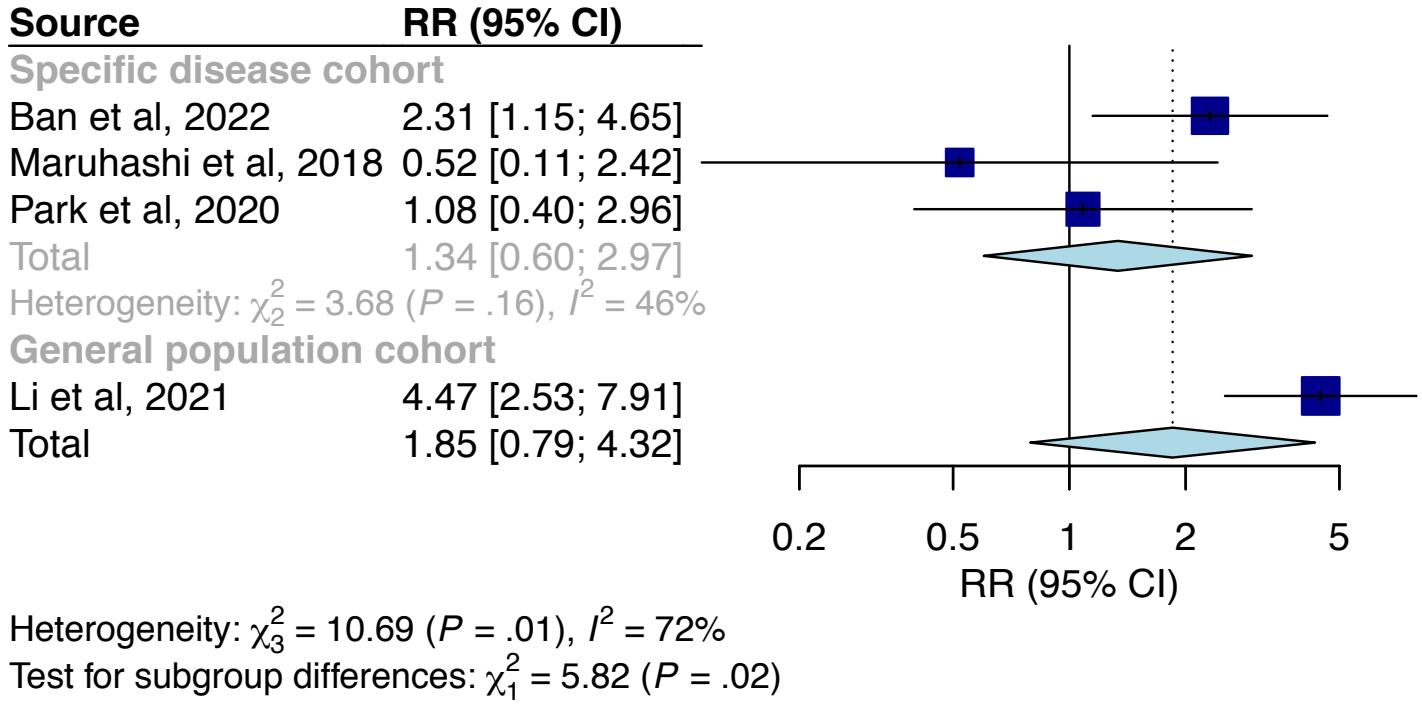


Figure S12: Subgroup analysis of the association between low ABI and MI by sex.

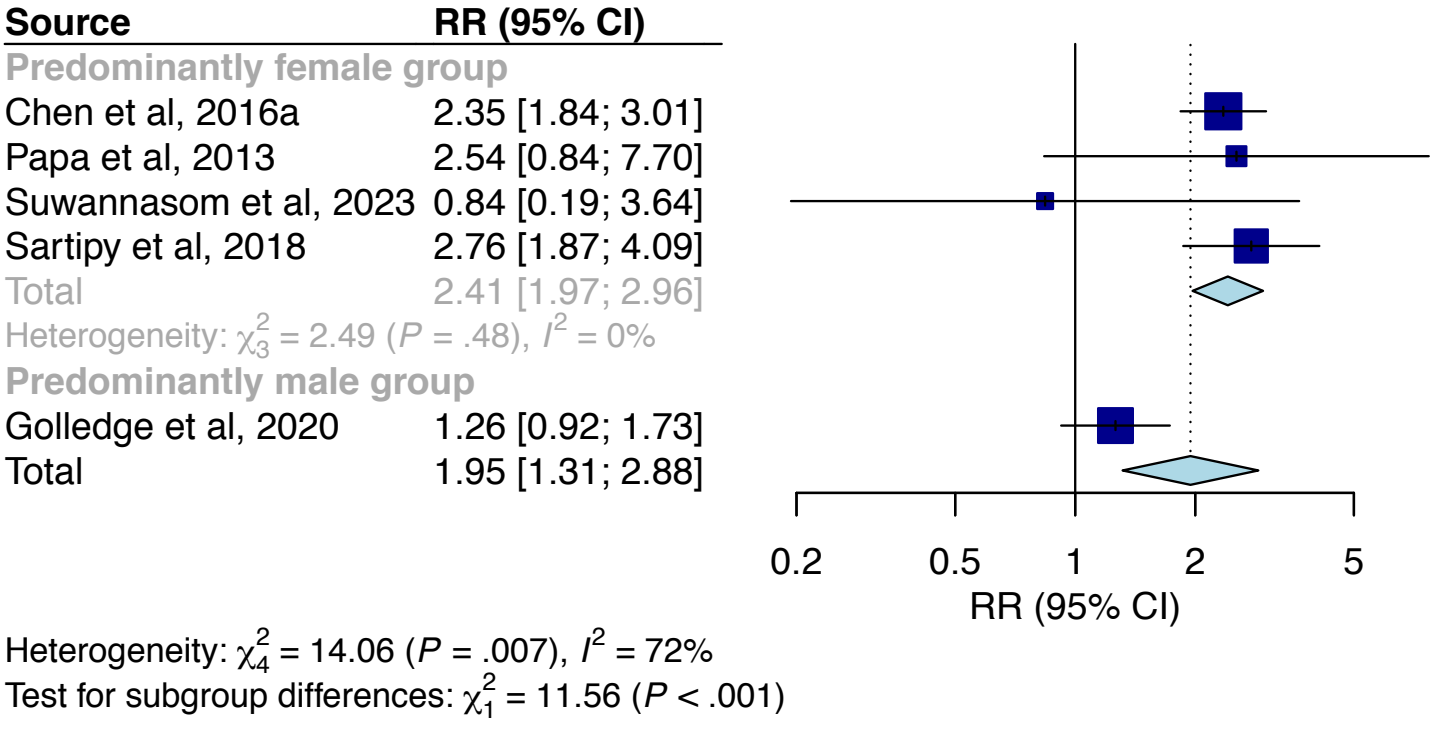
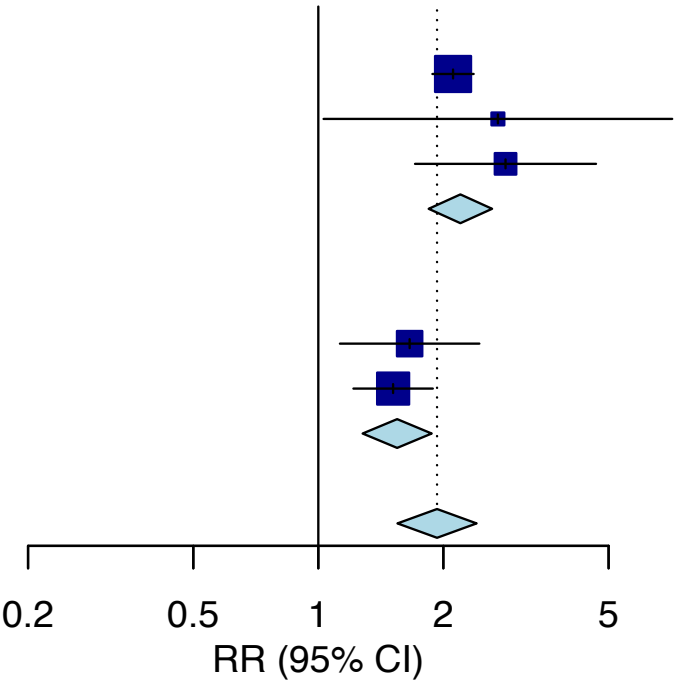


Figure S13: Subgroup analysis of the association between low ABI and MACEs by sex.



Source	RR (95% CI)
Predominantly female group	
Chen et al, 2016a	2.11 [1.88; 2.37]
Papa et al, 2013	2.71 [1.03; 7.11]
Suwannasom et al, 2023	2.82 [1.71; 4.66]
Total	2.20 [1.84; 2.62]
Heterogeneity: $\chi^2_2 = 1.45$ ($P = .48$), $I^2 = 0\%$	
Predominantly male group	
Milionis et al, 2013	1.66 [1.13; 2.44]
Golledge et al, 2020	1.51 [1.21; 1.89]
Total	1.55 [1.28; 1.87]
Heterogeneity: $\chi^2_1 = 0.16$ ($P = .69$), $I^2 = 0\%$	
Total	1.93 [1.55; 2.41]

Heterogeneity: $\chi^2_4 = 10.03$ ($P = .04$), $I^2 = 60\%$
Test for subgroup differences: $\chi^2_1 = 6.99$ ($P = .008$)

4 Supplementary results of sensitivity analyses for mortality outcomes.

4.1 Leave-one-out method based on pooled risk estimates.

Figure S1: Leave-one-out sensitivity analysis of the association between cIMT and all-cause mortality based on pooled risk estimates.

Source	P–value	Tau2	Tau	I2	HR (95% CI)
Omitting Park et al, 2017b	< .001	0.0096	0.0982	5%	1.46 [1.19; 1.81]
Omitting Thompson et al, 2015	< .001	0	0	3%	1.43 [1.18; 1.72]
Omitting Lankinen et al, 2020	< .001	0.0007	0.0266	0%	1.52 [1.25; 1.86]
Omitting Roumeliotis et al, 2019	< .001	0	0	0%	1.42 [1.19; 1.70]
Omitting Fritze et al, 2020	< .001	0	0	0%	1.42 [1.18; 1.70]
Omitting Corrales et al, 2020	< .001	0	0	3%	1.46 [1.22; 1.74]
Omitting Timoteo et al, 2019	< .001	0	0	5%	1.45 [1.22; 1.74]
Omitting Jung et al, 2013	< .001	0	0	0%	1.41 [1.18; 1.69]
Omitting Cardoso et al, 2019b	< .001	0	0	0%	1.54 [1.27; 1.87]
Omitting Chisalita et al, 2020	< .001	0	0	0%	1.43 [1.20; 1.71]
Omitting Zobel et al, 2017	< .001	< 0.0001	0.0003	5%	1.45 [1.22; 1.73]
Total	< .001	0	0	0%	1.45 [1.22; 1.73]

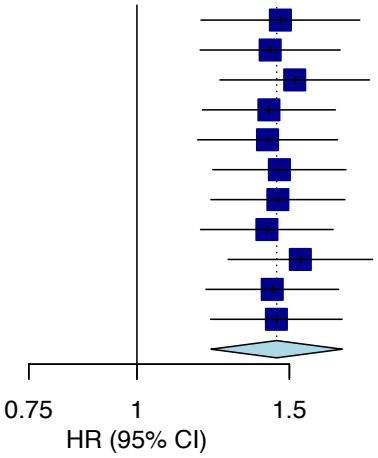


Figure S2: Leave-one-out sensitivity analysis of the association between cIMT and CV mortality based on pooled risk estimates.

Source	P–value	Tau2	Tau	I2	HR (95% CI)
Omitting Park et al, 2013	.90	7.3107	2.7038	85%	0.77 [0.01; 44.98]
Omitting Bosevski et al, 2013	.70	1.9937	1.4120	76%	1.55 [0.17; 14.39]
Omitting Jung et al, 2013	.19	0.7984	0.8935	47%	0.33 [0.06; 1.75]
Total	.76	2.6960	1.6420	72%	0.72 [0.09; 6.11]

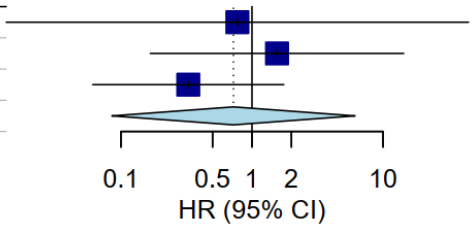


Figure S3: Leave-one-out sensitivity analysis of the association between CP and all-cause mortality based on pooled risk estimates.

Source	P–value	Tau2	Tau	I2	HR (95% CI)
Omitting Park et al, 2017b	< .001	< 0.0001	0.0018	17%	1.50 [1.26; 1.79]
Omitting Hanna et al, 2018	< .001	< 0.0001	0.0007	16%	1.57 [1.28; 1.92]
Omitting Corrales et al, 2020	< .001	0	0	0%	1.51 [1.28; 1.77]
Omitting Li et al, 2020	< .001	< 0.0001	0.0026	6%	1.48 [1.25; 1.76]
Omitting Jung et al, 2013	< .001	< 0.0001	0.0006	17%	1.51 [1.28; 1.78]
Omitting Chen et al, 2020	< .001	< 0.0001	0.0008	17%	1.53 [1.29; 1.81]
Omitting Yang et al, 2020	< .001	< 0.0001	0.0015	15%	1.48 [1.23; 1.79]
Omitting Chisalita et al, 2020	< .001	< 0.0001	0.0027	0%	1.59 [1.34; 1.88]
Total	< .001	< 0.0001	0.0020	5%	1.52 [1.29; 1.79]

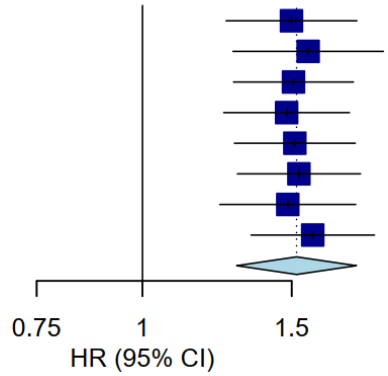


Figure S4: Leave-one-out sensitivity analysis of the association between CP and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Sirimarco et al, 2013	.001	0.0827	0.2875	19%	3.37 [1.59; 7.11]
Omitting Park et al, 2013	.10	0.1591	0.3988	49%	1.66 [0.90; 3.06]
Omitting Jung et al, 2013	.07	0.6631	0.8143	80%	2.70 [0.93; 7.84]
Omitting Chen et al, 2020	.12	0.5002	0.7072	72%	2.13 [0.83; 5.47]
Total	.03	0.3969	0.6300	71%	2.33 [1.08; 5.04]

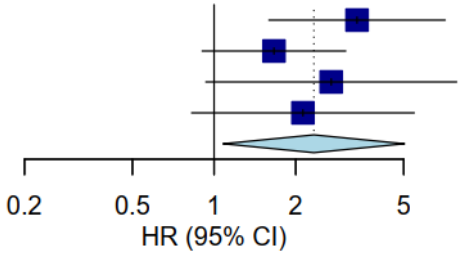


Figure S5: Leave-one-out sensitivity analysis of the association between CACS and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting von Scholten et al, 2015	< .001	0.1431	0.3782	96%	1.57 [1.33; 1.86]
Omitting Jung et al, 2022	< .001	0.1508	0.3883	96%	1.60 [1.34; 1.90]
Omitting Hoffmann et al, 2016	< .001	0.1490	0.3860	96%	1.61 [1.35; 1.91]
Omitting Yeboah et al, 2014a	< .001	0.1443	0.3799	96%	1.62 [1.37; 1.92]
Omitting Chen et al, 2017	< .001	0.1505	0.3879	96%	1.60 [1.35; 1.91]
Omitting Williams et al, 2014	< .001	0.1509	0.3884	96%	1.60 [1.34; 1.90]
Omitting Xie et al, 2016	< .001	0.1416	0.3763	96%	1.62 [1.37; 1.92]
Omitting Osawa et al, 2020	< .001	0.1471	0.3836	96%	1.57 [1.32; 1.87]
Omitting Shalaeva et al, 2022	< .001	0.1395	0.3735	94%	1.63 [1.37; 1.92]
Omitting Guney et al, 2014	< .001	0.1480	0.3847	96%	1.59 [1.34; 1.88]
Omitting Lamarche et al, 2019	< .001	0.1466	0.3829	96%	1.57 [1.33; 1.87]
Omitting Hughes−Austin et al, 2016	< .001	0.1509	0.3885	96%	1.59 [1.34; 1.90]
Omitting Janda et al, 2014	< .001	0.1416	0.3763	96%	1.62 [1.37; 1.92]
Omitting Mirbolouk et al, 2020(1)	< .001	0.1439	0.3794	96%	1.62 [1.37; 1.92]
Omitting Mirbolouk et al, 2020(2)	< .001	0.1439	0.3793	96%	1.62 [1.37; 1.92]
Omitting Hartaigh et al, 2016(1)	< .001	0.1116	0.3340	96%	1.52 [1.30; 1.77]
Omitting Hartaigh et al, 2016(2)	< .001	0.1172	0.3424	96%	1.52 [1.30; 1.78]
Omitting Hartaigh et al, 2016(3)	< .001	0.1503	0.3877	96%	1.58 [1.33; 1.88]
Omitting Hartaigh et al, 2016(4)	< .001	0.1349	0.3673	96%	1.55 [1.31; 1.83]
Omitting Valenti et al, 2015	< .001	0.1329	0.3646	95%	1.54 [1.31; 1.82]
Omitting Carr et al, 2017	< .001	0.1494	0.3865	96%	1.59 [1.34; 1.89]
Omitting Mitchell et al, 2018	< .001	0.1511	0.3887	96%	1.60 [1.34; 1.90]
Omitting Shah et al, 2014	< .001	0.1513	0.3890	96%	1.59 [1.34; 1.90]
Total	< .001	0.1430	0.3782	96%	1.59 [1.35; 1.87]

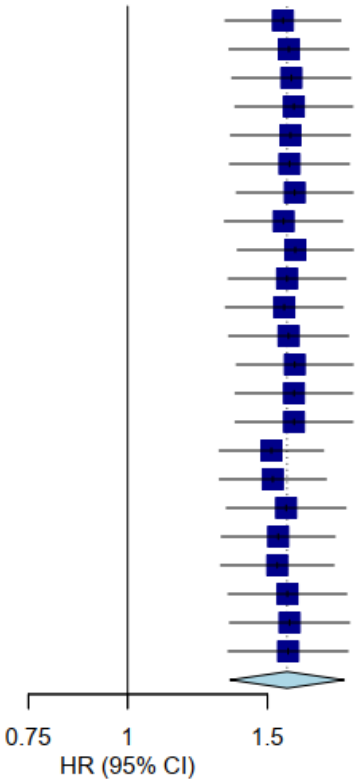


Figure S6: Leave-one-out sensitivity analysis of the association between CACS and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Blair et al, 2014	.005	0.0058	0.0763	87%	1.12 [1.04; 1.22]
Omitting Xie et al, 2016	.009	0.0081	0.0901	84%	1.16 [1.04; 1.29]
Omitting Janda et al, 2014	.005	0.0071	0.0841	82%	1.16 [1.05; 1.28]
Omitting Mirbolouk et al, 2020(1)	.006	0.0027	0.0521	83%	1.09 [1.03; 1.16]
Omitting Mirbolouk et al, 2020(2)	.06	0.0098	0.0992	74%	1.12 [1.00; 1.26]
Total	.004	0.0059	0.0771	84%	1.13 [1.04; 1.22]

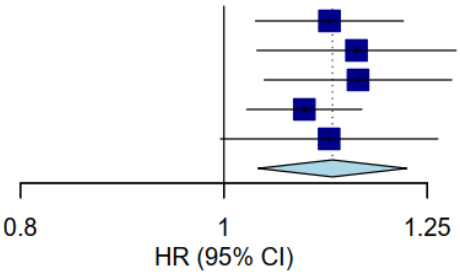


Figure S7: Leave-one-out sensitivity analysis of the association between baPWV and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Ban et al, 2022	.005	0.0310	0.1762	77%	1.23 [1.06; 1.41]
Omitting Ji et al, 2020	.002	0.0323	0.1796	74%	1.27 [1.09; 1.48]
Omitting Kawai et al, 2013	.005	0.0302	0.1737	77%	1.22 [1.06; 1.40]
Omitting Kim et al, 2014	.02	0.0172	0.1312	61%	1.16 [1.02; 1.31]
Omitting Lin et al, 2021	.01	0.0247	0.1573	73%	1.19 [1.04; 1.36]
Omitting Lu et al, 2018	.009	0.0348	0.1865	76%	1.23 [1.05; 1.43]
Omitting Maeda et al, 2014	.01	0.0245	0.1566	73%	1.19 [1.04; 1.36]
Omitting Matschkal et al, 2019	.007	0.0307	0.1751	76%	1.22 [1.06; 1.40]
Omitting Saji et al, 2017	.003	0.0312	0.1766	77%	1.24 [1.07; 1.43]
Omitting Sheng et al, 2014	.003	0.0336	0.1833	77%	1.27 [1.08; 1.48]
Omitting Su et al, 2022	.002	0.0292	0.1708	68%	1.27 [1.10; 1.48]
Omitting Song et al, 2022	.005	0.0326	0.1807	77%	1.23 [1.06; 1.43]
Total	.004	0.0297	0.1724	75%	1.23 [1.07; 1.41]

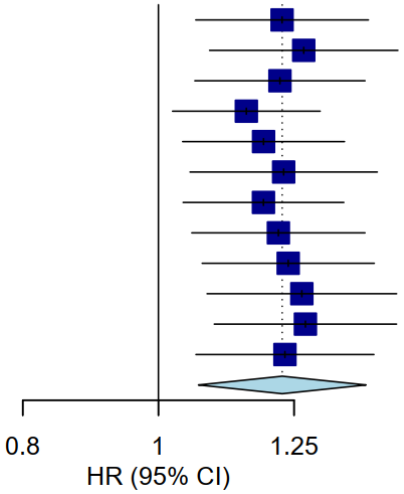


Figure S8: Leave-one-out sensitivity analysis of the association between baPWV and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Sheng et al, 2014	.38	< 0.0001	0.0051	72%	1.00 [1.00; 1.01]
Omitting Lu et al, 2018	.39	< 0.0001	0.0050	66%	1.00 [1.00; 1.01]
Omitting Matschkal et al, 2019	.37	< 0.0001	0.0051	72%	1.00 [1.00; 1.01]
Omitting Kirigaya et al, 2020	.02	< 0.0001	0.0007	62%	1.01 [1.00; 1.02]
Omitting Park et al, 2020	.38	< 0.0001	0.0050	68%	1.00 [1.00; 1.01]
Omitting Lin et al, 2021	.38	< 0.0001	0.0050	53%	1.00 [1.00; 1.01]
Omitting Su et al, 2022	.99	0	0	63%	1.00 [1.00; 1.00]
Total	.37	< 0.0001	0.0051	67%	1.00 [1.00; 1.01]

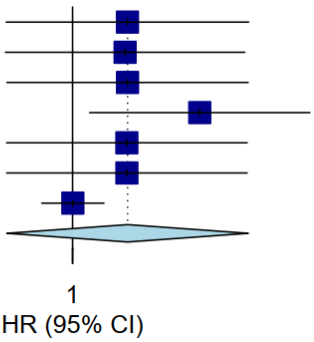


Figure S9: Leave-one-out sensitivity analysis of the association between cfPWV and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Avramovski et al, 2014	< .001	0.0046	0.0679	56%	1.17 [1.11; 1.24]
Omitting Bao et al, 2019	< .001	0.0044	0.0663	49%	1.17 [1.11; 1.24]
Omitting Baumann et al, 2014	< .001	0.0046	0.0680	54%	1.18 [1.12; 1.24]
Omitting Cardoso et al, 2013	< .001	0.0050	0.0710	59%	1.18 [1.12; 1.25]
Omitting Cardoso et al, 2019	< .001	0.0055	0.0738	59%	1.19 [1.12; 1.26]
Omitting Chisalita et al, 2020	< .001	0.0045	0.0672	56%	1.20 [1.13; 1.26]
Omitting Chiu et al, 2016	< .001	0.0050	0.0710	58%	1.18 [1.12; 1.25]
Omitting Fortier et al, 2015	< .001	0.0046	0.0679	56%	1.17 [1.11; 1.24]
Omitting Giannitsi et al, 2021	< .001	0.0037	0.0607	51%	1.17 [1.11; 1.23]
Omitting Papaioannou et al, 2014	< .001	0.0047	0.0684	57%	1.18 [1.12; 1.25]
Omitting Regnault et al, 2014	< .001	0.0055	0.0741	59%	1.19 [1.12; 1.26]
Omitting Tougaard et al, 2020	< .001	0.0047	0.0683	57%	1.18 [1.12; 1.24]
Omitting Tripepi et al, 2018	< .001	0.0051	0.0713	58%	1.19 [1.13; 1.27]
Omitting Van Sloten et al, 2014	< .001	0.0049	0.0703	59%	1.18 [1.12; 1.25]
Omitting Wei et al, 2022	< .001	0.0049	0.0699	58%	1.18 [1.12; 1.25]
Omitting Samara et al, 2022	< .001	0.0032	0.0565	37%	1.20 [1.14; 1.26]
Total	< .001	0.0047	0.0686	56%	1.18 [1.12; 1.25]

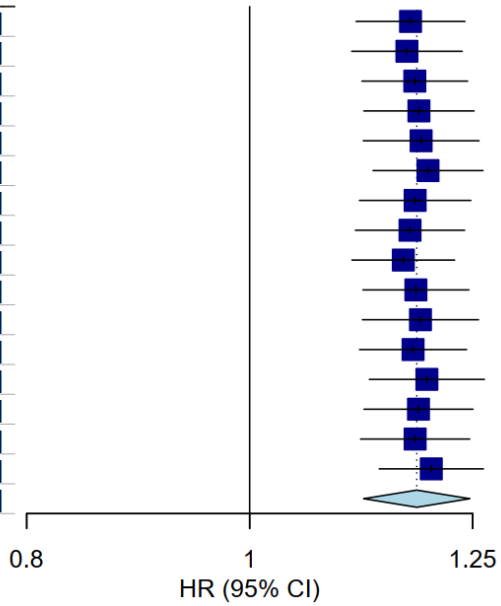


Figure S10: Leave-one-out sensitivity analysis of the association between cfPWV and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Avramovski et al, 2014	< .001	0.0060	0.0773	78%	1.15 [1.07; 1.24]
Omitting Bao et al, 2019	< .001	0.0086	0.0926	80%	1.17 [1.07; 1.28]
Omitting Regnault et al, 2014	< .001	0.0095	0.0975	82%	1.19 [1.08; 1.30]
Omitting Cardoso et al, 2019	< .001	0.0086	0.0926	80%	1.17 [1.08; 1.28]
Omitting Dimkovic et al, 2018	< .001	0.0095	0.0975	80%	1.18 [1.08; 1.29]
Omitting Fortier et al, 2019	< .001	0	0	0%	1.21 [1.15; 1.27]
Omitting Tripepi et al, 2018	< .001	0.0097	0.0987	81%	1.18 [1.08; 1.30]
Omitting Wei et al, 2022	< .001	0.0077	0.0880	82%	1.17 [1.09; 1.27]
Total	< .001	0.0077	0.0875	79%	1.18 [1.09; 1.27]

