

Supplemental Online Content

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This supplementary material has been provided by the authors to give readers additional information about their work.

eMethods. Definitions of the outcomes

All-cause Death

- Death due to cardiac causes: Cardiac causes of death such as congestive heart failure, arrhythmia or myocardial infarction
or
- Other vascular causes of death: Vascular causes of death such as pulmonary embolus, dissection, cerebrovascular accident or bleeding event
or
- Non-cardiovascular causes of death: This includes any other cause of death.

Myocardial Infarction (MI)

Non peri-procedural MI defined as (2 out of the following 3 criteria must be present):

- New onset or worsening pattern of characteristic ischemic chest pain occurring at rest or with minimal exercise lasting longer than 20 minutes and requiring nitrates or narcotic analgesia for relief of pain.
- Elevation of cardiac markers (CK, CK-MB or Troponin) to at least twice the upper limit of the normal reference range (or greater than 20% of the previous value if already elevated in the context of early hospital MI).
- ECG changes compatible with ischemia.

MI within 48 hours of PTCA defined as:

- The standard as above (at least 2 of 3 criteria)
or
- Elevation of cardiac markers to at least 3 x the upper limit of normal.

MI within 72 hours of CABG defined as:

- Elevation of cardiac markers to at least 5 x the upper limit of normal
or
- Development of new pathological Q waves in at least two contiguous leads.

Repeat revascularization

- A Coronary Artery Bypass Graft (CABG) or Percutaneous Coronary Intervention (PCI) after the trial procedure.

Sternal wound complication

- Superficial sternal wound infection
- Deep sternal wound infection requiring antibiotics
- Deep sternal wound infection requiring sternal reconstruction.

eTable 1. Baseline characteristics of patients with and without information on the internal thoracic artery harvesting technique

	All others	Skeletonized/Pedicled ITA	p
N°	941	2161	
Randomised allocation = BITA (%)	471 (50.1)	1077 (49.8)	0.94
Age (median [IQR])	62.0 [55.0, 69.0]	65.0 [58.0, 70.0]	<0.001
Female sex (%)	151 (16.0)	295 (13.7)	0.09
BMI (median [IQR])	27.6 [25.4, 30.3]	27.9 [25.5, 30.8]	0.15
NYHA class III/IV (%)	167 (17.7)	502 (23.3)	0.001
Diabetes mellitus (%)	209 (22.2)	525 (24.3)	0.23
Current smoke (%)	154 (16.4)	297 (13.7)	0.06
COPD (%)	53 (5.6)	149 (6.9)	0.22
PVD (%)	58 (6.2)	163 (7.5)	0.20
Prior stroke (%)	26 (2.8)	64 (3.0)	0.85
Prior MI (%)	421 (44.7)	879 (40.7)	0.04
LVEF <50% (%)	224 (23.9)	515 (24.8)	0.64
Ethnicity (%)			0.14
• Caucasian	878 (93.3)	1971 (91.2)	
• East Asian	1 (0.1)	5 (0.2)	
• South-East Asian	31 (3.3)	119 (5.5)	
• Afro-caribbean	1 (0.1)	1 (0.0)	
• African	1 (0.1)	4 (0.2)	
• Other	29 (3.1)	60 (2.8)	
Number of grafts (%)*			<0.001
• ≤ 3	692 (73.5)	1395 (64.6)	
• > 3	231 (24.5)	763 (35.3)	
Use of RA	88 (9.6)	551 (25.6)	<0.001
OPCABG (%)	152 (16.5)	1107 (51.3)	<0.001

*Among 3102 patients enrolled in the ART trial, 21 did not have data on number of grafts used available.

BITA: bilateral internal thoracic artery, BMI: body mass index, COPD: chronic obstructive pulmonary disease, IQR: interquartile range, ITA: internal thoracic artery, LVEF: left ventricular ejection fraction, MI: myocardial infarction, NYHA: New York Heart Association, OPCABG; off-pump coronary artery bypass grafting, PVD: peripheral vascular disease, RA: radial artery.

eTable 2. Variables associated with all-cause mortality, major adverse cardiac events, and major adverse cardiac events and sternal wound complication among the entire cohort