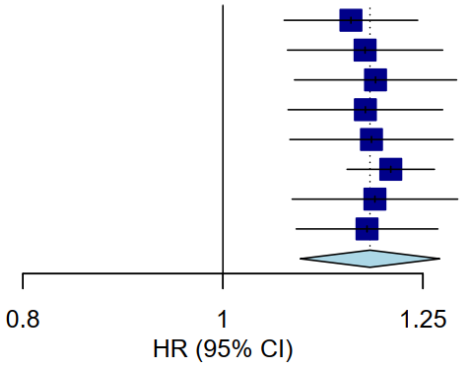


Figure S11: Leave-one-out sensitivity analysis of the association between low ABI and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Samba et al, 2019	< .001	0.0087	0.0931	25%	1.83 [1.66; 2.01]
Omitting Yoshitomi et al, 2014	< .001	0.0082	0.0904	24%	1.82 [1.65; 2.00]
Omitting Alzamora et al, 2013	< .001	0.0095	0.0973	24%	1.84 [1.67; 2.04]
Omitting Papa et al, 2013	< .001	0.0078	0.0883	23%	1.82 [1.65; 2.00]
Omitting Miguel et al, 2017	< .001	0.0101	0.1004	25%	1.84 [1.66; 2.04]
Omitting Kang et al, 2016	< .001	0.0080	0.0894	24%	1.82 [1.65; 2.00]
Omitting Milionis et al, 2013	< .001	0.0080	0.0896	23%	1.81 [1.65; 2.00]
Omitting Yamawaki et al, 2018	< .001	0.0097	0.0984	23%	1.85 [1.67; 2.05]
Omitting Hsu et al, 2020	< .001	0.0061	0.0781	17%	1.79 [1.63; 1.97]
Omitting Jazayeri et al, 2019	< .001	0.0106	0.1028	23%	1.86 [1.67; 2.06]
Omitting Potier et al, 2015	< .001	0.0042	0.0651	14%	1.77 [1.61; 1.94]
Omitting Cardoso et al, 2018	< .001	0.0083	0.0911	24%	1.82 [1.65; 2.00]
Omitting Yokoyama et al, 2014	< .001	0.0038	0.0616	0%	1.77 [1.63; 1.93]
Omitting Jagt et al, 2022	< .001	0.0127	0.1125	24%	1.87 [1.66; 2.09]
Omitting Sartipy et al, 2018	< .001	0.0050	0.0708	10%	1.87 [1.70; 2.07]
Omitting Zobel et al, 2017	< .001	0.0077	0.0880	22%	1.82 [1.65; 2.00]
Omitting Herraiz−Adillo et al, 2019	< .001	0.0083	0.0912	25%	1.82 [1.66; 2.01]
Omitting Aiumtrakul et al, 2022a	< .001	0.0086	0.0929	24%	1.82 [1.65; 2.01]
Omitting Mäkelä et al, 2018	< .001	0.0089	0.0942	20%	1.84 [1.67; 2.03]
Total	< .001	0.0081	0.0898	21%	1.82 [1.66; 2.01]

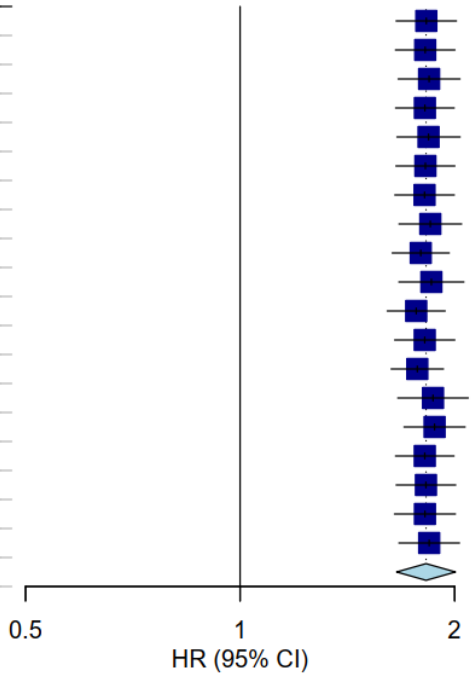


Figure S12: Leave-one-out sensitivity analysis of the association between low ABI and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Yoshitomi et al, 2014	< .001	0.0165	0.1286	30%	2.24 [1.88; 2.68]
Omitting Violi et al, 2016	< .001	0.0343	0.1852	35%	2.39 [1.92; 2.98]
Omitting Hsu et al, 2020	< .001	0	0	18%	2.09 [1.84; 2.38]
Omitting Jazayeri et al, 2019	< .001	0	0	21%	2.09 [1.83; 2.38]
Omitting Potier et al, 2015	< .001	0.0339	0.1841	28%	2.49 [1.96; 3.16]
Omitting Cardoso et al, 2018	< .001	0.0198	0.1407	32%	2.26 [1.87; 2.73]
Omitting Suwannasom et al, 2023	< .001	0	0	4%	2.10 [1.85; 2.38]
Omitting Sartipy et al, 2018	< .001	0.0270	0.1642	21%	2.49 [1.98; 3.12]
Total	< .001	0.0190	0.1380	25%	2.28 [1.91; 2.74]

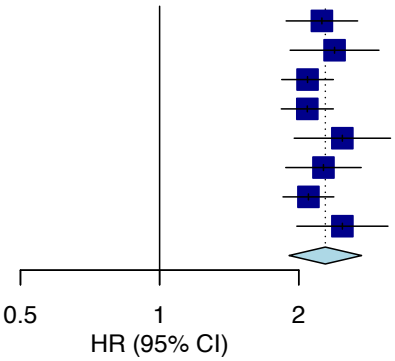


Figure S13: Leave-one-out sensitivity analysis of the association between high ABI and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Mäkelä et al, 2018	.009	0.0139	0.1179	0%	1.27 [1.06; 1.52]
Omitting Velescu et al, 2017	.02	0.0100	0.1000	0%	1.23 [1.03; 1.47]
Omitting Chen et al, 2016a	.02	0.0026	0.0508	0%	1.22 [1.04; 1.43]
Omitting Alzamora et al, 2013	.005	0.0117	0.1082	0%	1.28 [1.08; 1.53]
Omitting Miguel et al, 2017	.007	0.0125	0.1120	0%	1.27 [1.07; 1.52]
Omitting Aiumtrakul et al, 2022a	.008	0.0084	0.0914	0%	1.25 [1.06; 1.48]
Omitting Hendriks et al, 2016	< .001	0	0	0%	1.34 [1.13; 1.58]
Omitting Golledge et al, 2020	.03	0	0	0%	1.20 [1.02; 1.41]
Omitting Jazayeri et al, 2019	.006	0.0145	0.1203	0%	1.30 [1.08; 1.58]
Omitting Potier et al, 2015	.01	0.0136	0.1168	0%	1.25 [1.04; 1.50]
Omitting Herraiz−Adillo et al, 2019	.006	0.0092	0.0958	0%	1.26 [1.07; 1.49]
Omitting Samba et al, 2019	.005	0.0100	0.0998	0%	1.28 [1.08; 1.51]
Total	.006	0.0087	0.0931	0%	1.26 [1.07; 1.49]

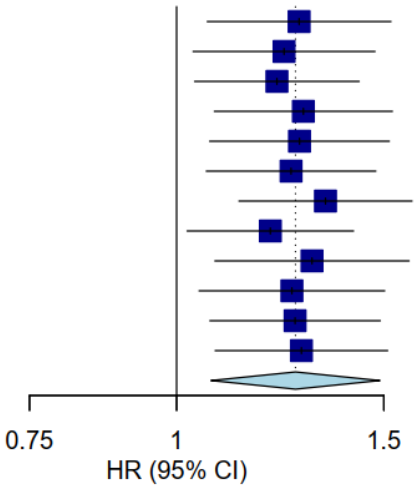


Figure S14: Leave-one-out sensitivity analysis of the association between high ABI and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Velescu et al, 2017	.03	0	0	0%	1.39 [1.03; 1.87]
Omitting Hyun et al, 2014	.03	0	0	0%	1.39 [1.03; 1.87]
Omitting Hendriks et al, 2016	.007	0	0	0%	1.60 [1.14; 2.26]
Omitting Jazayeri et al, 2019	.03	0	0	0%	1.41 [1.03; 1.93]
Omitting Potier et al, 2015	.04	0	0	0%	1.40 [1.01; 1.94]
Total	.01	0	0	0%	1.43 [1.08; 1.89]

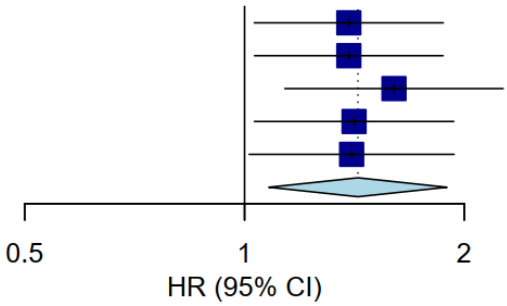


Figure S15: Leave-one-out sensitivity analysis of the association between AIx and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Tynjala et al, 2020	.20	0.0006	0.0244	69%	1.02 [0.99; 1.05]
Omitting Vriz et al, 2021	.80	< 0.0001	0.0091	60%	1.00 [0.98; 1.02]
Omitting Van Sloten et al, 2014	.14	0.0007	0.0267	76%	1.03 [0.99; 1.06]
Omitting Mukai et al, 2019	.21	0.0006	0.0240	66%	1.02 [0.99; 1.05]
Omitting Green et al, 2017	.23	0.0014	0.0370	75%	1.03 [0.98; 1.08]
Omitting Giannitsi et al, 2021	.14	0.0007	0.0263	75%	1.03 [0.99; 1.06]
Omitting Papaioannou et al, 2014	< .001	< 0.0001	0.0005	57%	1.04 [1.02; 1.07]
Omitting Fortier et al, 2019	.18	0.0007	0.0260	76%	1.02 [0.99; 1.06]
Total	.16	0.0007	0.0256	72%	1.02 [0.99; 1.06]

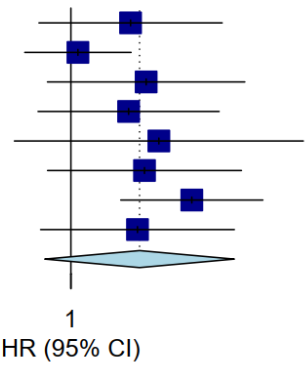


Figure S16: Leave-one-out sensitivity analysis of the association between AIx and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Tynjala et al, 2020	.25	0.1628	0.4034	74%	1.46 [0.77; 2.77]
Omitting Fortier et al, 2019	< .001	0	0	0%	2.24 [1.44; 3.48]
Omitting Mukai et al, 2019	.27	0.2229	0.4721	77%	1.52 [0.73; 3.18]
Total	.06	0.1405	0.3748	71%	1.66 [0.99; 2.78]

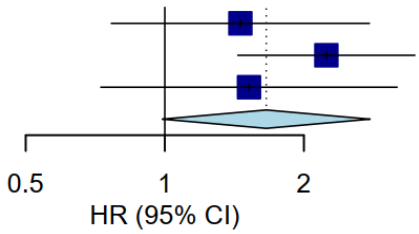


Figure S17: Leave-one-out sensitivity analysis of the association between FMD and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Schnabel et al, 2022	.29	0.0405	0.2012	35%	1.22 [0.84; 1.79]
Omitting Savic−Radojevic et al, 2013	.50	0.0924	0.3040	56%	1.19 [0.72; 1.98]
Omitting Giannitsi et al, 2021	.42	0.0003	0.0161	6%	1.03 [0.95; 1.12]
Total	.33	0.0015	0.0384	38%	1.05 [0.95; 1.15]

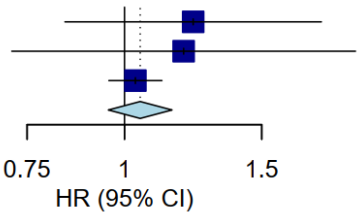


Figure S18: Leave-one-out sensitivity analysis of the association between FMD and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Schnabel et al, 2022	.59	0	0	0%	1.61 [0.29; 8.97]
Omitting Careri et al, 2013	.68	0	0	0%	1.06 [0.81; 1.37]
Omitting Abe et al, 2022	.70	0	0	0%	1.05 [0.81; 1.37]
Total	.66	0	0	0%	1.06 [0.82; 1.37]

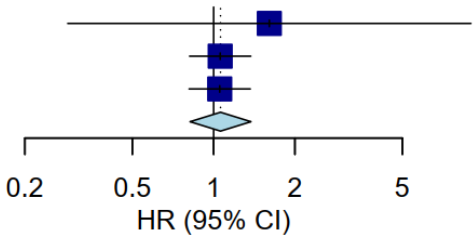


Figure S19: Leave-one-out sensitivity analysis of the association between CEPCs and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Patel et al, 2015	.47	0.1353	0.3679	92%	1.16 [0.78; 1.72]
Omitting Yang et al, 2017	.11	0.2166	0.4654	93%	1.48 [0.91; 2.40]
Omitting Lu et al, 2016	.34	0.3212	0.5667	91%	1.34 [0.74; 2.44]
Omitting Berezin et al, 2015	.05	0.1550	0.3936	75%	1.55 [0.99; 2.41]
Omitting Koller et al, 2016	.46	0.2537	0.5037	91%	1.23 [0.72; 2.10]
Total	.20	0.2116	0.4600	91%	1.34 [0.86; 2.08]

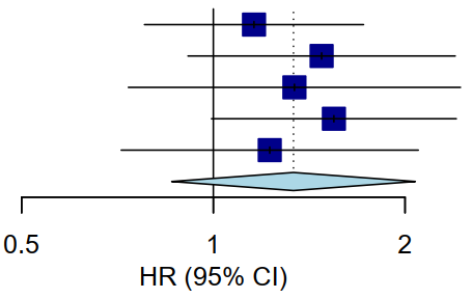


Figure S20: Leave-one-out sensitivity analysis of the association between E-selectin and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Delgado et al, 2020(1)	.34	0.0298	0.1725	71%	1.08 [0.92; 1.28]
Omitting Delgado et al, 2020(2)	.95	0.0028	0.0527	24%	1.00 [0.91; 1.09]
Omitting Delgado et al, 2020(3)	.25	0.0264	0.1626	66%	1.10 [0.93; 1.29]
Omitting Delgado et al, 2020(4)	.55	0.0304	0.1743	69%	1.05 [0.89; 1.25]
Omitting Delgado et al, 2020(5)	.20	0.0223	0.1493	64%	1.10 [0.95; 1.28]
Omitting von Scholten et al, 2016	.53	0.0255	0.1596	70%	1.05 [0.90; 1.22]
Omitting Skau et al, 2020	.43	0.0334	0.1827	72%	1.07 [0.90; 1.28]
Total	.39	0.0240	0.1551	66%	1.06 [0.92; 1.23]

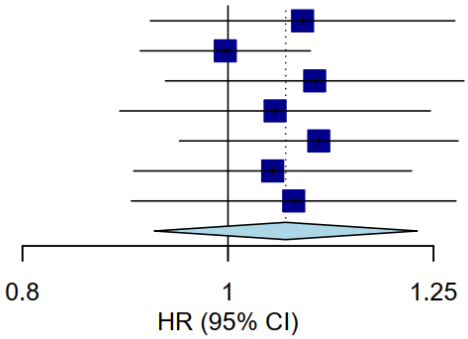


Figure S21: Leave-one-out sensitivity analysis of the association between E-selectin and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Delgado et al, 2020(1)	.96	0.1039	0.3224	85%	0.99 [0.70; 1.39]
Omitting Delgado et al, 2020(2)	.33	0.0507	0.2252	75%	0.88 [0.68; 1.14]
Omitting Delgado et al, 2020(3)	.93	0.0983	0.3135	84%	1.02 [0.72; 1.43]
Omitting Delgado et al, 2020(4)	.57	0.0879	0.2965	81%	0.91 [0.66; 1.26]
Omitting Delgado et al, 2020(5)	.65	0.0555	0.2355	73%	1.07 [0.81; 1.40]
Total	.82	0.0793	0.2816	81%	0.97 [0.73; 1.28]

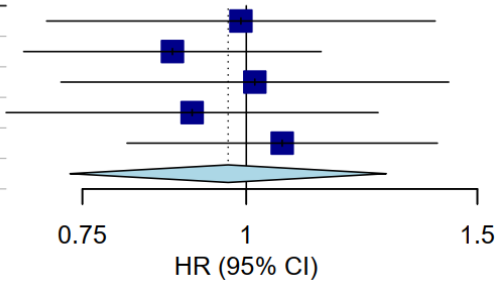


Figure S22: Leave-one-out sensitivity analysis of the association between LTL and all-cause mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Antwi et al, 2021	< .001	0.0062	0.0784	88%	1.13 [1.09; 1.18]
Omitting Arbeev et al, 2020	< .001	0.0036	0.0600	87%	1.12 [1.08; 1.16]
Omitting Cheng et al, 2021	< .001	0.0060	0.0776	88%	1.14 [1.09; 1.19]
Omitting Córdoba−Lanús et al, 2021	< .001	0.0053	0.0726	88%	1.13 [1.08; 1.17]
Omitting Dean et al, 2017	< .001	0.0061	0.0780	88%	1.13 [1.09; 1.18]
Omitting Deelen et al, 2014(1)	< .001	0.0063	0.0795	88%	1.14 [1.09; 1.18]
Omitting Deelen et al, 2014(2)	< .001	0.0045	0.0669	88%	1.12 [1.08; 1.16]
Omitting El Assar et al, 2021(1)	< .001	0.0046	0.0680	88%	1.14 [1.10; 1.18]
Omitting El Assar et al, 2021(2)	< .001	0.0059	0.0769	88%	1.14 [1.09; 1.18]
Omitting Fazzini et al, 2020	< .001	0.0063	0.0793	88%	1.13 [1.09; 1.18]
Omitting Glei et al, 2015	< .001	0.0062	0.0785	88%	1.14 [1.09; 1.19]
Omitting Huang et al, 2019	< .001	0.0057	0.0752	88%	1.13 [1.09; 1.18]
Omitting Jin et al, 2018	< .001	0.0056	0.0746	88%	1.13 [1.09; 1.18]
Omitting Kachuri et al, 2019	< .001	0.0058	0.0763	88%	1.13 [1.09; 1.18]
Omitting Margaritis et al, 2017	< .001	0.0054	0.0736	88%	1.13 [1.09; 1.17]
Omitting Marioni et al, 2016(1)	< .001	0.0061	0.0778	88%	1.13 [1.09; 1.18]
Omitting Marioni et al, 2016(2)	< .001	0.0060	0.0771	88%	1.14 [1.09; 1.18]
Omitting Mwasongwe et al, 2017	< .001	0.0059	0.0771	88%	1.13 [1.09; 1.18]
Omitting Pavanello et al, 2021	< .001	0.0047	0.0685	87%	1.12 [1.08; 1.17]
Omitting Pusceddu et al, 2018	< .001	0.0061	0.0779	88%	1.13 [1.09; 1.18]
Omitting Rode et al, 2015	< .001	0.0050	0.0710	71%	1.14 [1.10; 1.19]
Omitting Romaine et al, 2022	< .001	0.0063	0.0796	88%	1.14 [1.09; 1.18]
Omitting Samavat et al, 2021	< .001	0.0063	0.0793	88%	1.14 [1.09; 1.19]
Omitting Sanchez et al, 2022	< .001	0.0055	0.0738	88%	1.13 [1.09; 1.17]
Omitting Schneider et al, 2022	< .001	0.0061	0.0783	83%	1.14 [1.09; 1.19]
Omitting Zhan et al, 2018	< .001	0.0059	0.0768	88%	1.13 [1.09; 1.18]
Total	< .001	0.0056	0.0752	88%	1.13 [1.09; 1.18]

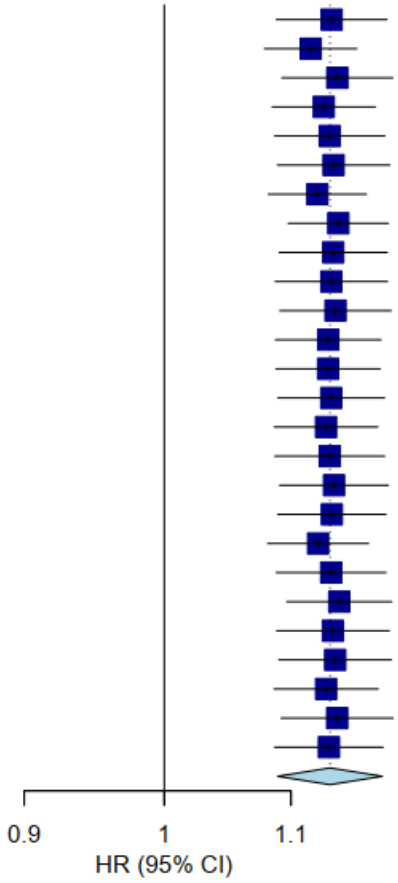
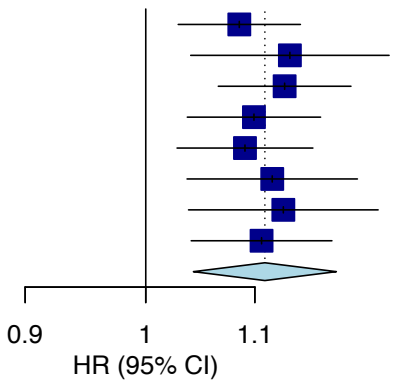


Figure S23: Leave-one-out sensitivity analysis of the association between LTL and CV mortality based on pooled risk estimates.

Source	P−value	Tau2	Tau	I2	HR (95% CI)
Omitting Arbeev et al, 2020	.003	0.0023	0.0478	81%	1.09 [1.03; 1.14]
Omitting Schneider et al, 2022	.004	0.0068	0.0823	78%	1.13 [1.04; 1.24]
Omitting Rode et al, 2015	< .001	0.0019	0.0432	62%	1.13 [1.07; 1.20]
Omitting Margaritis et al, 2017	.001	0.0032	0.0567	79%	1.10 [1.04; 1.17]
Omitting Fazzini et al, 2020	.004	0.0029	0.0536	81%	1.09 [1.03; 1.16]
Omitting Pusceddu et al, 2018	.004	0.0053	0.0730	83%	1.12 [1.04; 1.20]
Omitting Romaine et al, 2022	.004	0.0064	0.0803	83%	1.13 [1.04; 1.23]
Omitting Huang et al, 2019	.001	0.0037	0.0612	83%	1.11 [1.04; 1.18]
Total	.001	0.0039	0.0626	81%	1.11 [1.04; 1.18]



4.2 Leave-one-out method based on pooled event counts.

Figure S1: Leave-one-out sensitivity analysis of the association between cIMT and all-cause mortality based on pooled event counts.

Source	P–value	Tau2	Tau	I2	RR (95% CI)
Omitting Hernández et al, 2015	< .001	0.0173	0.1314	15%	1.88 [1.39; 2.53]
Omitting Roumeliotis et al, 2019	< .001	< 0.0001	0.0016	2%	1.77 [1.33; 2.36]
Omitting Timoteo et al, 2019	< .001	0.0335	0.1829	15%	2.11 [1.50; 2.96]
Omitting Cardoso et al, 2019b	< .001	0	0	0%	2.24 [1.60; 3.14]
Omitting Meireles et al, 2018	< .001	0.0287	0.1695	22%	1.88 [1.34; 2.63]
Total	< .001	0.0194	0.1393	11%	1.96 [1.46; 2.61]

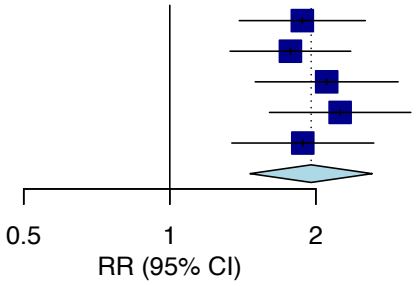


Figure S2: Leave-one-out sensitivity analysis of the association between cIMT and CV mortality based on pooled event counts.

Source	P–value	Tau2	Tau	I2	RR (95% CI)
Omitting Hernández et al, 2015	< .001	0	0	0%	2.26 [1.44; 3.53]
Omitting Timoteo et al, 2019	< .001	< 0.0001	0.0004	0%	2.37 [1.49; 3.76]
Omitting Novo et al, 2013	< .001	0	0	0%	2.79 [1.60; 4.84]
Omitting Cardoso et al, 2019b	.001	0	0	0%	2.48 [1.43; 4.30]
Total	< .001	0	0	0%	2.43 [1.58; 3.74]

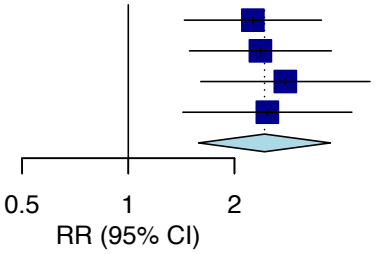


Figure S3: Leave-one-out sensitivity analysis of the association between CP and all-cause mortality based on pooled event counts.

Source	P–value	Tau2	Tau	I2	RR (95% CI)
Omitting Park et al, 2013	< .001	0.0963	0.3103	68%	3.35 [2.33; 4.83]
Omitting Jung et al, 2013	< .001	< 0.0001	0.0014	19%	4.21 [3.44; 5.15]
Omitting Chen et al, 2020	< .001	0.2261	0.4755	75%	3.90 [2.28; 6.67]
Omitting Yang et al, 2020	< .001	0.2184	0.4674	73%	3.55 [2.06; 6.11]
Omitting Li et al, 2020	< .001	0.2320	0.4817	75%	3.61 [2.07; 6.28]
Total	< .001	0.1308	0.3617	69%	3.68 [2.49; 5.43]

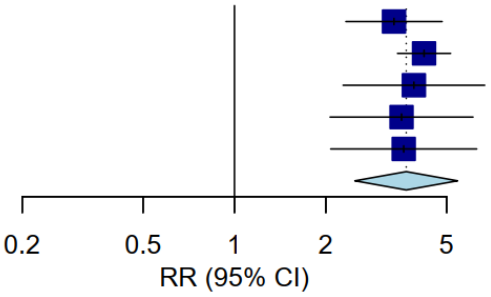


Figure S4: Leave-one-out sensitivity analysis of the association between CP and CV mortality based on pooled event counts.

Source	P–value	Tau2	Tau	I2	RR (95% CI)
Omitting Park et al, 2013	< .001	0	0	0%	4.38 [2.15; 8.90]
Omitting Jung et al, 2013	< .001	0	0	0%	7.59 [3.46; 16.66]
Omitting Chen et al, 2020	.003	0.4190	0.6473	56%	6.05 [1.85; 19.86]
Total	< .001	0.0230	0.1518	13%	5.64 [2.98; 10.68]

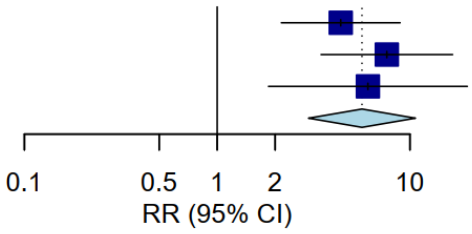


Figure S5: Leave-one-out sensitivity analysis of the association between CACS and all-cause mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Valenti et al, 2015	< .001	0.0395	0.1987	58%	2.95 [2.44; 3.56]
Omitting Carr et al, 2017	< .001	0.0299	0.1729	58%	3.03 [2.57; 3.56]
Omitting Jung et al, 2022	< .001	0.0303	0.1741	60%	3.00 [2.55; 3.52]
Omitting Mitchell et al, 2018	< .001	0.0265	0.1629	53%	2.88 [2.44; 3.40]
Omitting Cho et al, 2017	< .001	0.0362	0.1902	59%	2.98 [2.49; 3.56]
Omitting Naya et al, 2013	< .001	0.0259	0.1609	58%	3.04 [2.61; 3.54]
Omitting Engbers et al, 2016	< .001	0.0311	0.1763	60%	2.99 [2.54; 3.52]
Omitting Hughes−Austin et al, 2016	< .001	0.0019	0.0431	0%	3.31 [3.04; 3.60]
Omitting Orimoloye et al, 2018	< .001	0.0314	0.1771	53%	2.88 [2.42; 3.44]
Total	< .001	0.0262	0.1617	54%	3.01 [2.59; 3.50]

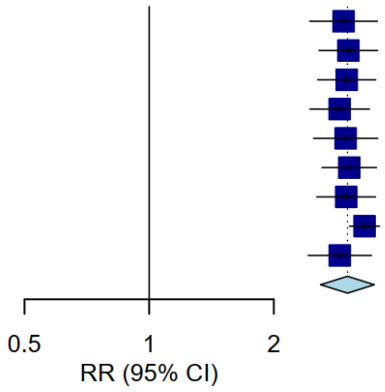


Figure S6: Leave-one-out sensitivity analysis of the association between CACS and CV mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Zhou et al, 2022	< .001	0	0	0%	5.56 [4.55; 6.80]
Omitting Mitchell et al, 2018	.003	0.3200	0.5657	42%	3.87 [1.58; 9.47]
Omitting Parma et al, 2016	< .001	< 0.0001	0.0016	37%	5.42 [4.44; 6.61]
Omitting Orimoloye et al, 2018	.001	0.2180	0.4669	23%	3.72 [1.67; 8.25]
Total	< .001	0	0	15%	5.40 [4.43; 6.58]

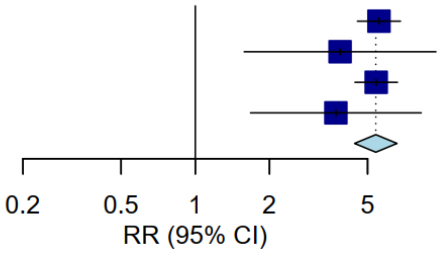


Figure S7: Leave-one-out sensitivity analysis of the association between baPWV and all-cause mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Ban et al, 2022	.002	0.4892	0.6994	91%	3.20 [1.55; 6.62]
Omitting Li et al, 2022b	.007	0.4922	0.7016	91%	2.79 [1.33; 5.85]
Omitting Saji et al, 2017	< .001	0.4184	0.6468	90%	3.41 [1.73; 6.70]
Omitting Song et al, 2022	< .001	0.3439	0.5864	84%	3.61 [1.91; 6.80]
Omitting Lin et al, 2021	< .001	0.1454	0.3813	72%	2.39 [1.51; 3.79]
Total	< .001	0.3822	0.6182	89%	3.05 [1.69; 5.50]

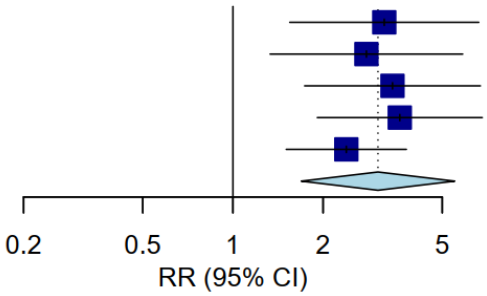


Figure S8: Leave-one-out sensitivity analysis of the association between baPWV and CV mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Ban et al, 2022	.007	1.7849	1.3360	73%	11.83 [1.97; 71.05]
Omitting Tokitsu et al, 2018	.006	1.7306	1.3155	73%	12.04 [2.07; 70.01]
Omitting Park et al, 2020	< .001	0.8693	0.9324	44%	17.30 [3.57; 83.97]
Omitting Lin et al, 2021	< .001	0	0	0%	4.89 [2.27; 10.54]
Total	< .001	1.0107	1.0053	59%	10.27 [2.78; 37.92]

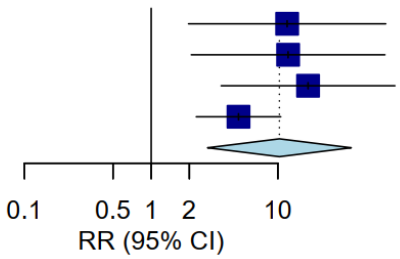


Figure S9: Leave-one-out sensitivity analysis of the association between cfPWV and all-cause mortality based on pooled event counts.

Source	P–value	Tau2	Tau	I2	RR (95% CI)
Omitting Avramovski et al, 2014	< .001	0.0458	0.2140	18%	2.71 [1.90; 3.86]
Omitting Baumann et al, 2014	< .001	0.0449	0.2120	19%	2.74 [1.94; 3.86]
Omitting Samara et al, 2022	< .001	0.0792	0.2814	26%	2.87 [1.87; 4.41]
Omitting Cardoso et al, 2019a	< .001	0	0	0%	3.49 [2.41; 5.03]
Omitting Xu et al, 2015	< .001	0.0487	0.2206	24%	2.80 [1.99; 3.95]
Omitting Han et al, 2016	< .001	0.0906	0.3010	25%	2.92 [1.85; 4.61]
Total	< .001	0.0526	0.2294	17%	2.86 [2.03; 4.05]

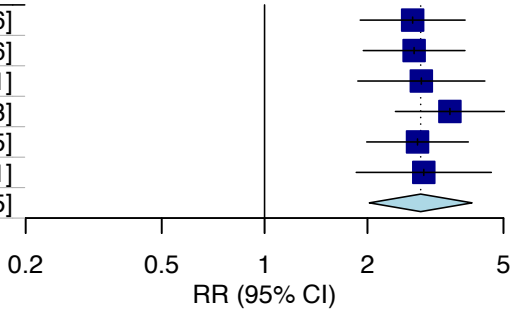


Figure S10: Leave-one-out sensitivity analysis of the association between cfPWV and CV mortality based on pooled event counts.

Source	P–value	Tau2	Tau	I2	RR (95% CI)
Omitting Avramovski et al, 2014	.009	0.1368	0.3699	56%	2.43 [1.25; 4.72]
Omitting Cardoso et al, 2019a	.005	0.3149	0.5612	35%	5.40 [1.68; 17.38]
Omitting Han et al, 2016	.16	1.5649	1.2510	75%	4.11 [0.58; 28.92]
Total	.008	0.3707	0.6089	65%	3.27 [1.36; 7.87]

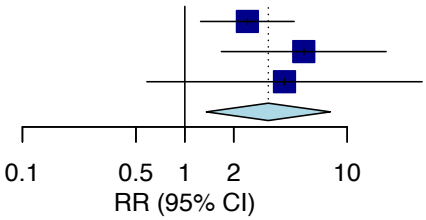


Figure S11: Leave-one-out sensitivity analysis of the association between low ABI and all-cause mortality based on pooled event counts.

Source	P–value	Tau2	Tau	I2	RR (95% CI)
Omitting Samba et al, 2019	< .001	0.0648	0.2545	79%	2.57 [2.22; 2.97]
Omitting Chen et al, 2016a	< .001	0.0710	0.2665	79%	2.56 [2.20; 2.98]
Omitting Alzamora et al, 2013	< .001	0.0664	0.2578	78%	2.51 [2.16; 2.90]
Omitting Papa et al, 2013	< .001	0.0648	0.2546	79%	2.53 [2.19; 2.92]
Omitting Kang et al, 2016	< .001	0.0657	0.2563	79%	2.53 [2.19; 2.92]
Omitting Milionis et al, 2013	< .001	0.0666	0.2581	79%	2.51 [2.17; 2.91]
Omitting Peláez et al, 2015	< .001	0.0650	0.2549	79%	2.54 [2.20; 2.93]
Omitting Yamawaki et al, 2018	< .001	0.0621	0.2492	78%	2.58 [2.24; 2.98]
Omitting Rantasalo et al, 2022	< .001	0.0495	0.2226	77%	2.60 [2.28; 2.97]
Omitting Natsuaki et al, 2014	< .001	0.0709	0.2664	79%	2.52 [2.17; 2.94]
Omitting Hsu et al, 2020	< .001	0.0543	0.2330	73%	2.46 [2.14; 2.83]
Omitting Jazayeri et al, 2019	< .001	0.0707	0.2658	76%	2.51 [2.15; 2.92]
Omitting Potier et al, 2015	< .001	0.0663	0.2575	78%	2.58 [2.22; 2.99]
Omitting Cardoso et al, 2018	< .001	0.0712	0.2668	79%	2.55 [2.19; 2.97]
Omitting Yokoyama et al, 2014	< .001	0.0417	0.2043	74%	2.44 [2.16; 2.76]
Omitting Jagt et al, 2022	< .001	0.0728	0.2697	79%	2.55 [2.18; 2.97]
Omitting Sartipy et al, 2018	< .001	0.0656	0.2562	73%	2.58 [2.22; 2.99]
Omitting Aiumtrakul et al, 2022a	< .001	0.0567	0.2382	76%	2.47 [2.15; 2.84]
Omitting Mäkelä et al, 2018	< .001	0.0699	0.2643	79%	2.53 [2.18; 2.94]
Total	< .001	0.0636	0.2521	78%	2.53 [2.20; 2.92]

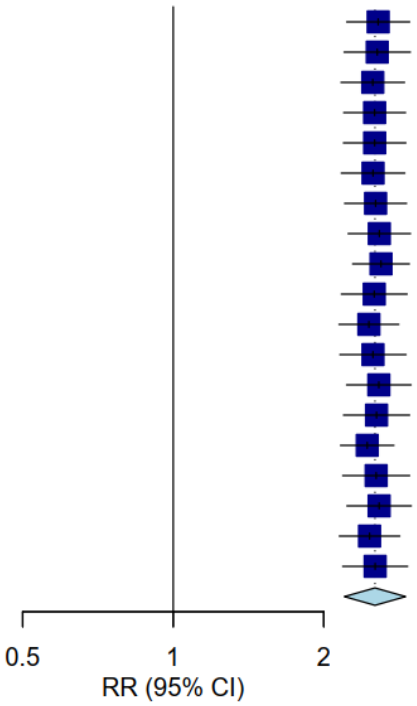


Figure S12: Leave-one-out sensitivity analysis of the association between low ABI and CV mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Hyun et al, 2014	< .001	0.1238	0.3518	82%	2.89 [2.14; 3.91]
Omitting Yamawaki et al, 2018	< .001	0.1098	0.3314	82%	2.92 [2.20; 3.87]
Omitting Natsuaki et al, 2014	< .001	0.1310	0.3620	83%	2.75 [2.02; 3.73]
Omitting Jazayeri et al, 2019	< .001	0.0142	0.1193	40%	2.42 [2.08; 2.82]
Omitting Potier et al, 2015	< .001	0.1080	0.3287	76%	2.95 [2.21; 3.94]
Omitting Cardoso et al, 2018	< .001	0.1336	0.3655	83%	2.81 [2.06; 3.82]
Omitting Suwannasom et al, 2023	< .001	0.1130	0.3362	82%	2.70 [2.04; 3.57]
Omitting Sartipy et al, 2018	< .001	0.1382	0.3718	83%	2.80 [2.04; 3.85]
Total	< .001	0.1095	0.3309	80%	2.78 [2.13; 3.63]

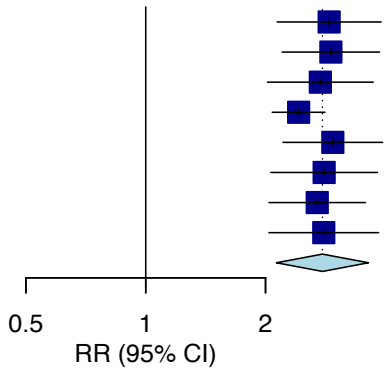


Figure S13: Leave-one-out sensitivity analysis of the association between high ABI and all-cause mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Mäkelä et al, 2018	.01	0.1589	0.3986	79%	1.53 [1.10; 2.13]
Omitting Velescu et al, 2017	.005	0.0121	0.1099	0%	1.28 [1.08; 1.51]
Omitting Chen et al, 2016a	.007	0.1601	0.4001	80%	1.58 [1.14; 2.21]
Omitting Alzamora et al, 2013	.006	0.1550	0.3937	80%	1.57 [1.14; 2.17]
Omitting Aiumtrakul et al, 2022a	.005	0.1453	0.3811	80%	1.55 [1.14; 2.11]
Omitting Peláez et al, 2015	.006	0.1430	0.3781	80%	1.53 [1.13; 2.08]
Omitting Hendriks et al, 2016	.003	0.1450	0.3808	78%	1.64 [1.19; 2.26]
Omitting Jazayeri et al, 2019	.002	0.1339	0.3659	72%	1.66 [1.21; 2.28]
Omitting Potier et al, 2015	.006	0.1580	0.3974	80%	1.59 [1.14; 2.21]
Omitting Samba et al, 2019	.005	0.1481	0.3849	80%	1.56 [1.14; 2.13]
Total	.003	0.1383	0.3718	77%	1.55 [1.16; 2.09]

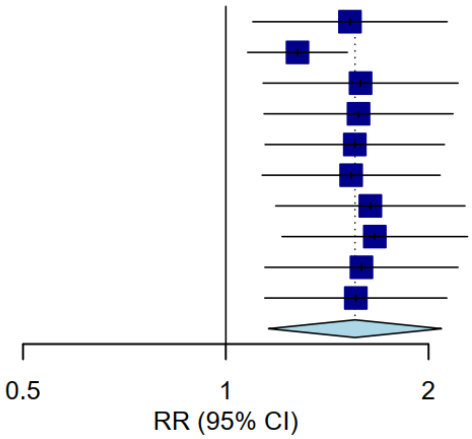


Figure S14: Leave-one-out sensitivity analysis of the association between high ABI and CV mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Velescu et al, 2017	< .001	< 0.0001	0.0030	7%	1.57 [1.20; 2.05]
Omitting Hendriks et al, 2016	.01	0.3560	0.5966	78%	2.32 [1.20; 4.47]
Omitting Jazayeri et al, 2019	.01	0.3688	0.6073	80%	2.29 [1.18; 4.43]
Omitting Potier et al, 2015	.02	0.3905	0.6249	80%	2.25 [1.14; 4.44]
Omitting Hyun et al, 2014	.05	0.4102	0.6405	80%	1.96 [0.99; 3.91]
Total	.009	0.2946	0.5428	75%	2.05 [1.20; 3.53]

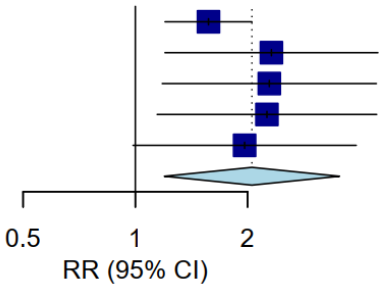


Figure S15: Leave-one-out sensitivity analysis of the association between FMD and CV mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Careri et al, 2013	.75	0	0	0%	1.23 [0.33; 4.54]
Omitting Abe et al, 2022	> .99	0	0	0%	1.00 [0.26; 3.91]
Omitting Zhang et al, 2022	.71	0	0	0%	1.34 [0.29; 6.33]
Total	.78	0	0	0%	1.17 [0.38; 3.66]

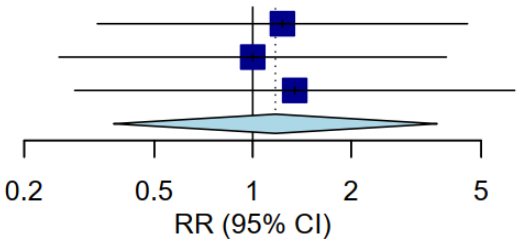


Figure S16: Leave-one-out sensitivity analysis of the association between CEPCs and all-cause mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Pelliccia et al, 2013	.16	0	0	0%	1.24 [0.92; 1.66]
Omitting Padfield et al, 2013	.53	0.5398	0.7347	77%	0.73 [0.27; 1.97]
Omitting Wu et al, 2014	.53	0.5416	0.7359	77%	0.73 [0.27; 1.97]
Omitting Lu et al, 2016	.18	0.2255	0.4749	23%	0.53 [0.21; 1.35]
Total	.53	0.3832	0.6190	66%	0.77 [0.35; 1.73]

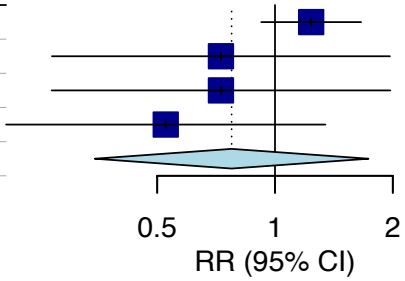


Figure S17: Leave-one-out sensitivity analysis of the association between LTL and all-cause mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Schneider et al, 2022	.002	0.0950	0.3082	98%	1.40 [1.13; 1.73]
Omitting Samavat et al, 2021	.002	0.0944	0.3073	98%	1.41 [1.14; 1.75]
Omitting Rode et al, 2015	.003	0.0736	0.2714	98%	1.34 [1.11; 1.62]
Omitting Ye et al, 2013	.002	0.0923	0.3038	98%	1.40 [1.13; 1.72]
Omitting Jin et al, 2018	< .001	0.0878	0.2963	98%	1.41 [1.16; 1.72]
Omitting Wang et al, 2017	< .001	0.0888	0.2981	98%	1.43 [1.17; 1.76]
Omitting Zhang et al, 2013	< .001	0.0916	0.3027	98%	1.42 [1.15; 1.75]
Omitting Antwi et al, 2021	< .001	0.0813	0.2851	98%	1.46 [1.19; 1.78]
Omitting Doherty et al, 2018	< .001	0.0801	0.2830	97%	1.46 [1.20; 1.78]
Omitting Huang et al, 2019	< .001	0.0480	0.2192	97%	1.31 [1.12; 1.53]
Omitting Chan et al, 2020	< .001	0.0842	0.2902	98%	1.40 [1.15; 1.69]
Total	< .001	0.0836	0.2891	98%	1.40 [1.16; 1.70]

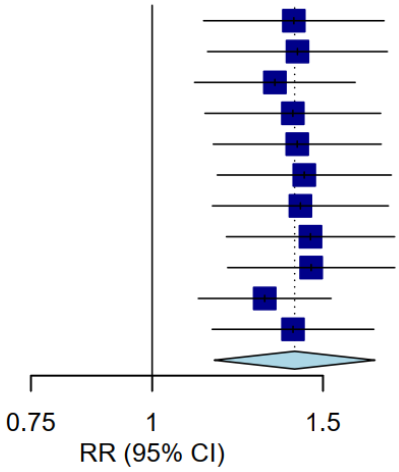
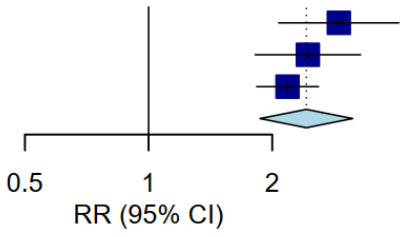


Figure S18: Leave-one-out sensitivity analysis of the association between LTL and CV mortality based on pooled event counts.

Source	P−value	Tau2	Tau	I2	RR (95% CI)
Omitting Rode et al, 2015	< .001	0	0	0%	2.91 [2.07; 4.07]
Omitting Ye et al, 2013	< .001	0.0283	0.1681	58%	2.44 [1.82; 3.28]
Omitting Huang et al, 2019	< .001	0	0	0%	2.18 [1.83; 2.59]
Total	< .001	0.0204	0.1429	16%	2.42 [1.87; 3.14]



5 Supplementary assessment of publication bias for mortality outcomes

5.1 Funnel plots for meta-analyses by pooling risk estimates

Figure S1: A funnel plot with the trim and fill procedure for the assosiation between cIMT and all-cause mortality based on pooled risk estimates.

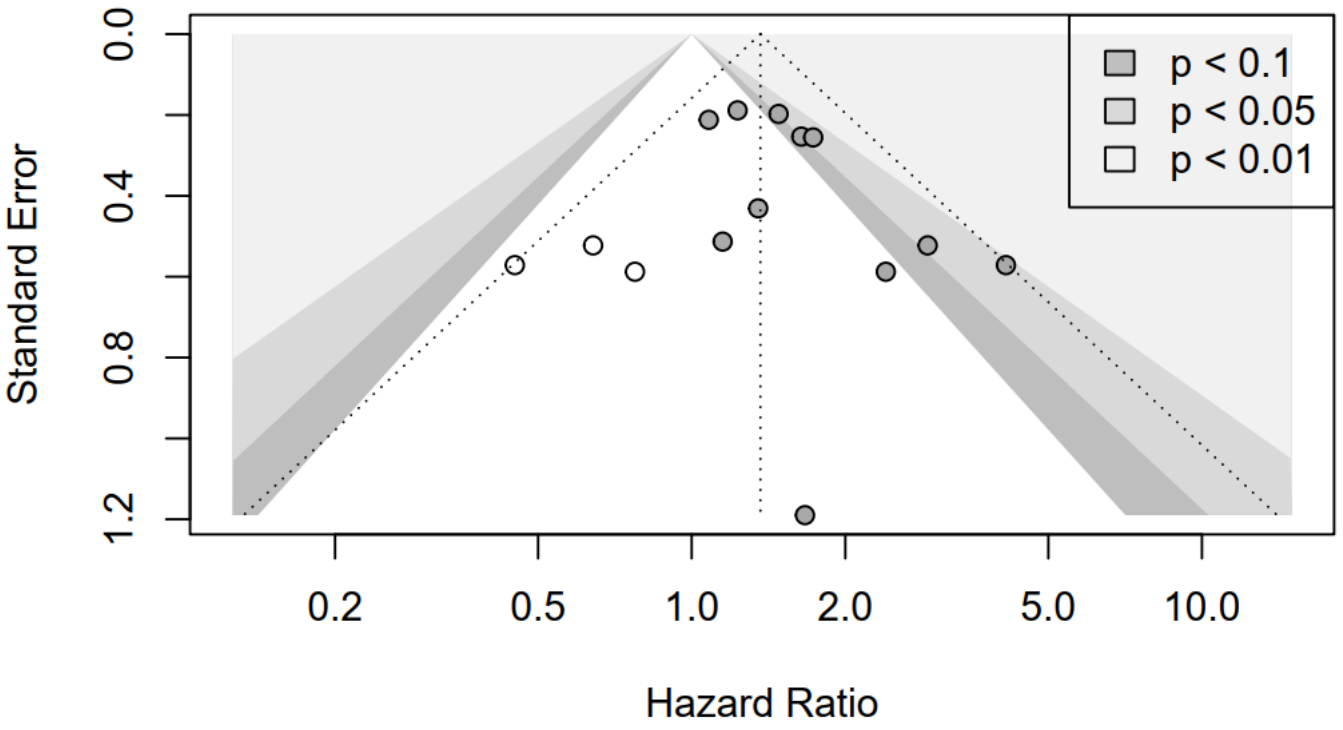


Figure S2: A funnel plot with the trim and fill procedure for the assosiation between cIMT and CV mortality based on pooled risk estimates.

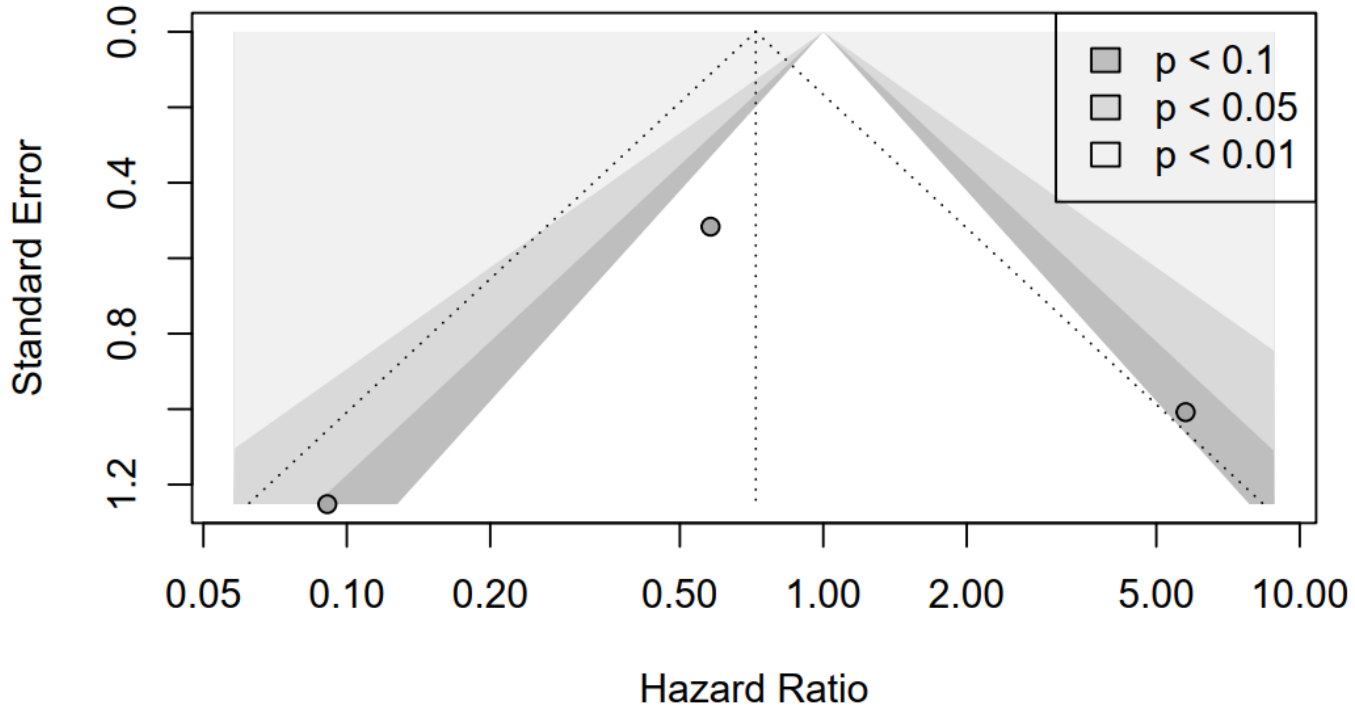


Figure S3: A funnel plot with the trim and fill procedure for the assosiation between CP and all-cause mortality based on pooled risk estimates.

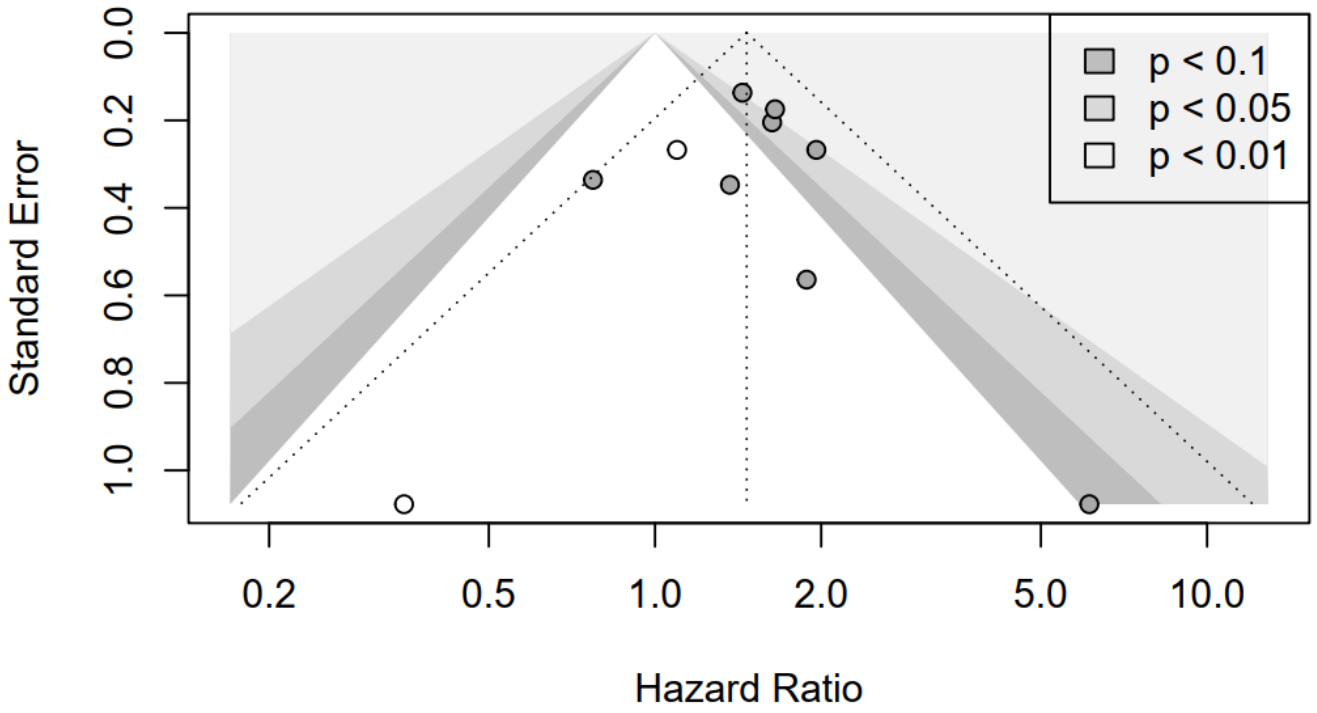


Figure S4: A funnel plot with the trim and fill procedure for the assosiation between CP and CV mortality based on pooled risk estimates.

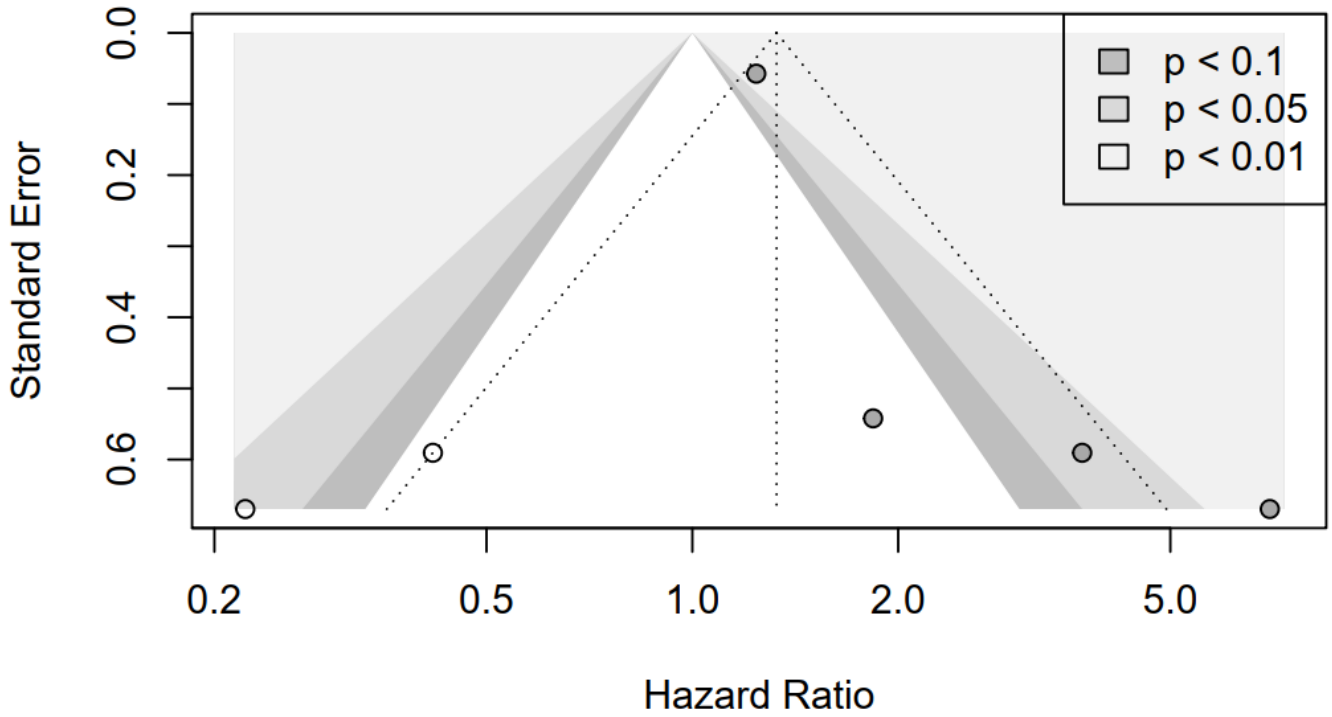


Figure S5: A funnel plot with the trim and fill procedure for the assosiation between CACS and all-cause mortality based on pooled risk estimates.

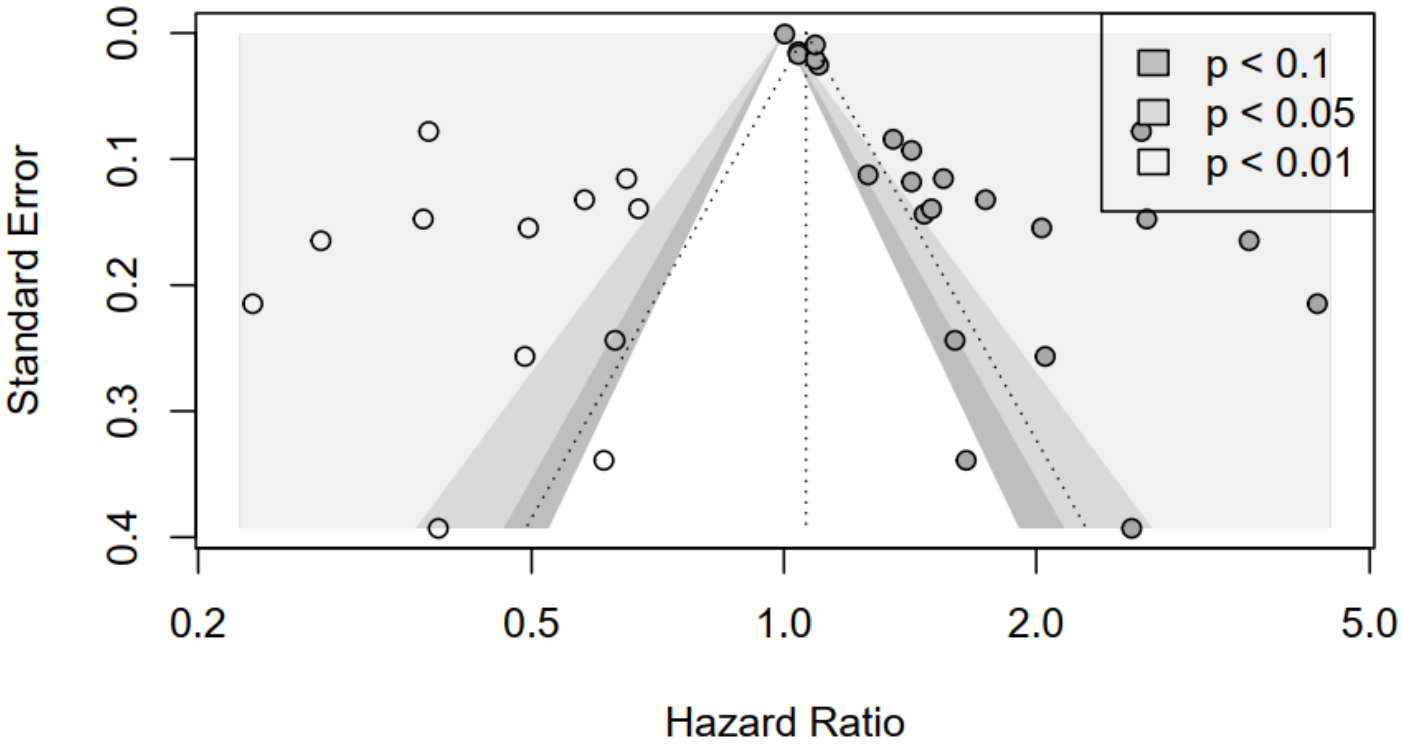


Figure S6: A funnel plot with the trim and fill procedure for the assosiation between CACS and CV mortality based on pooled risk estimates.

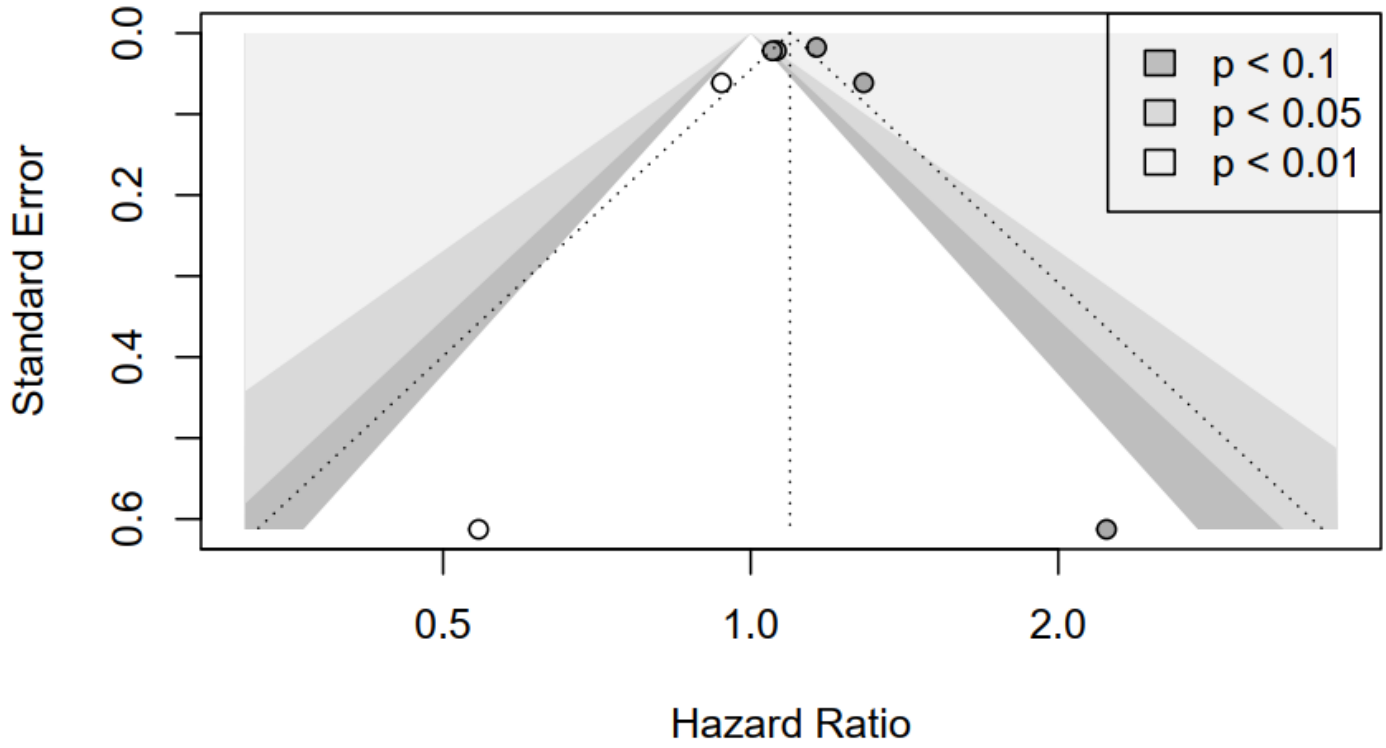


Figure S7: A funnel plot with the trim and fill procedure for the assosiation between baPWV and all-cause mortality based on pooled risk estimates.

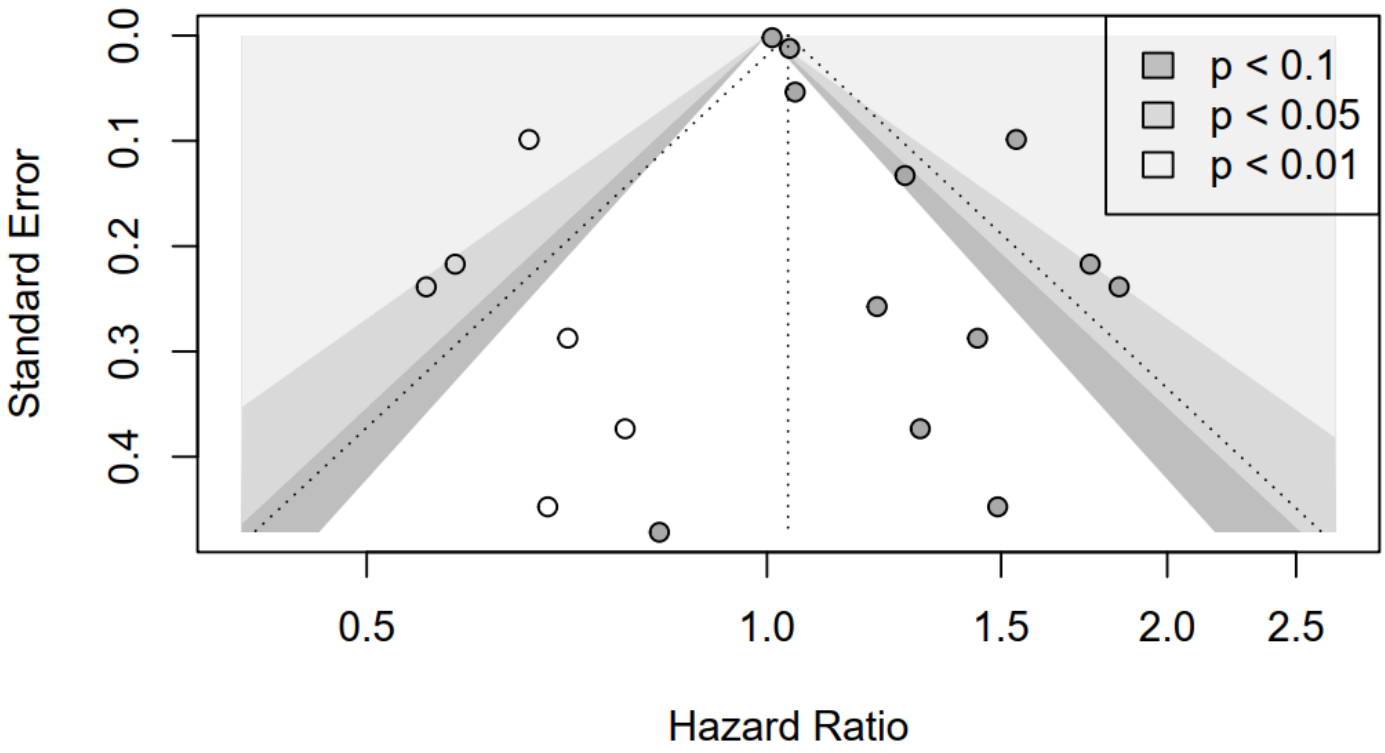


Figure S8: A funnel plot with the trim and fill procedure for the assosiation between baPWV and CV mortality based on pooled risk estimates.

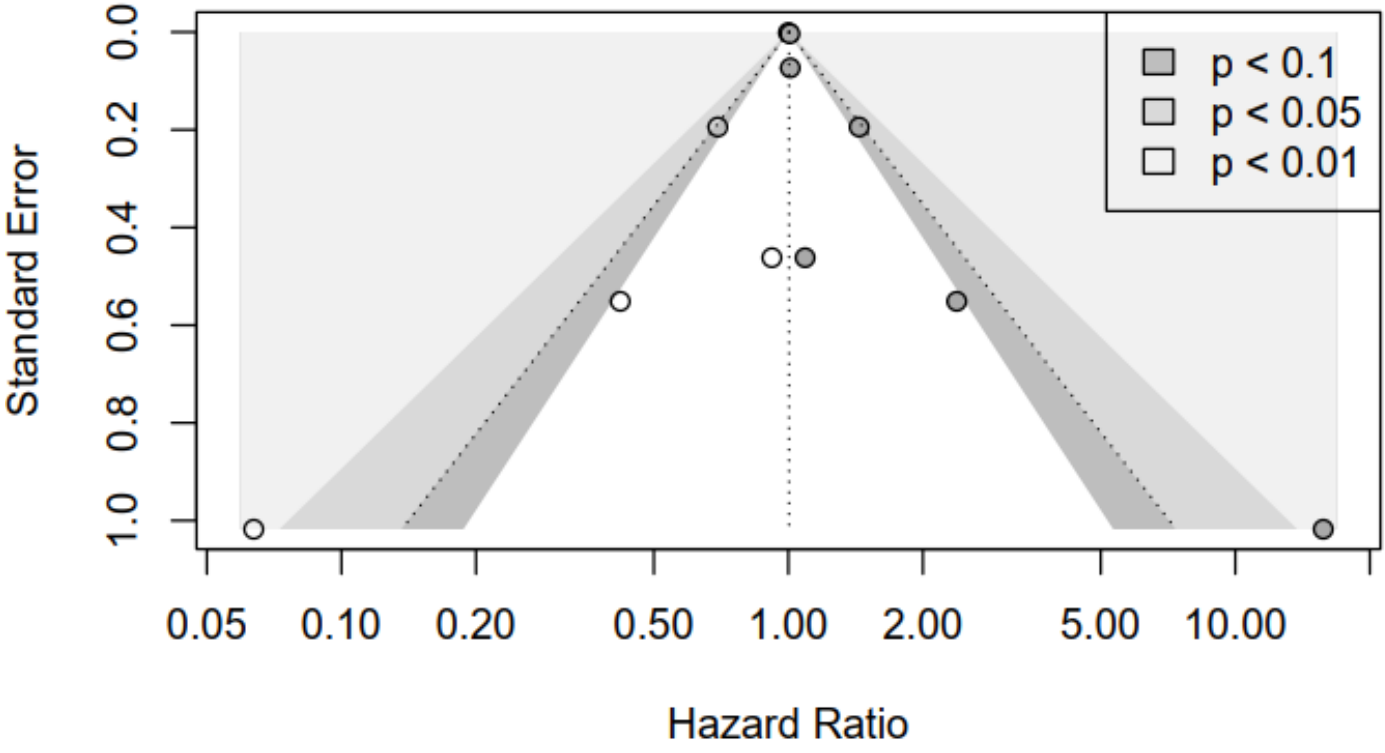


Figure S9: A funnel plot with the trim and fill procedure for the assosiation between cfPWV and all-cause mortality based on pooled risk estimates.

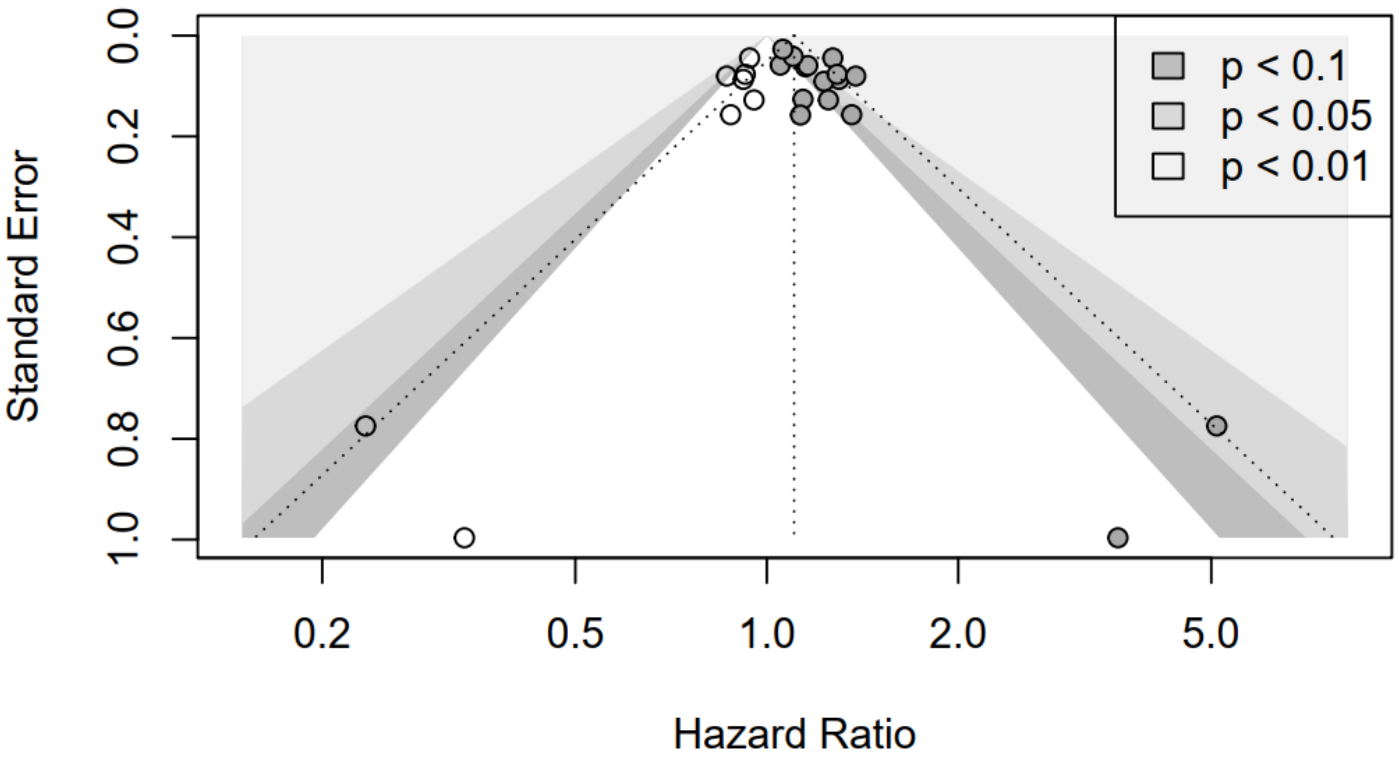


Figure S10: A funnel plot with the trim and fill procedure for the assosiation between cfPWV and CV mortality based on pooled risk estimates.

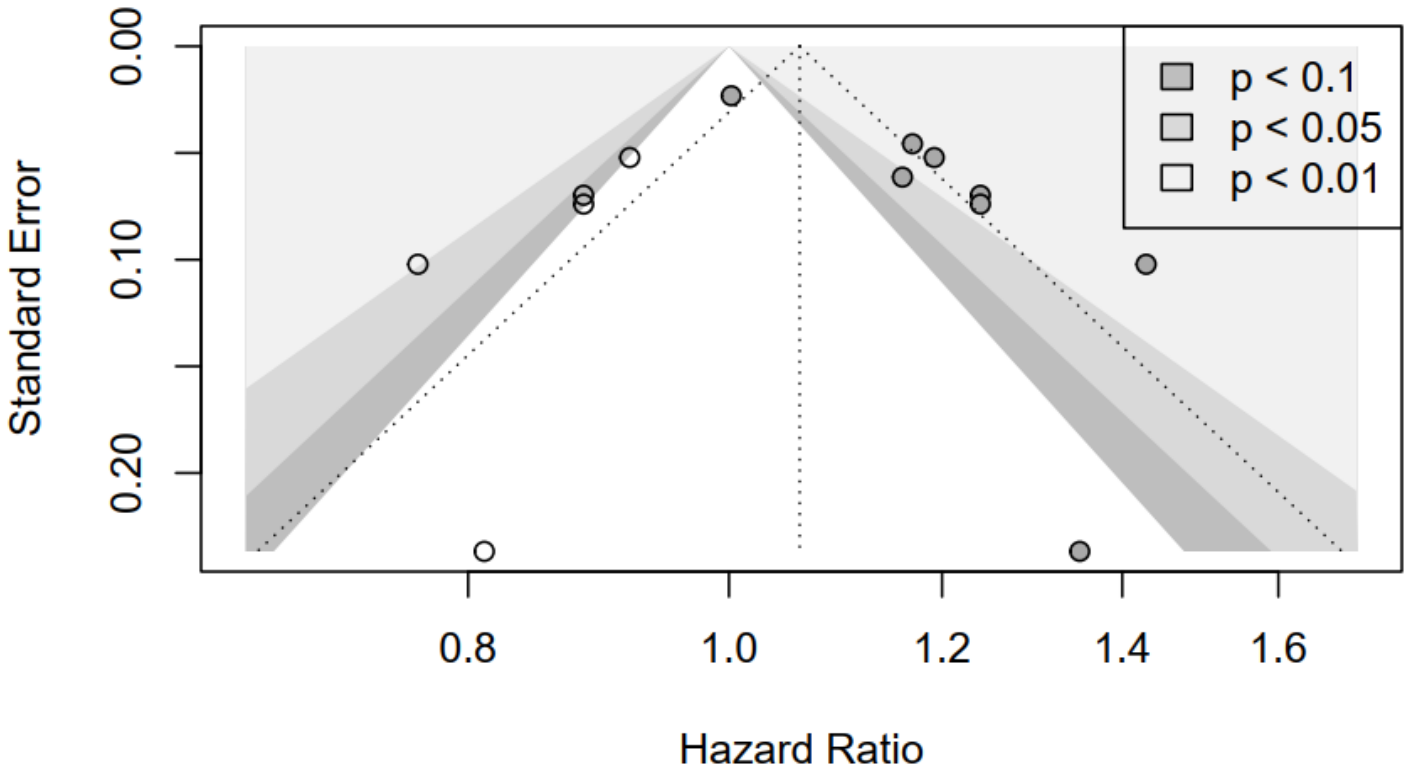


Figure S11: A funnel plot with the trim and fill procedure for the assosiation between low ABI and all-cause mortality based on pooled risk estimates.

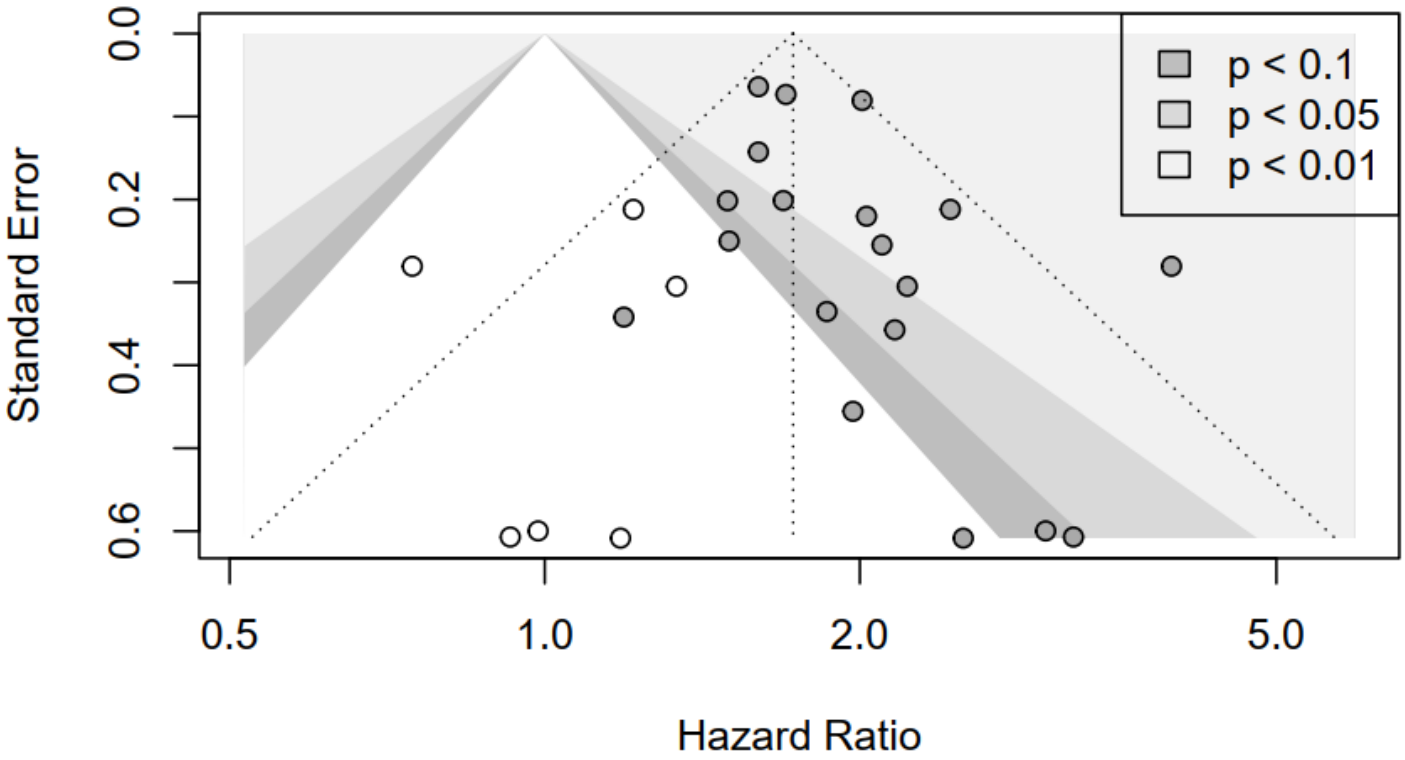


Figure S12: A funnel plot with the trim and fill procedure for the assosiation between low ABI and CV mortality based on pooled risk estimates.

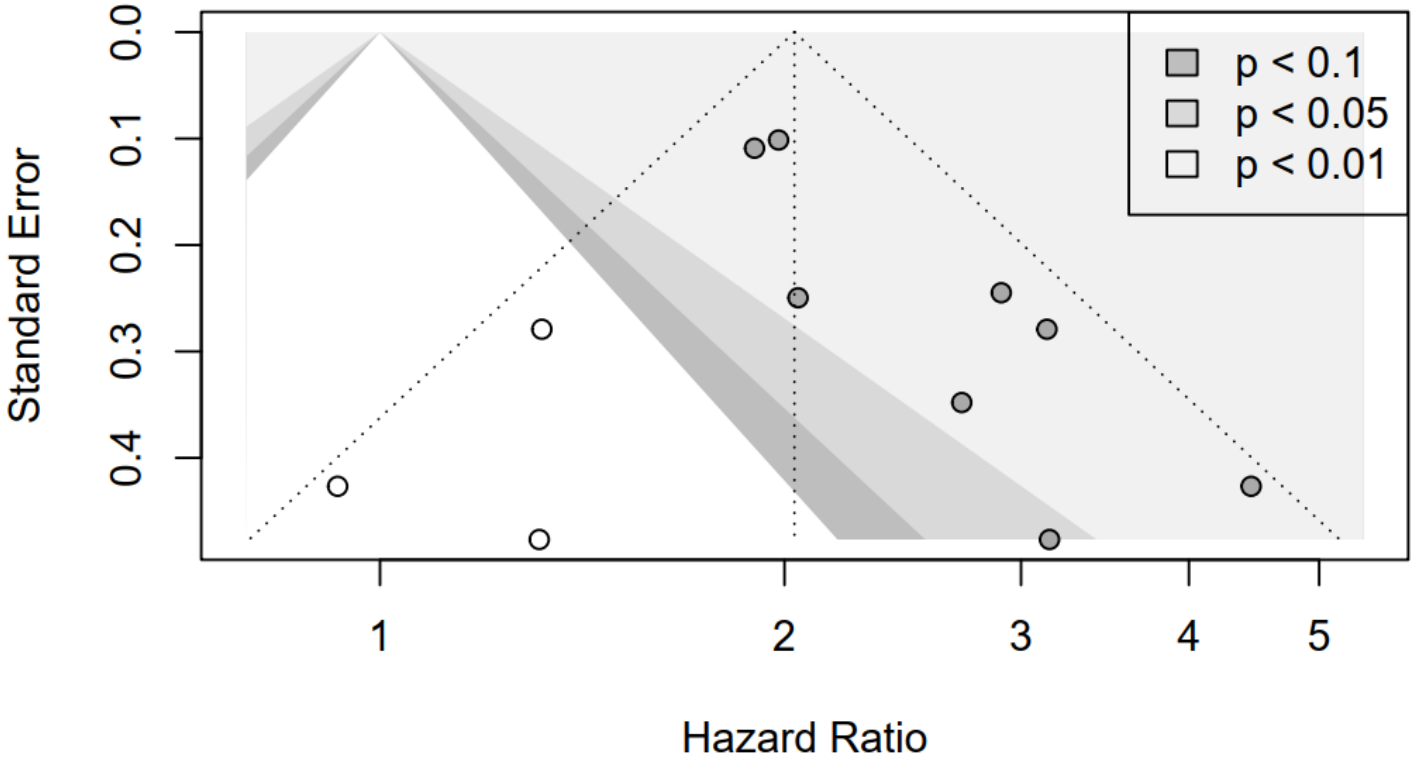


Figure S13: A funnel plot with the trim and fill procedure for the assosiation between high ABI and all-cause mortality based on pooled risk estimates.

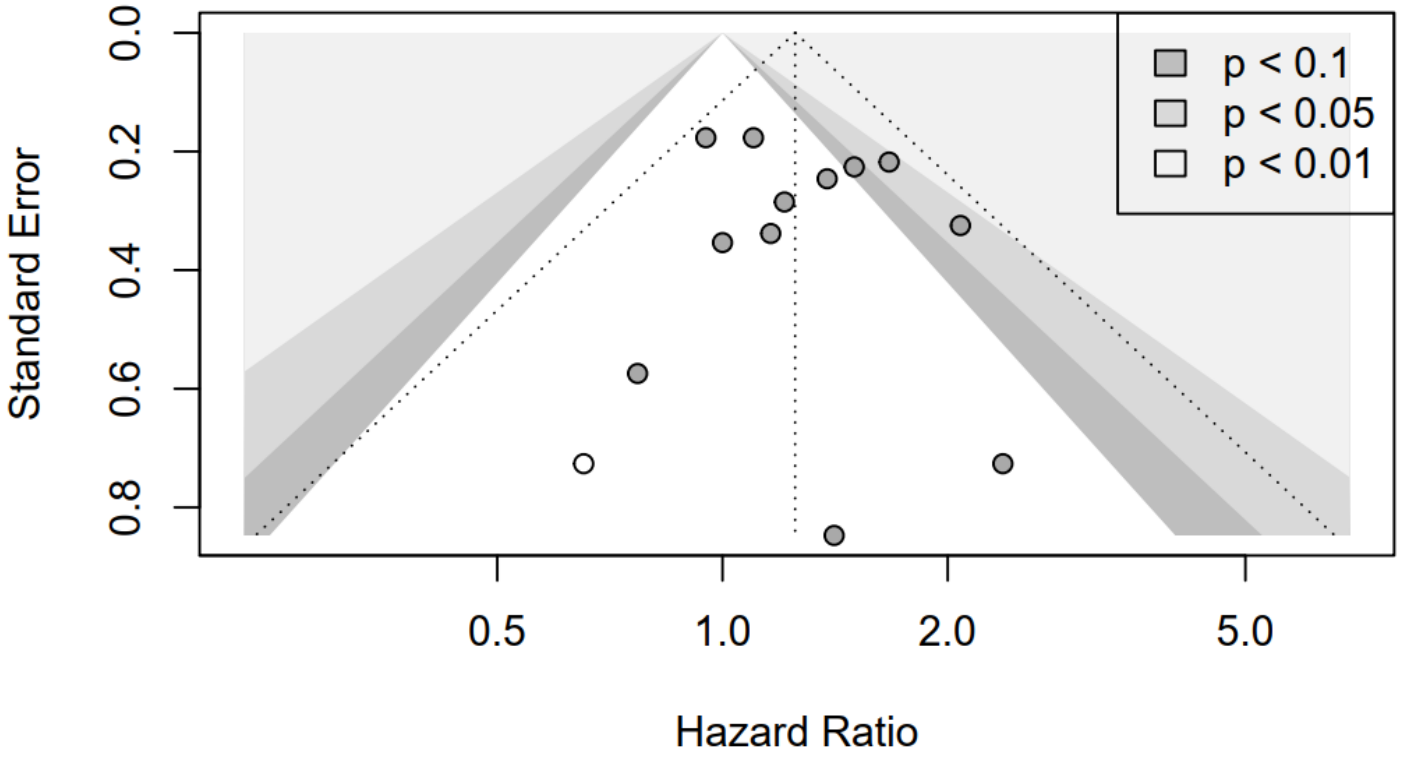


Figure S14: A funnel plot with the trim and fill procedure for the assosiation between high ABI and CV mortality based on pooled risk estimates.

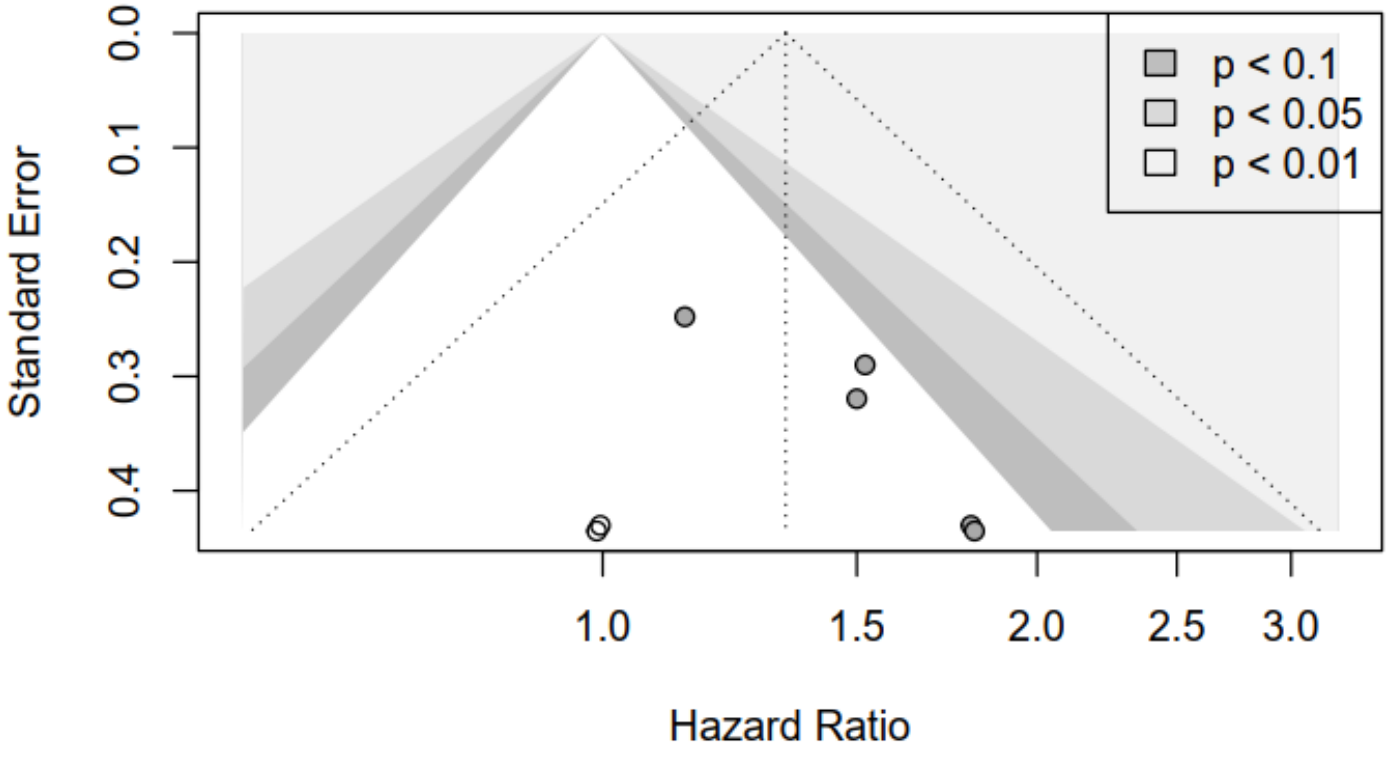


Figure S15: A funnel plot with the trim and fill procedure for the assosiation between AIx and all-cause mortality based on pooled risk estimates.

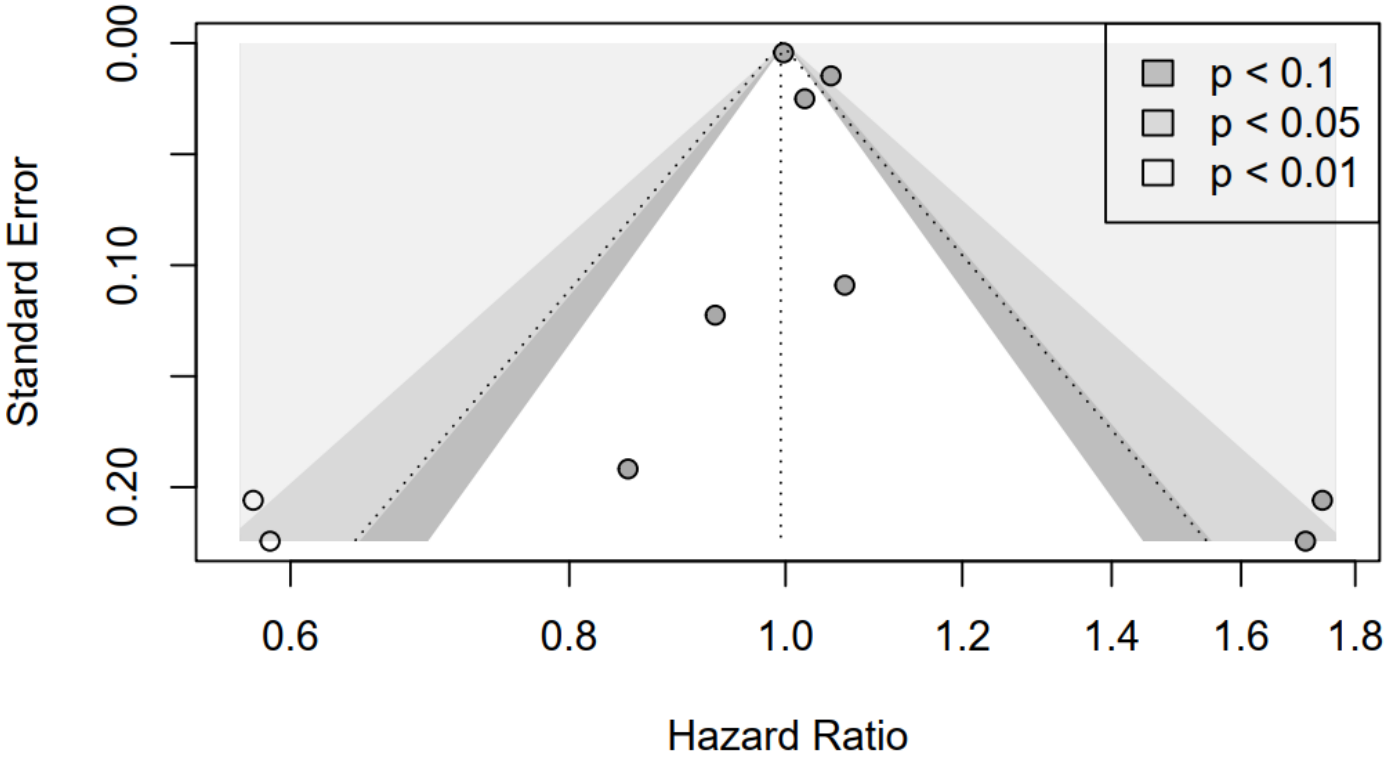


Figure S16: A funnel plot with the trim and fill procedure for the assosiation between AIx and CV mortality based on pooled risk estimates.

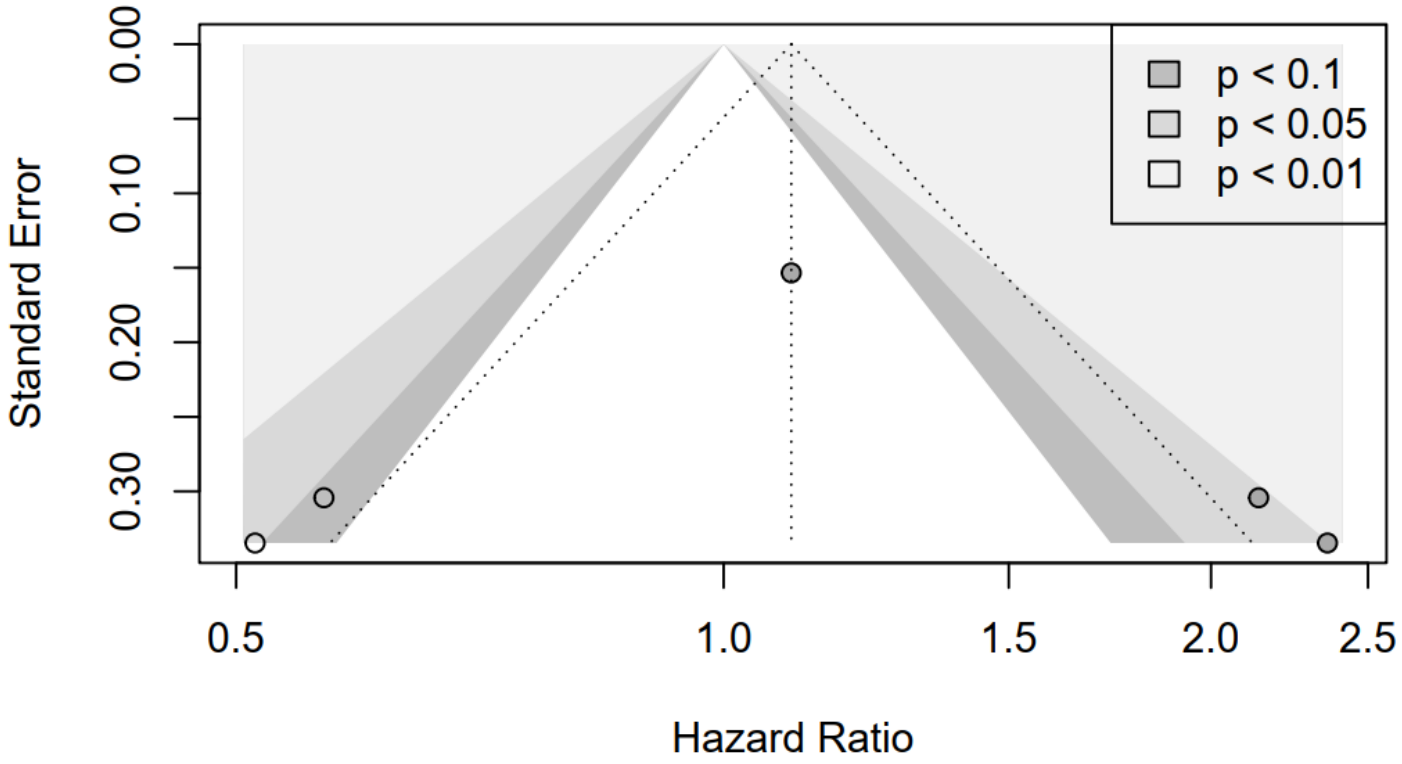


Figure S17: A funnel plot with the trim and fill procedure for the assosiation between FMD and all-cause mortality based on pooled risk estimates.

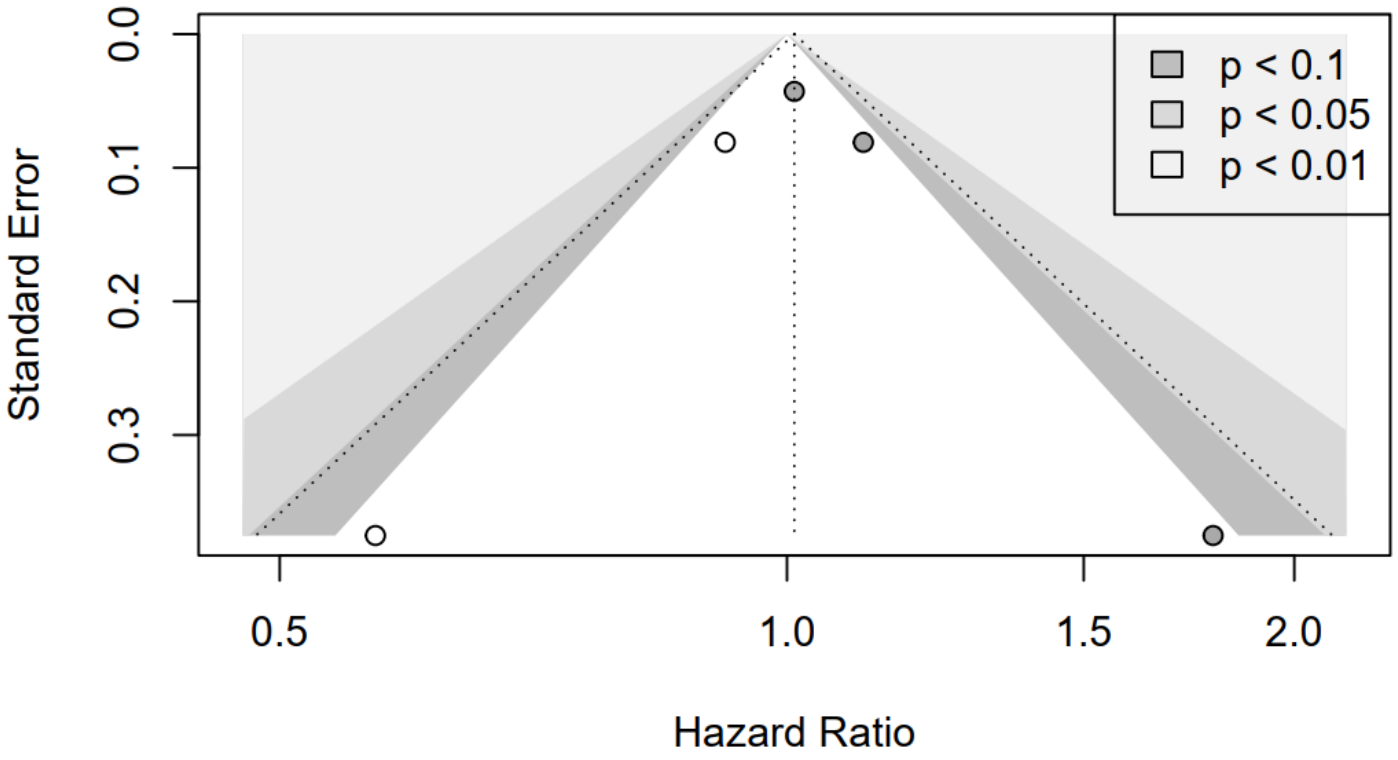


Figure S18: A funnel plot with the trim and fill procedure for the assosiation between FMD and CV mortality based on pooled risk estimates.

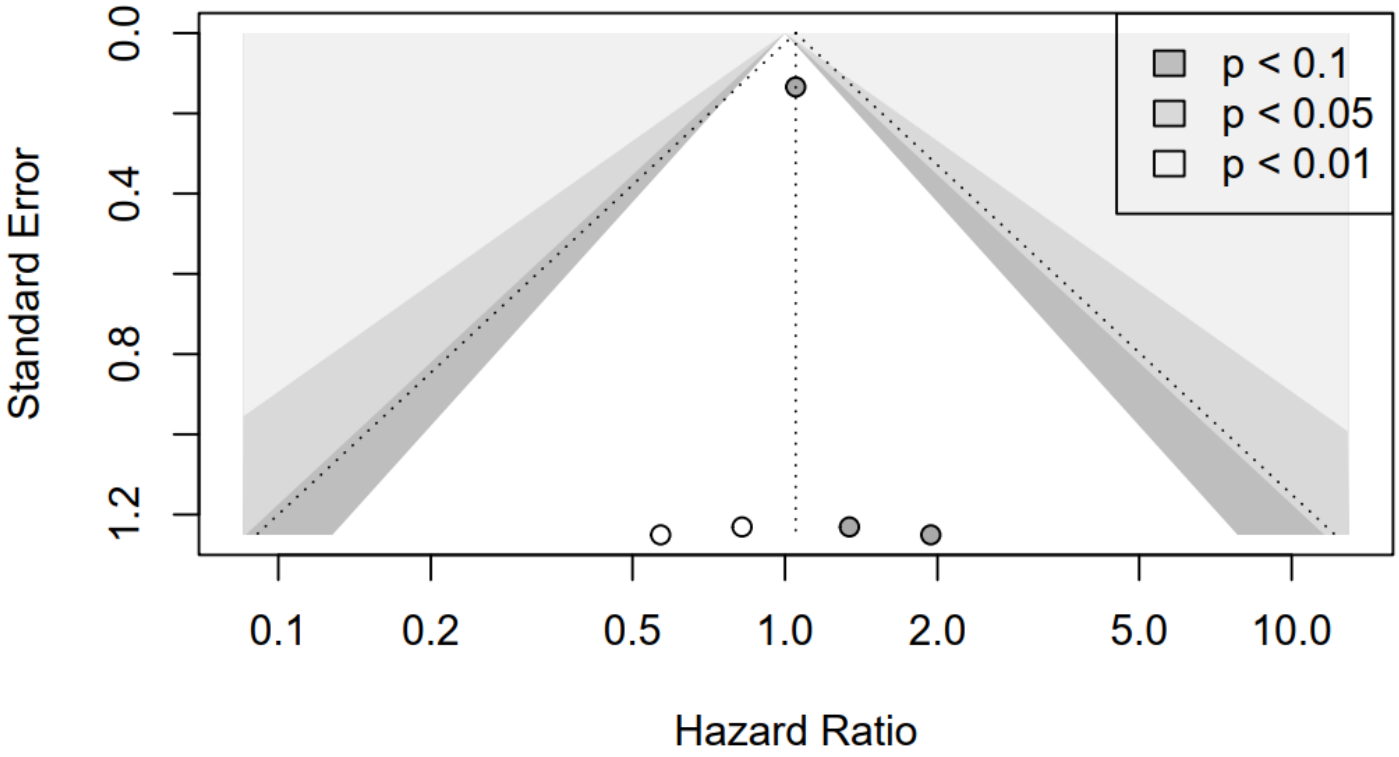


Figure S19: A funnel plot with the trim and fill procedure for the assosiation between CEPCs and all-cause mortality based on pooled risk estimates.

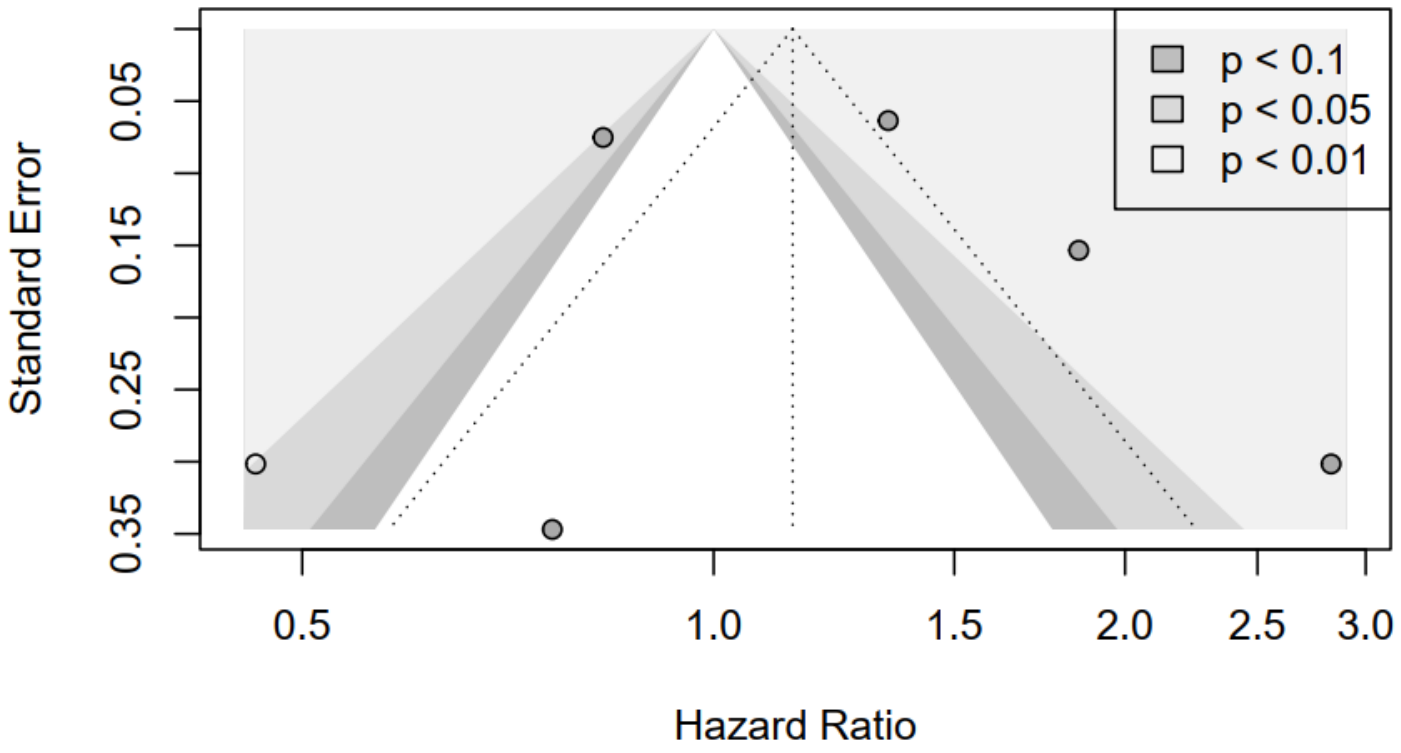


Figure S20: A funnel plot with the trim and fill procedure for the assosiation between E-selectin and all-cause mortality based on pooled risk estimates.

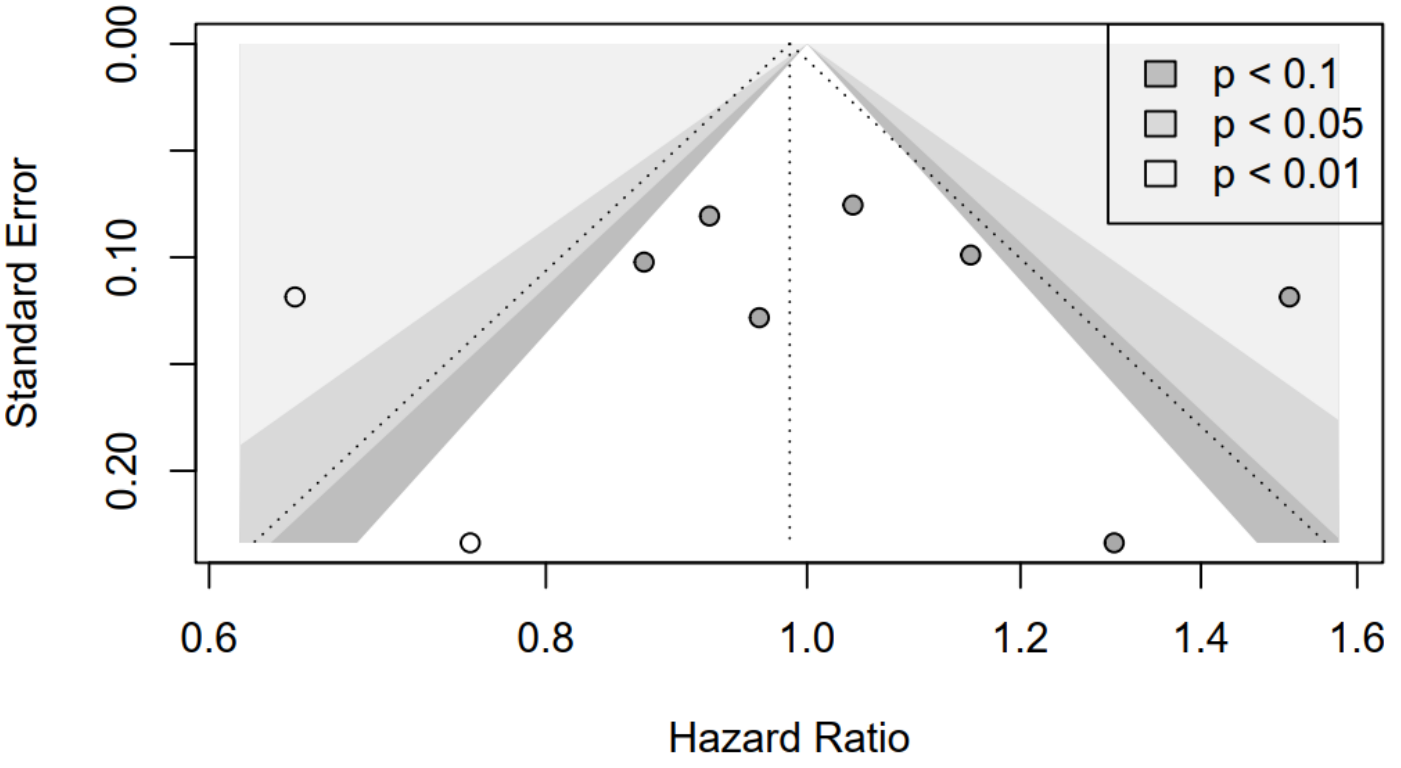


Figure S21: A funnel plot with the trim and fill procedure for the assosiation between E-selectin and CV mortality based on pooled risk estimates.

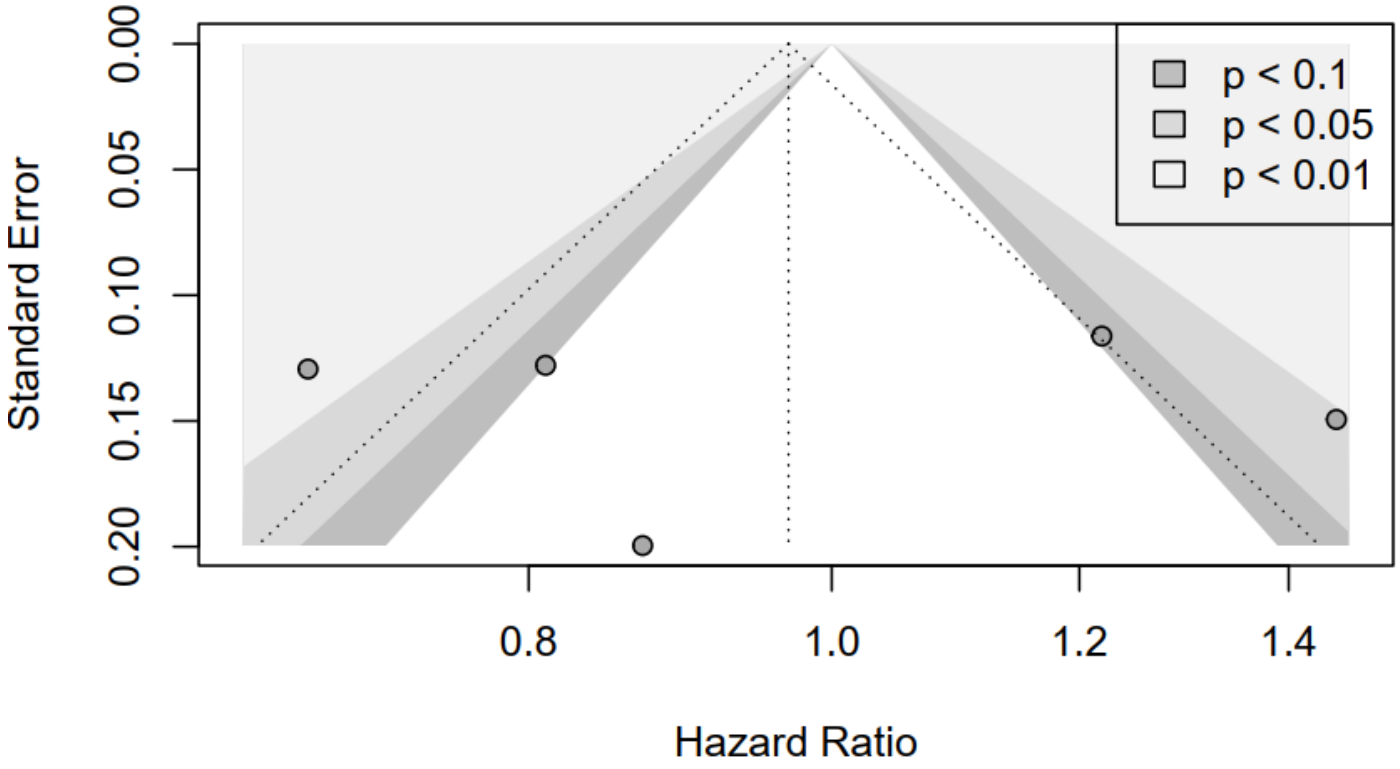


Figure S22: A funnel plot with the trim and fill procedure for the assosiation between LTL and all-cause mortality based on pooled risk estimates.

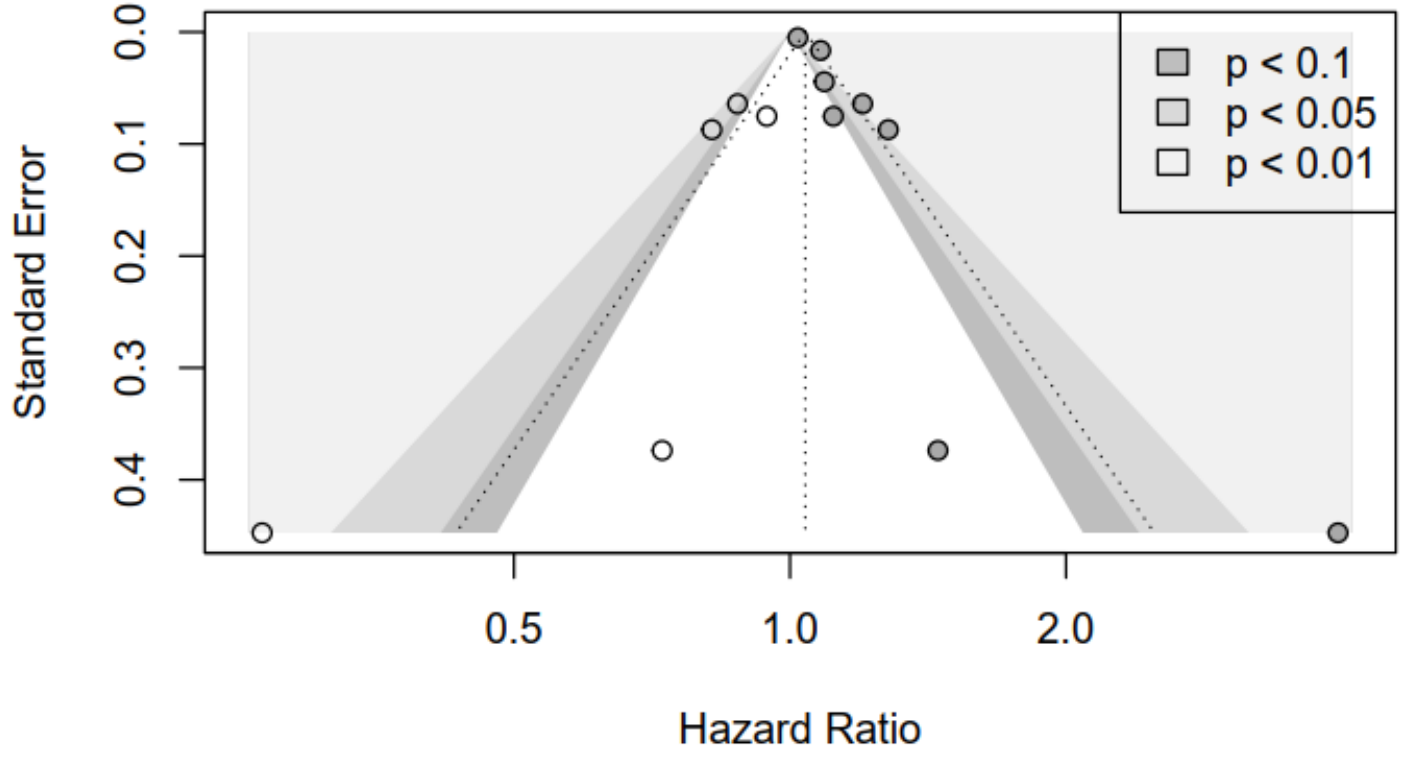
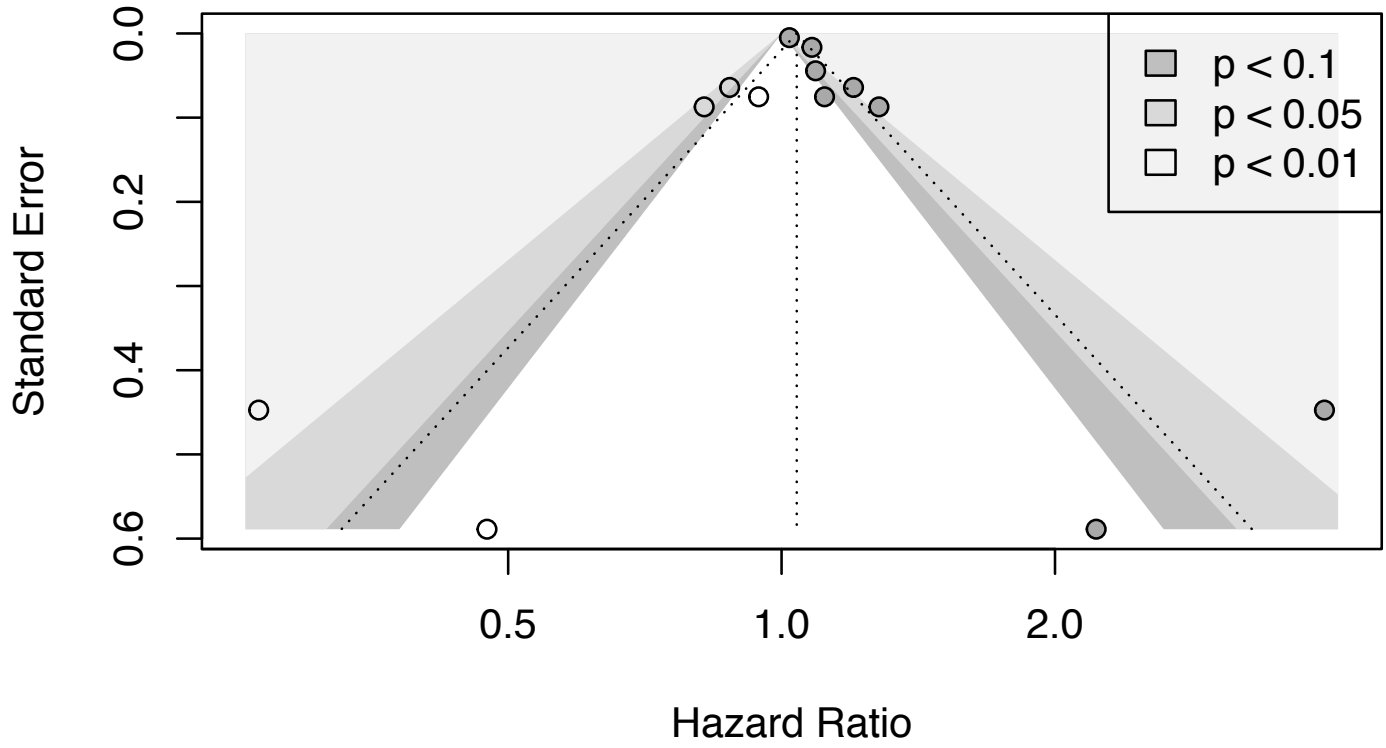


Figure S23: A funnel plot with the trim and fill procedure for the assosiation between LTL and CV mortality based on pooled risk estimates.



5.2 Funnel plots for meta-analyses by pooling event counts

Figure S1: A funnel plot with the trim and fill procedure for the assosiation between cIMT and all-cause mortality based on pooled event counts.

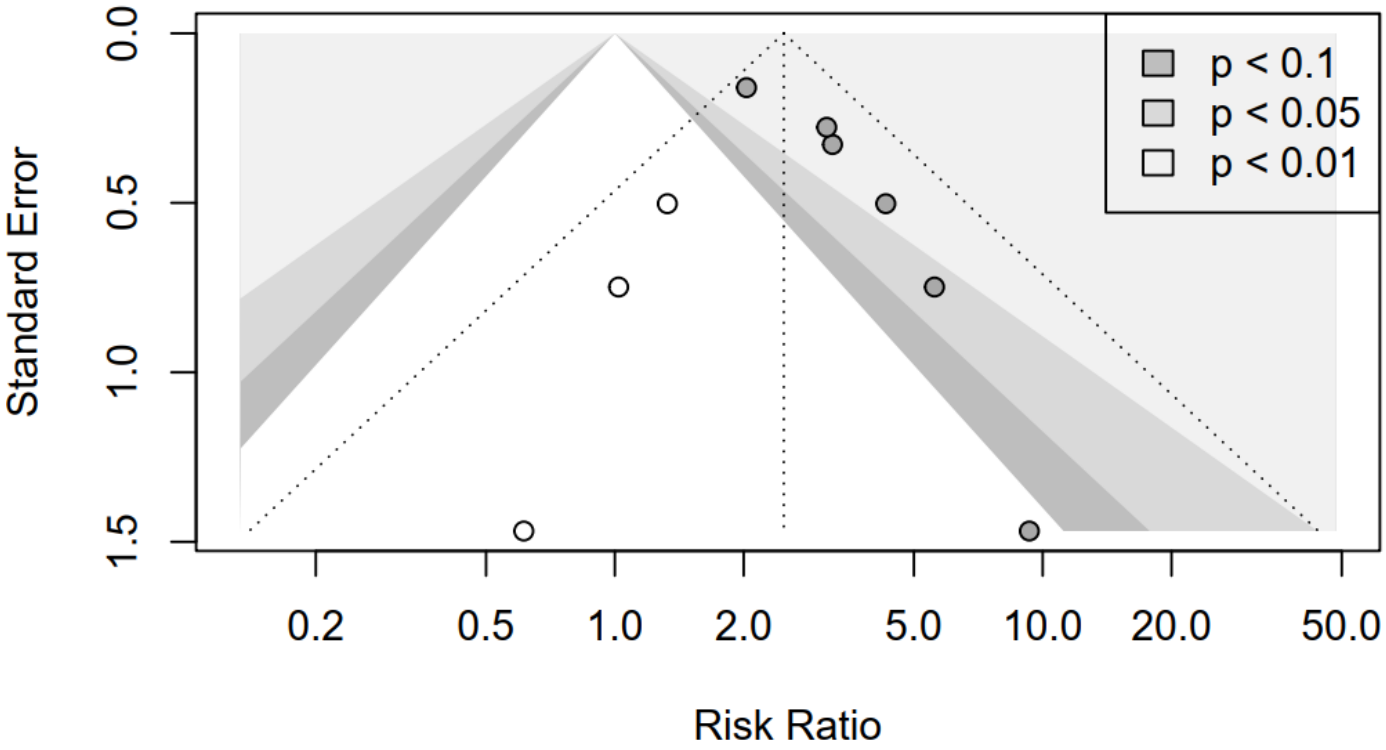


Figure S2: A funnel plot with the trim and fill procedure for the assosiation between cIMT and CV mortality based on pooled event counts.

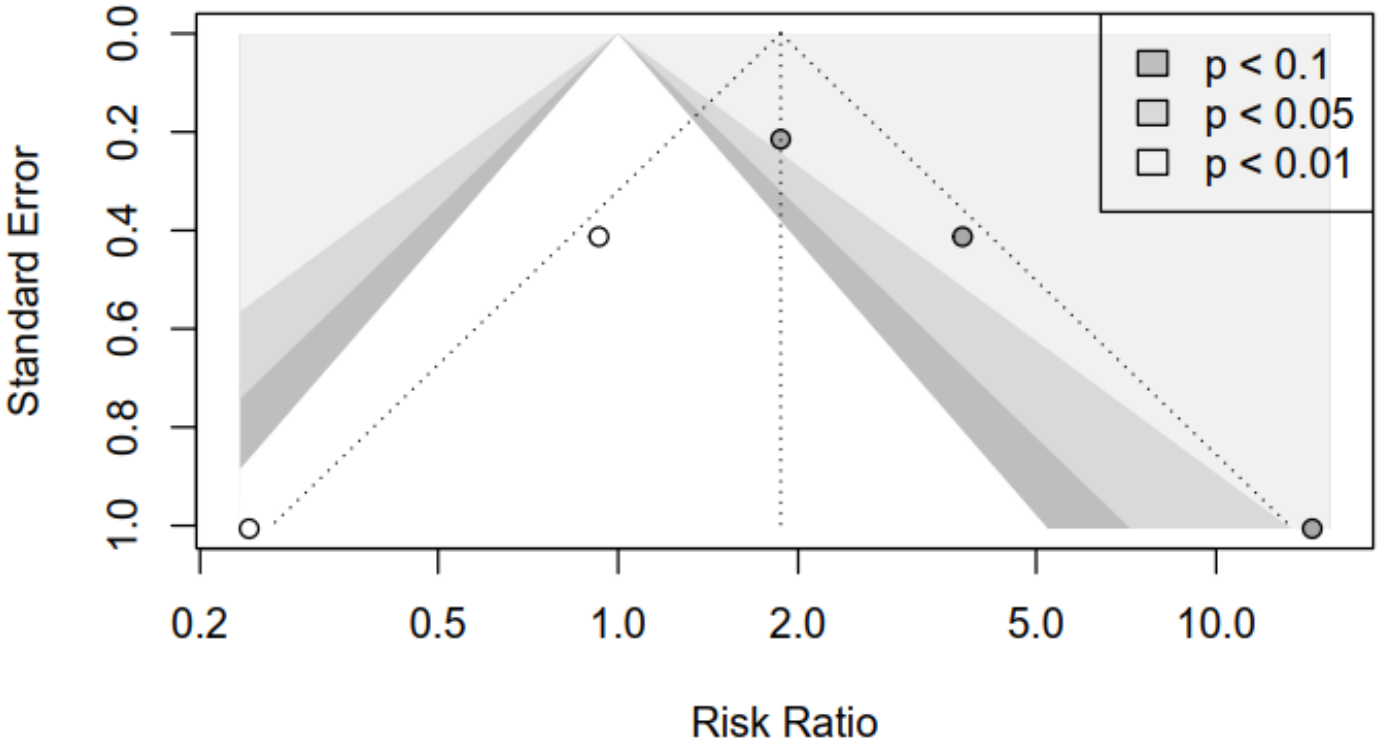


Figure S3: A funnel plot with the trim and fill procedure for the assosiation between CP and all-cause mortality based on pooled event counts.

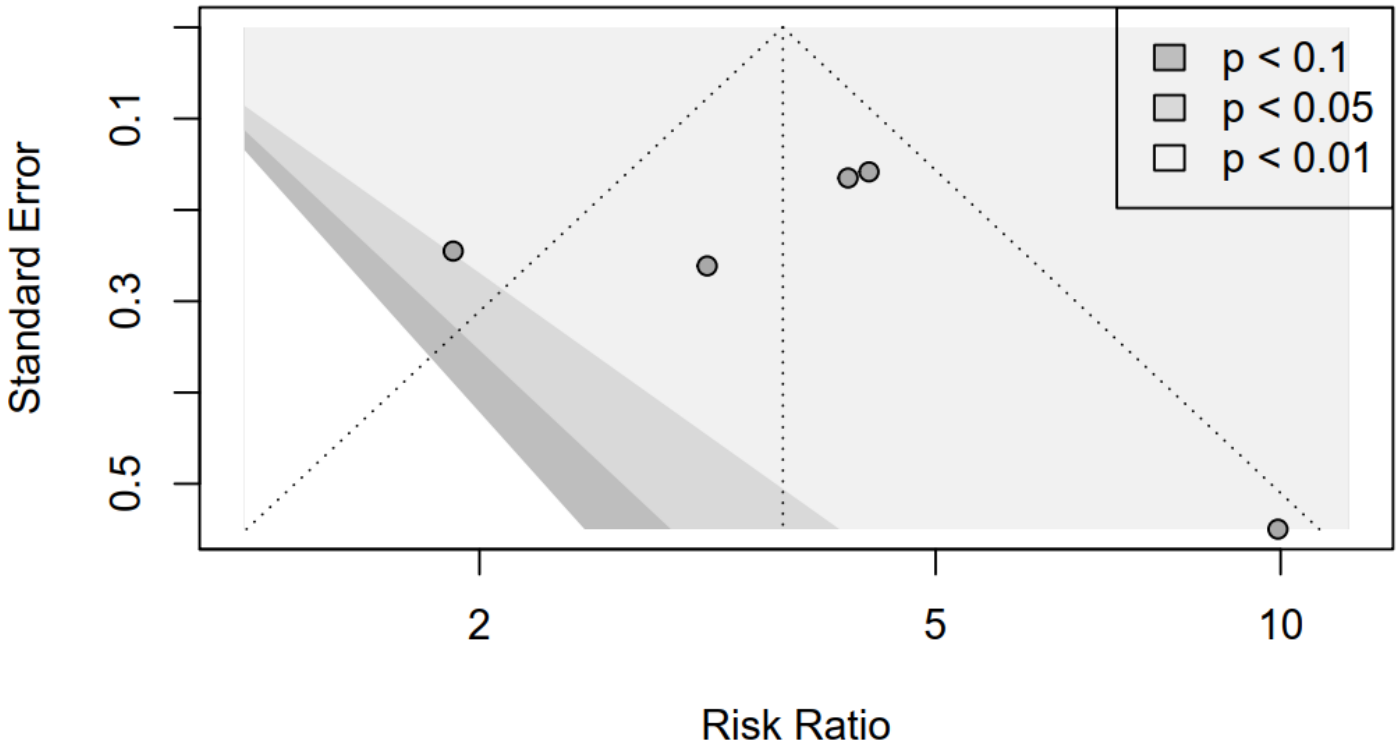


Figure S4: A funnel plot with the trim and fill procedure for the assosiation between CP and CV mortality based on pooled event counts.

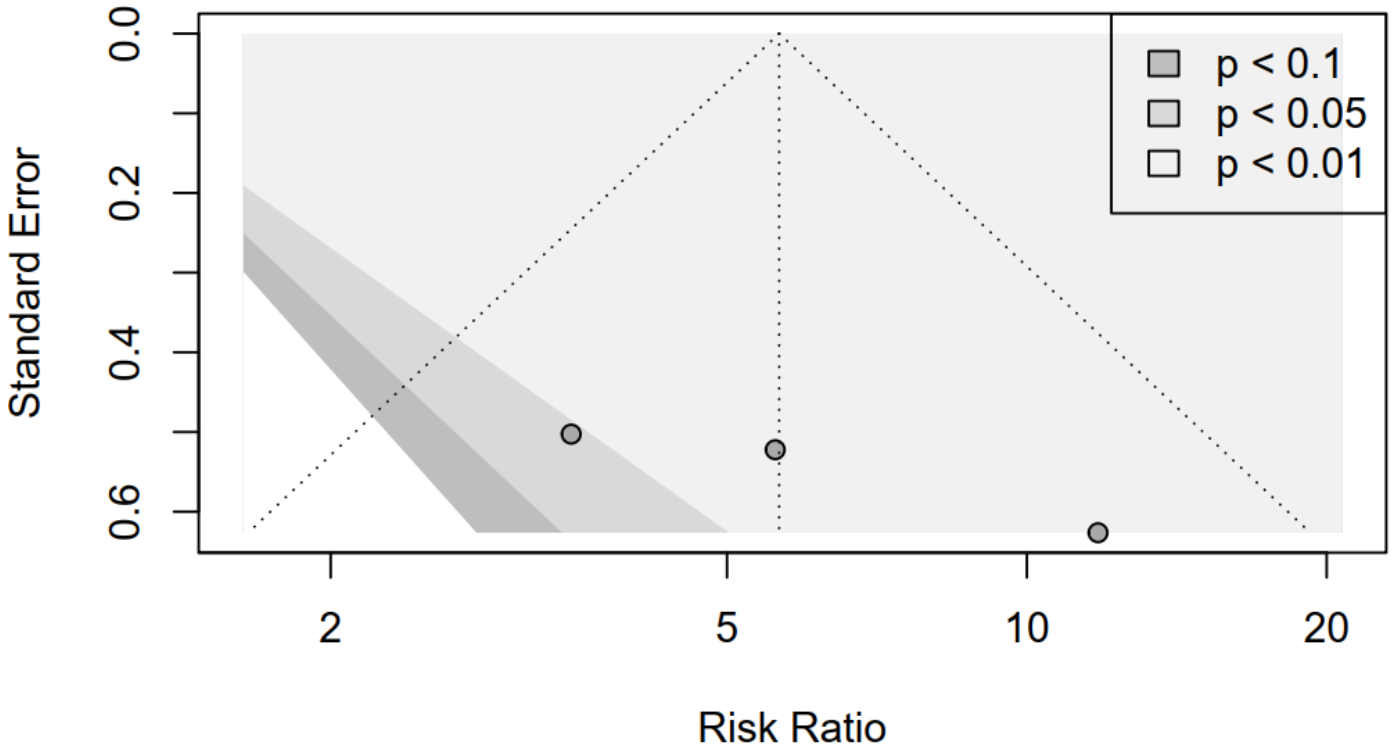


Figure S5: A funnel plot with the trim and fill procedure for the assosiation between CACS and all-cause mortality based on pooled event counts.

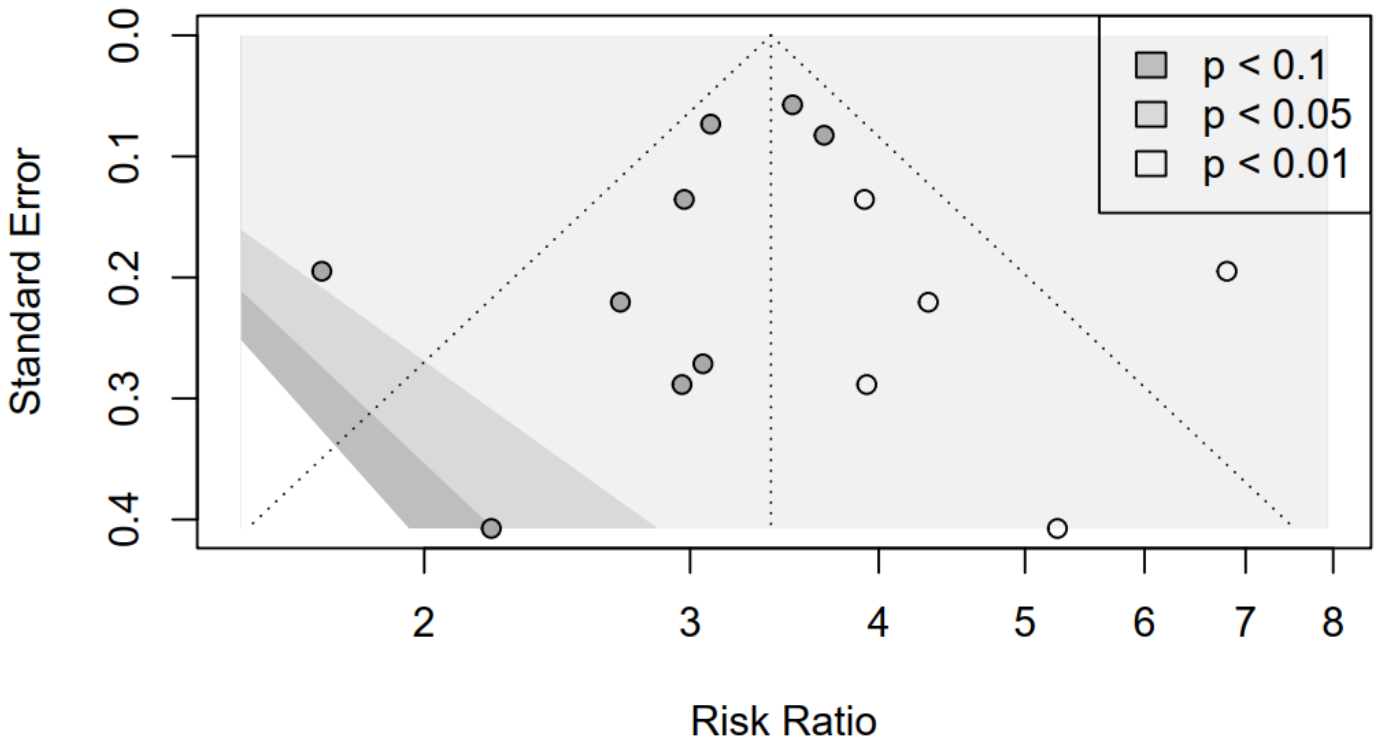


Figure S6: A funnel plot with the trim and fill procedure for the assosiation between CACS and CV mortality based on pooled event counts.

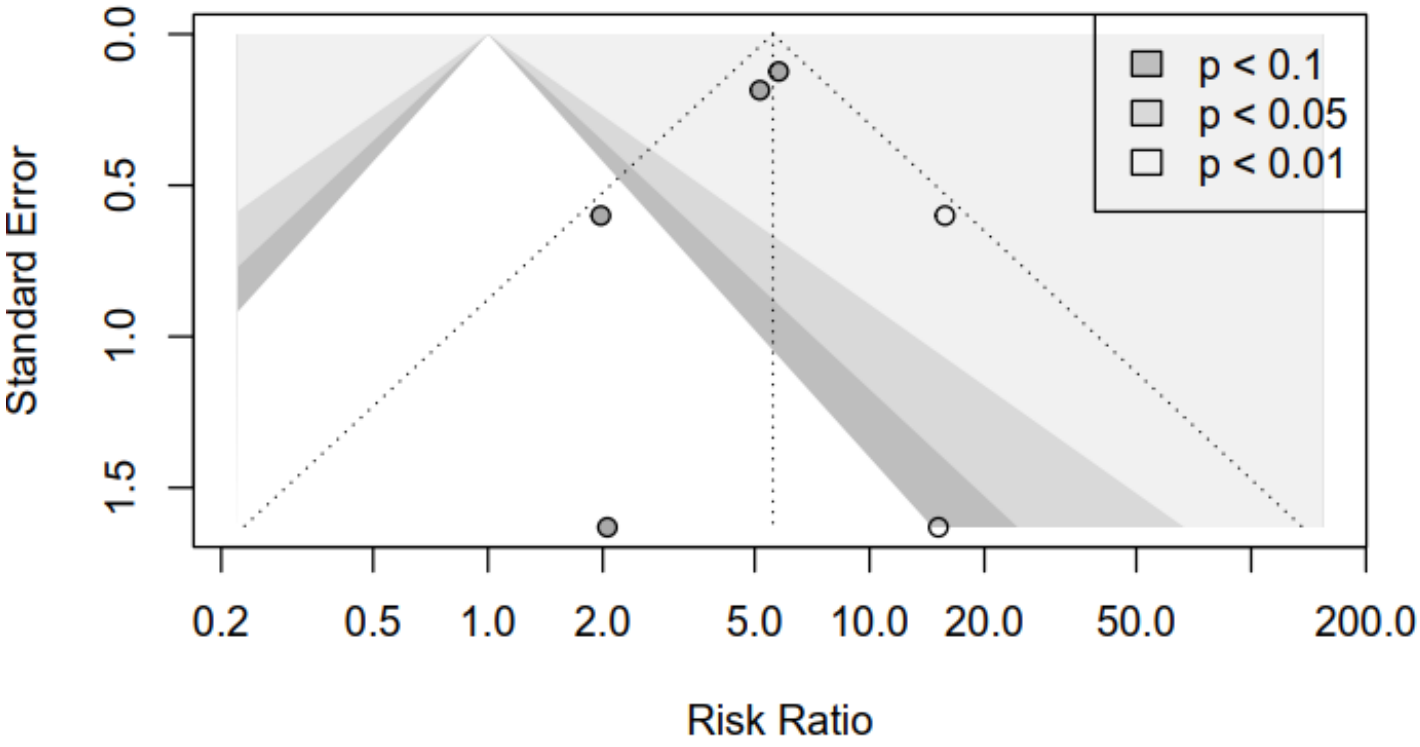


Figure S7: A funnel plot with the trim and fill procedure for the assosiation between baPWV and all-cause mortality based on pooled event counts.

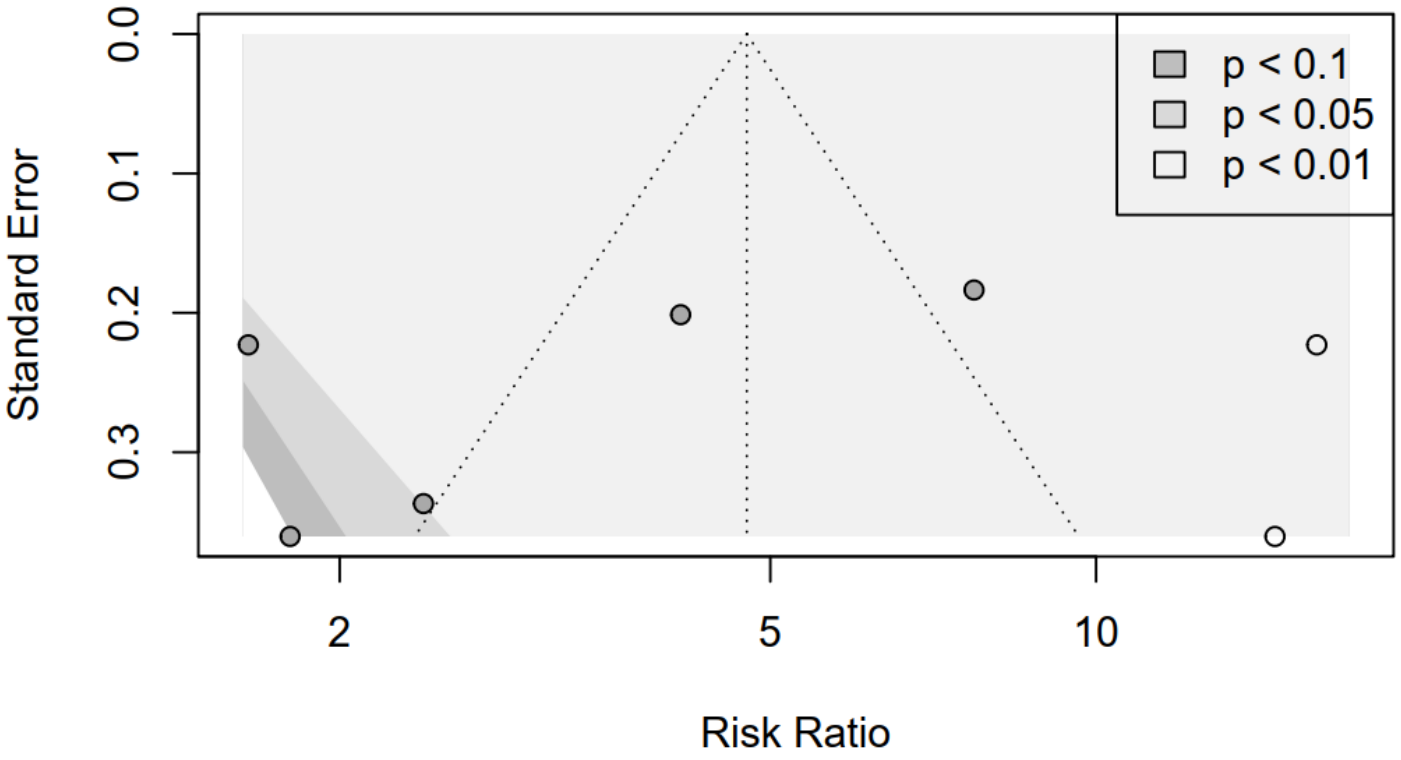


Figure S8: A funnel plot with the trim and fill procedure for the assosiation between baPWV and CV mortality based on pooled event counts.

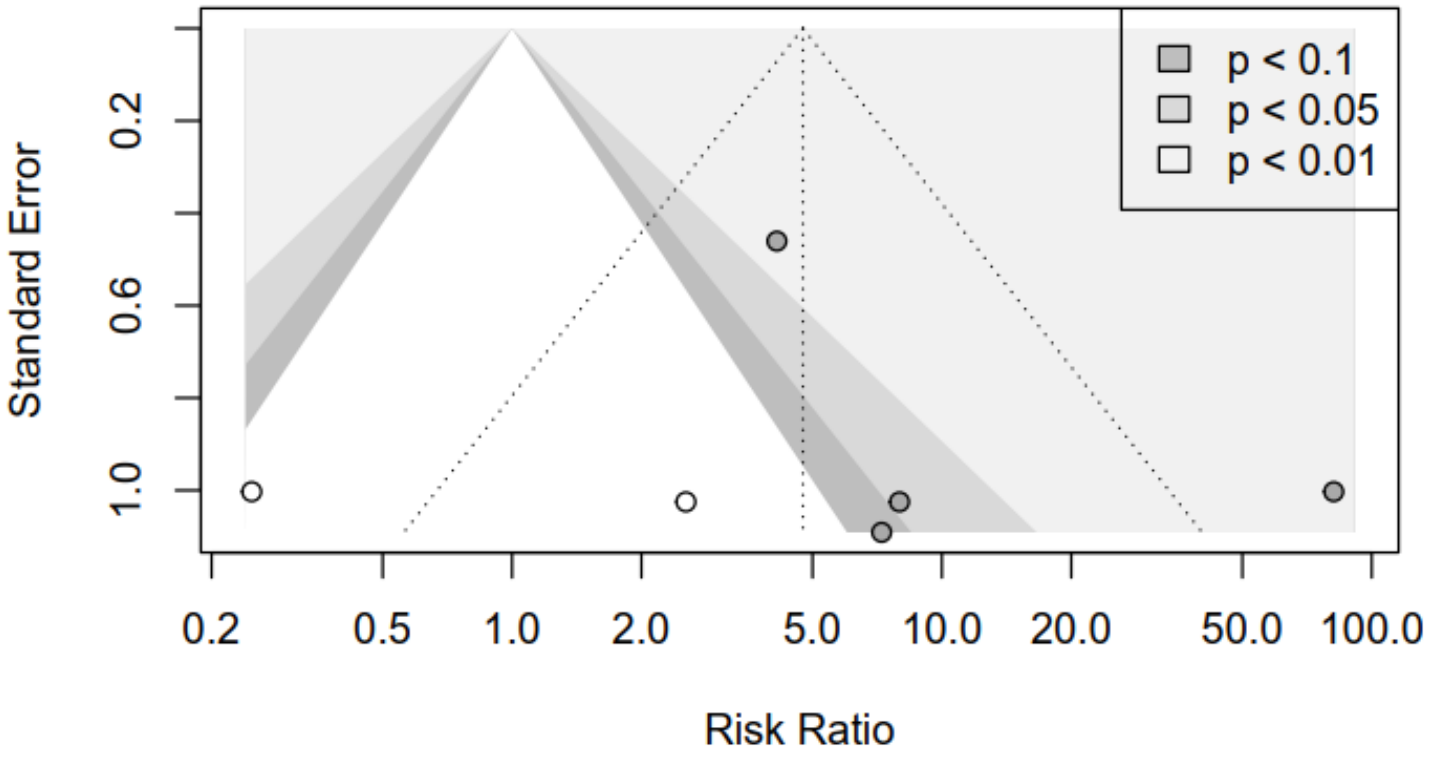


Figure S9: A funnel plot with the trim and fill procedure for the assosiation between cfPWV and all-cause mortality based on pooled event counts.

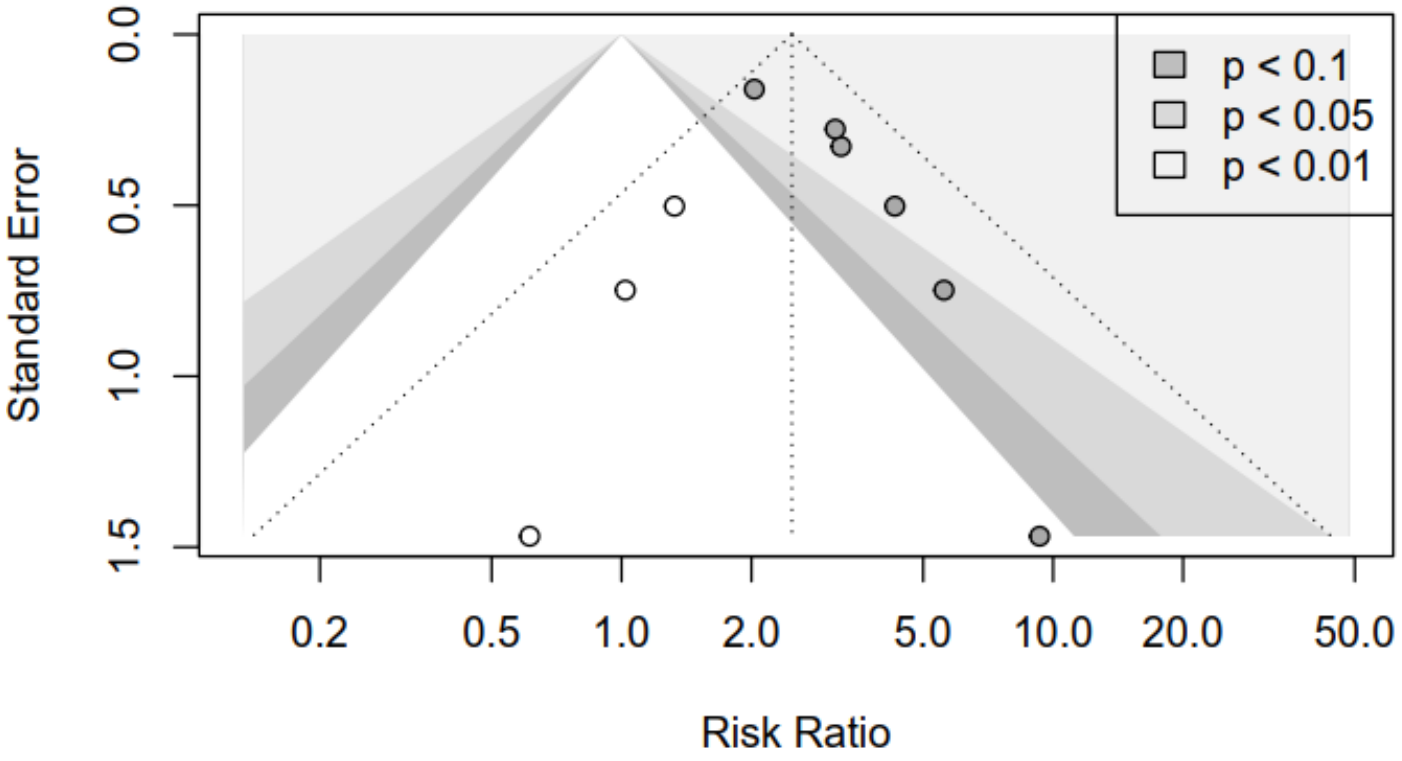


Figure S10: A funnel plot with the trim and fill procedure for the assosiation between cfPWV and CV mortality based on pooled event counts.

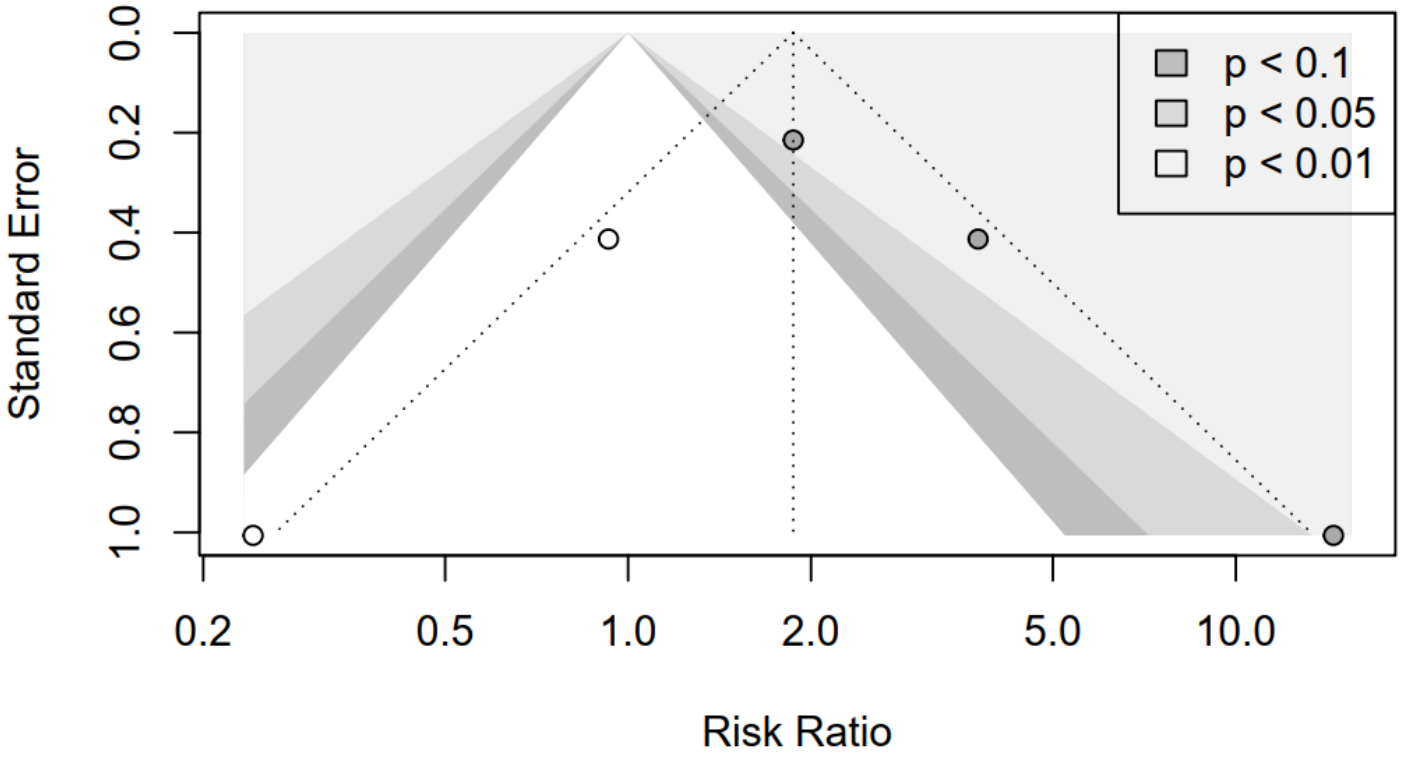


Figure S11: A funnel plot with the trim and fill procedure for the assosiation between low ABI and all-cause mortality based on pooled event counts.

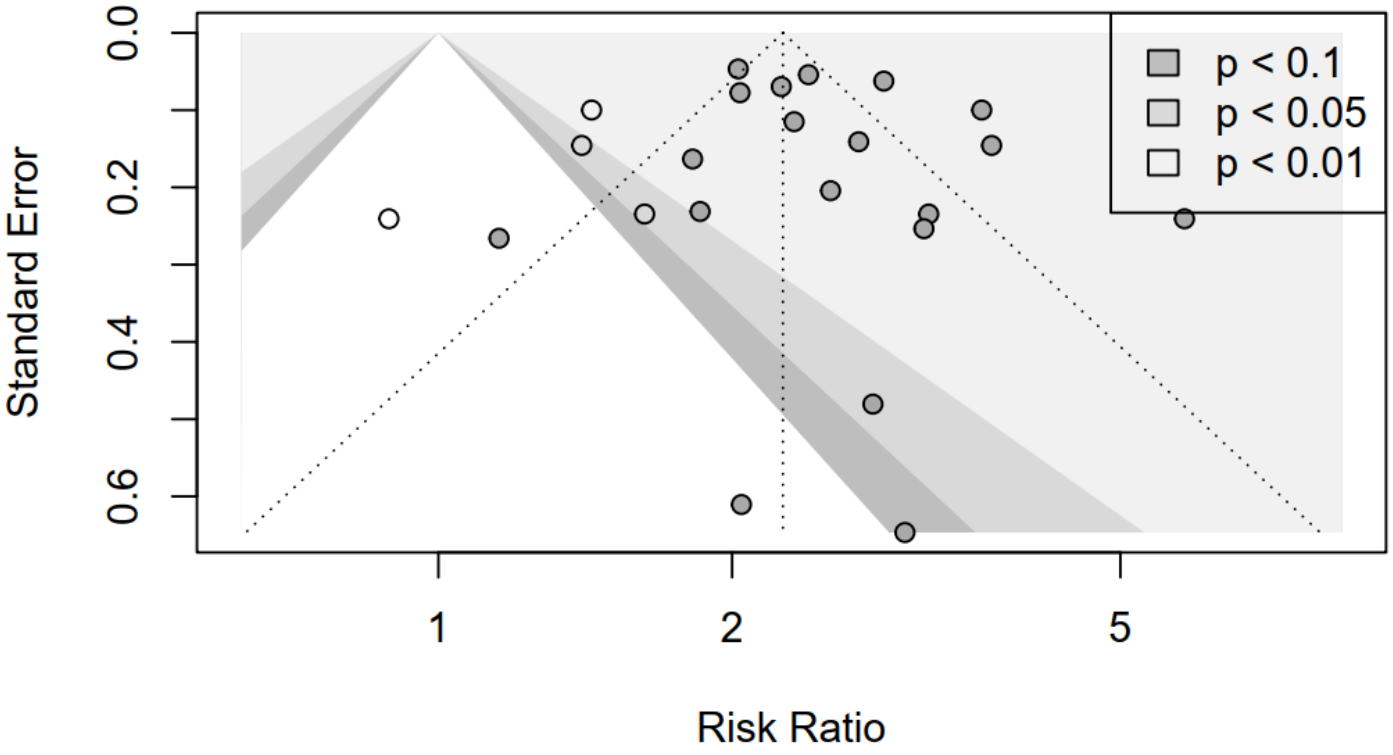


Figure S12: A funnel plot with the trim and fill procedure for the assosiation between low ABI and CV mortality based on pooled event counts.

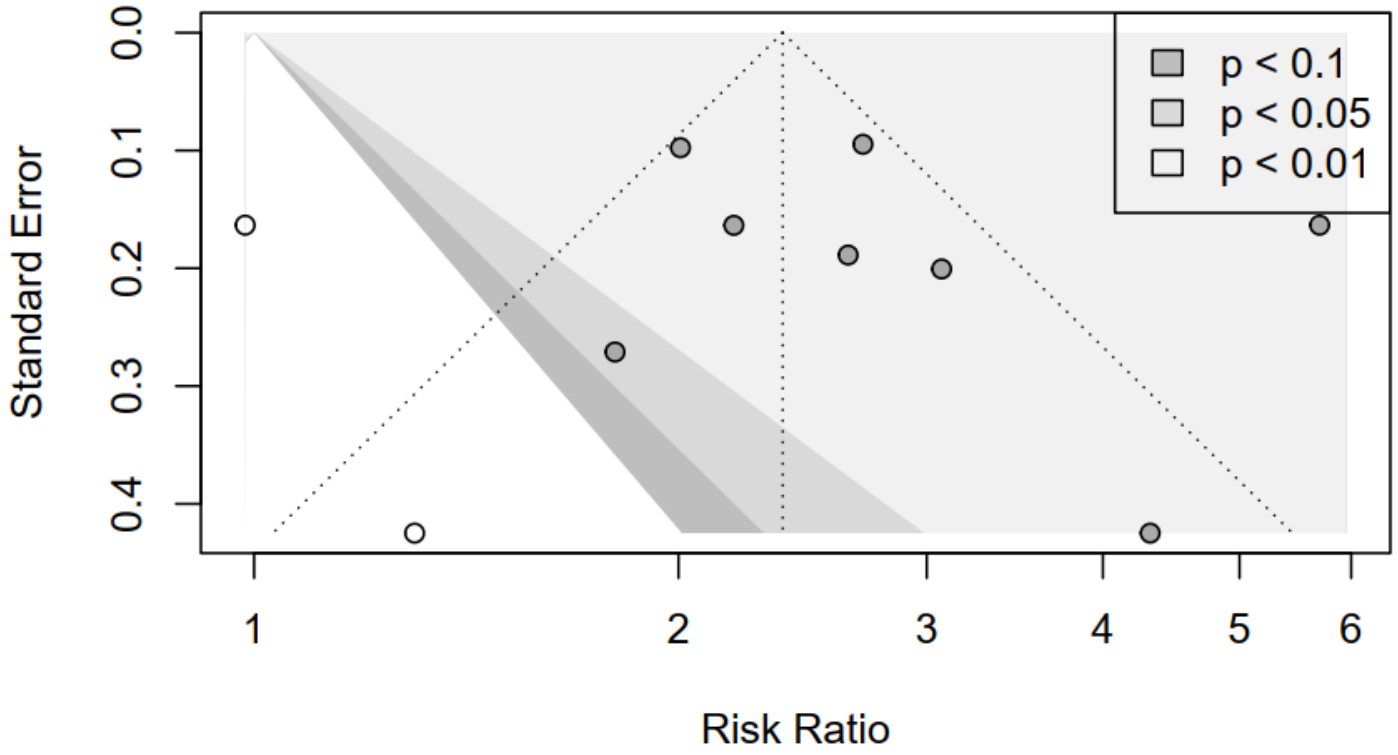


Figure S13: A funnel plot with the trim and fill procedure for the assosiation between high ABI and all-cause mortality based on pooled event counts.

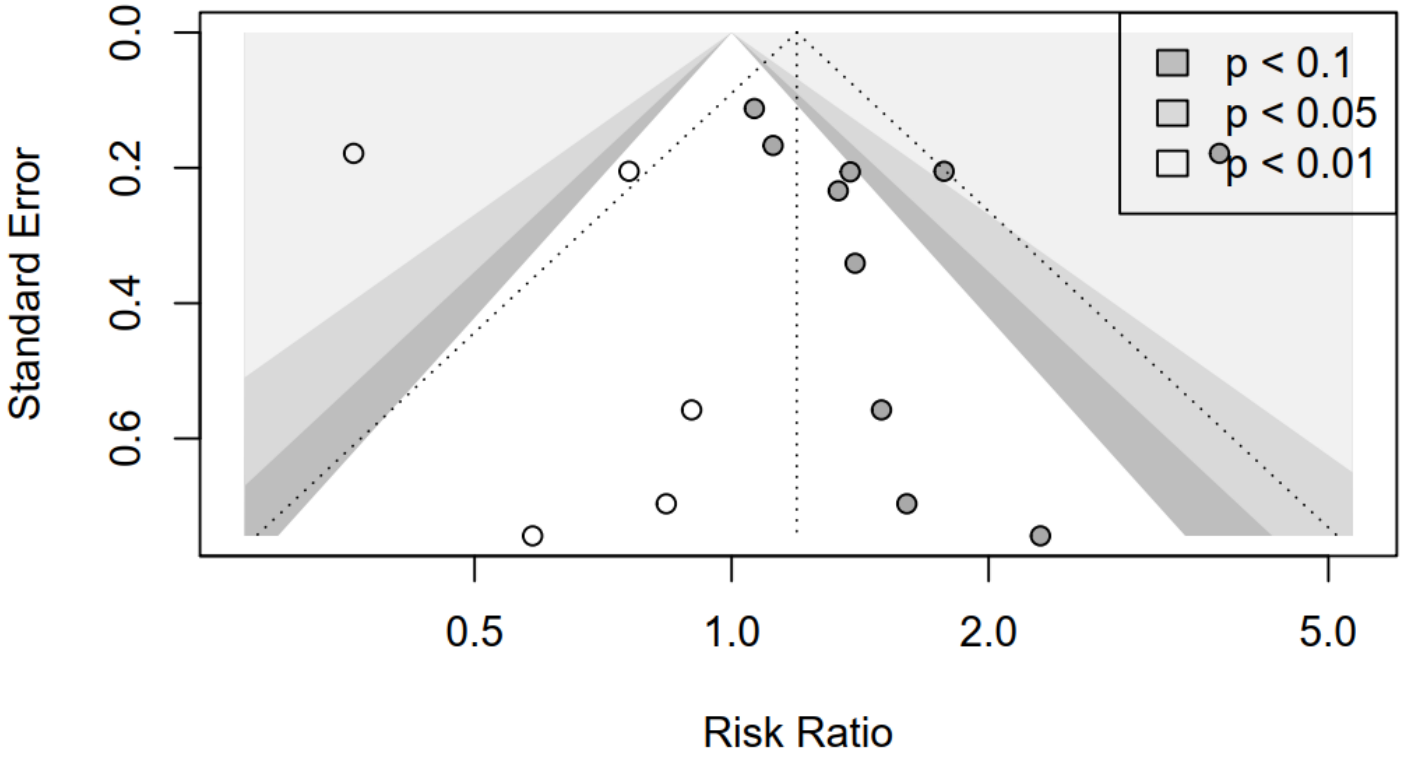


Figure S14: A funnel plot with the trim and fill procedure for the assosiation between high ABI and CV mortality based on pooled event counts.

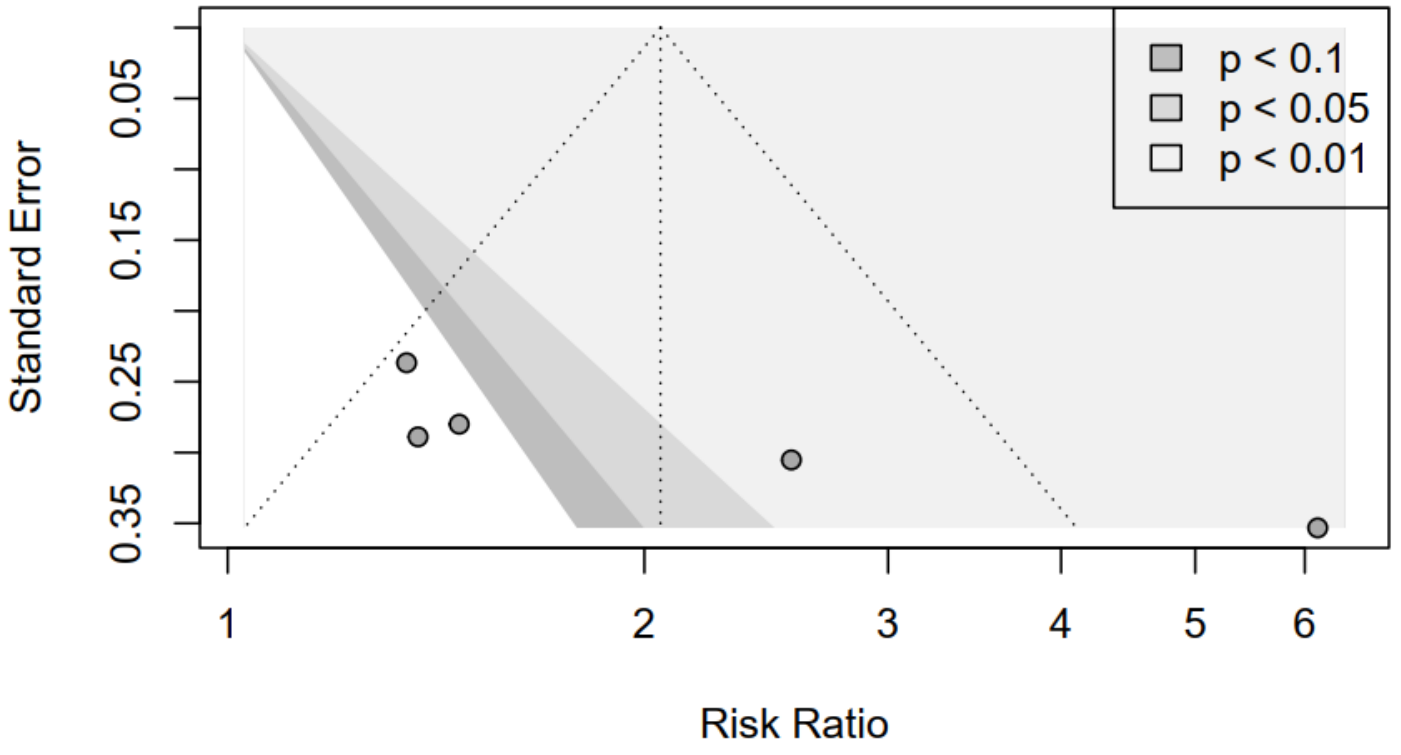


Figure S15: A funnel plot with the trim and fill procedure for the assosiation between FMD and CV mortality based on pooled event counts.

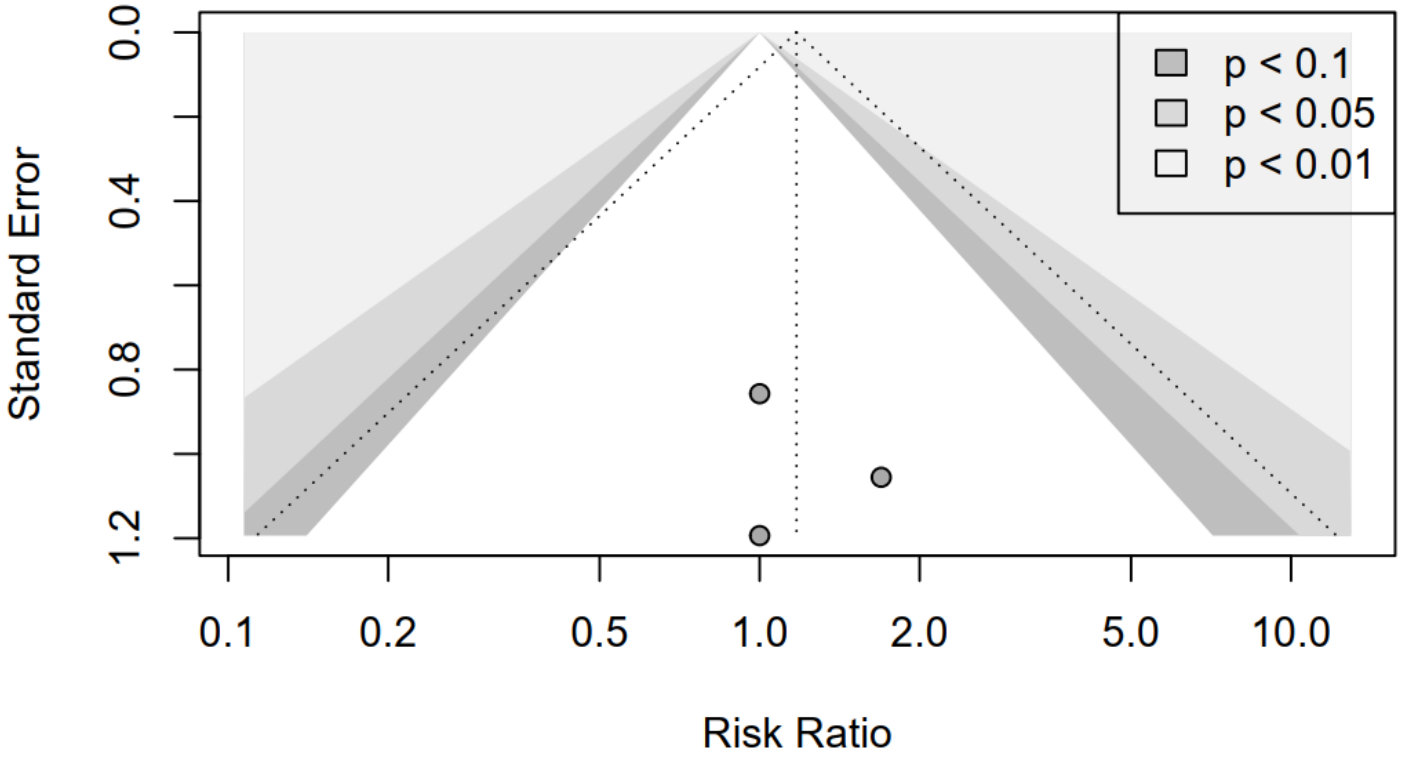


Figure S16: A funnel plot with the trim and fill procedure for the assosiation between CEPCs and all-cause mortality based on pooled event counts.

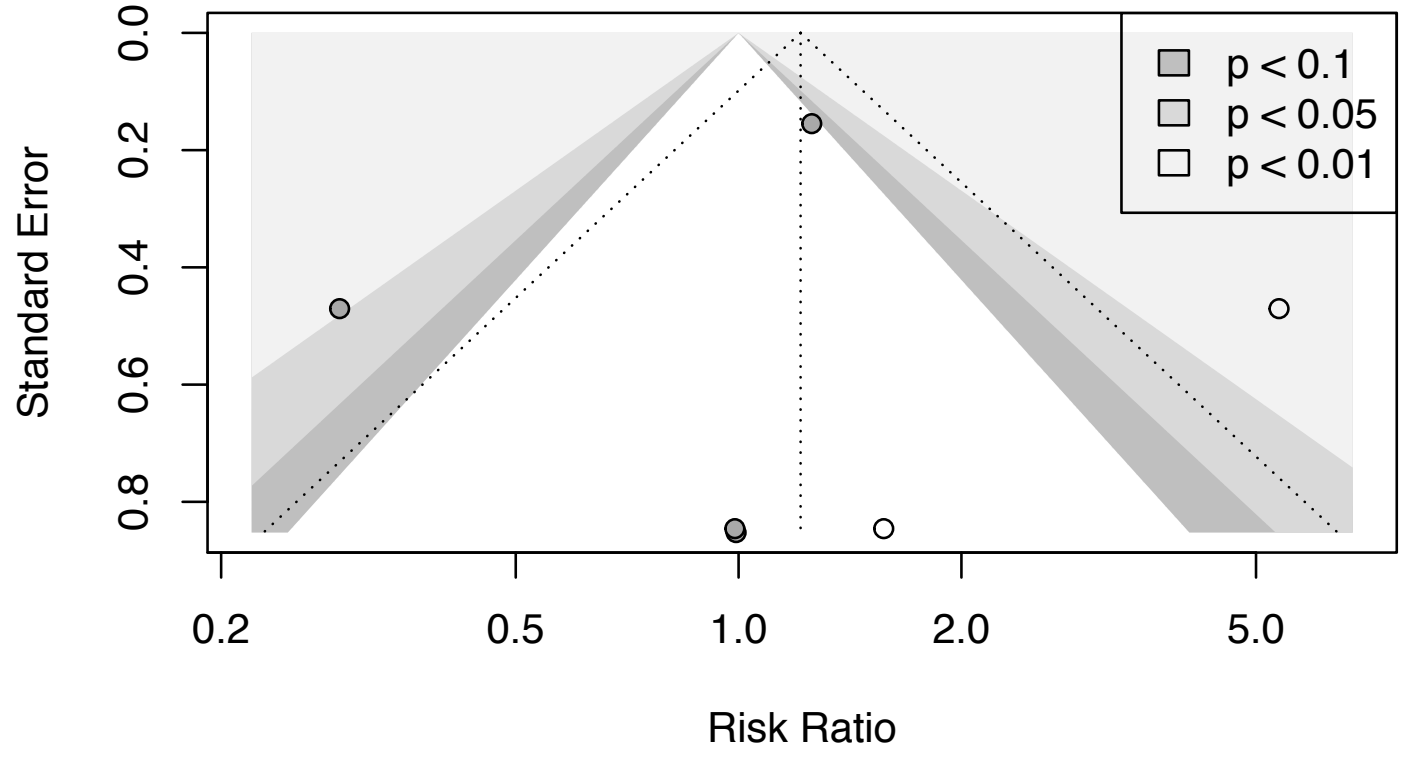


Figure S17: A funnel plot with the trim and fill procedure for the assosiation between LTL and all-cause mortality based on pooled event counts.

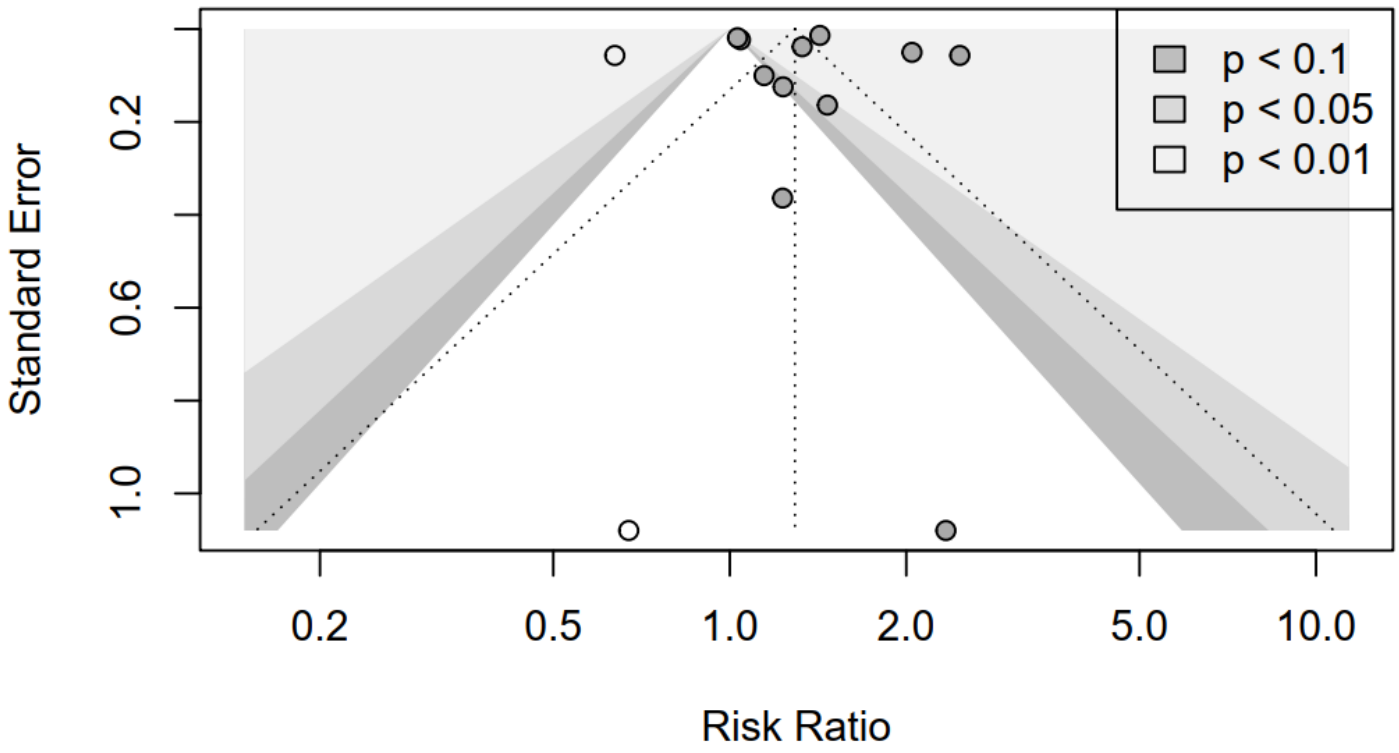
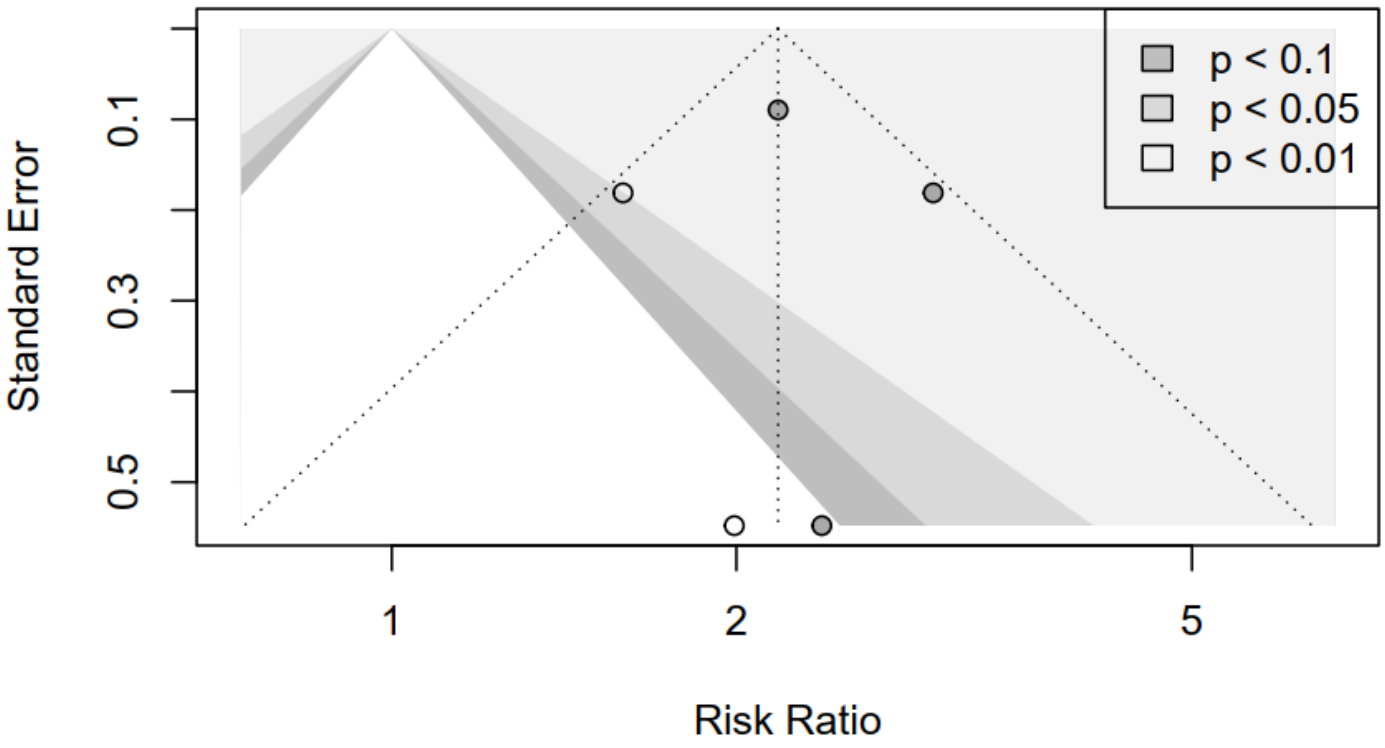


Figure S18: A funnel plot with the trim and fill procedure for the assosiation between LTL and CV mortality based on pooled event counts.



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