Variable	All-cause mortality	MACE	MACE + SWC
	HR [95%CI], P value	HR [95%CI], P value	HR [95%CI], P value
Skeletonized vs Pedicled harvesting	1.12 [0.92;1.36], 0.27	1.25 [1.06;1.47], 0.01	1.22 [1.05;1.43], 0.01
Age	1.10 [1.08;1.11], <0.001	1.04 [1.03;1.05], <0.001	1.04 [1.03;1.05], <0.001
Female sex	1.03 [0.79;1.34], 0.84	1.14 [0.92;1.41], 0.25	1.25 [1.02;1.54], 0.03
NYHA class III/IV	1.02 [0.81;1.29], 0.85	1.16 [0.96;1.39], 0.12	1.16 [0.97;1.38], 0.12
Diabetes mellitus	1.26 [1.02;1.56], 0.03	1.11 [0.93;1.33], 0.23	1.16 [0.97;1.37], 0.10
COPD	1.43 [1.02;2.01], 0.04	1.56 [1.20;2.05], 0.001	1.58 [1.22;2.04], <0.001
PVD	1.46 [1.09;1.96], 0.01	1.56 [1.21;2.01], <0.001	1.52 [1.18;1.94], 0.001
Prior stroke	1.85 [1.26;2.72], 0.002	1.37 [0.95;1.97], 0.09	1.37 [0.96;1.96], 0.09
Prior MI	1.17 [0.96;1.43], 0.11	1.12 [0.95;1.31], 0.18	1.11 [0.95;1.30], 0.18
LVEF <50%	1.62 [1.32;1.99], <0.001	1.25 [1.05;1.49], 0.01	1.25 [1.05;1.48], 0.01
BITA vs SITA	0.94 [0.78;1.14], 0.51	0.93 [0.79;1.08], 0.33	0.97 [0.84;1.13], 0.72
RA used	0.82 [0.65;1.05], 0.12	0.78 [0.64;0.95], 0.01	0.80 [0.66;0.96], 0.02
OPCABG vs ONCABG	1.09 [0.89;1.33], 0.40	0.96 [0.81;1.13], 0.60	0.93 [0.80;1.09], 0.39

BITA: bilateral internal thoracic artery, CI: confidence interval, COPD: chronic obstructive pulmonary disease, HR: hazard ratio, LVEF: left ventricular ejection fraction, MACE: major adverse cardiac events, MI: myocardial infarction, NYHA: New York Heart Association, ONCABG: on-pump coronary artery bypass grafting, OPCABG: off-pump coronary artery bypass grafting, PVD: peripheral vascular disease, RA: radial artery, SITA: single internal thoracic artery, SWC: sternal wound complication.

eTable 3. Variables associated with all-cause mortality, major adverse cardiac events, and major adverse cardiac events and sternal wound complication among patients whose surgery was performed by surgeons who enrolled 50 patients or less in the trial

Variable	All-cause mortality	MACE	MACE + SWC
	HR [95%CI], P value	HR [95%CI], P value	HR [95%CI], P value
Skeletonized vs Pedicled harvesting	1.28 [0.96;1.72], 0.09	1.30 [1.03;1.65], 0.03	1.33 [1.06;1.67], 0.01
Age	1.10 [1.08;1.12], <0.001	1.04 [1.03;1.06], <0.001	1.04 [1.02;1.05], <0.001
Female sex	1.11 [0.75;1.63], 0.60	1.18 [0.86;1.63], 0.30	1.36 [1.01;1.82], 0.04
NYHA class III/IV	1.11 [0.77;1.62], 0.57	0.96 [0.71;1.32], 0.81	0.96 [0.71;1.29], 0.77
Diabetes mellitus	1.18 [0.86;1.60], 0.31	1.16 [0.90;1.49], 0.27	1.22 [0.96;1.55], 0.11
COPD	2.42 [1.49;3.92], <0.001	1.87 [1.23;2.84], 0.003	1.88 [1.26;2.80], 0.002
PVD	1.72 [1.12;2.66], 0.01	1.67 [1.15;2.43], 0.008	1.58 [1.09;2.30], 0.02
Prior stroke	2.16 [1.21;3.84], 0.01	1.71 [0.99;2.95], 0.06	1.62 [0.94;2.80], 0.08
Prior MI	1.12 [0.84;1.51], 0.44	1.05 [0.83;1.34], 0.67	1.01 [0.80;1.27], 0.94
LVEF <50%	1.91 [1.41;2.58], <0.001	1.32 [1.02;1.71], 0.04	1.30 [1.01;1.67], 0.04
BITA vs SITA	1.11 [0.84;1.47], 0.47	1.02 [0.81;1.28], 0.89	1.08 [0.86;1.35], 0.52
Use of RA	0.83 [0.59;1.15], 0.26	0.86 [0.66;1.12], 0.25	0.88 [0.68;1.14], 0.33
OPCABG vs ONCABG	1.21 [0.89;1.65], 0.23	0.96 [0.74;1.24], 0.73	0.95 [0.74;1.22], 0.67

BITA: bilateral internal thoracic artery, CI: confidence interval, COPD: chronic obstructive pulmonary disease, HR: hazard ratio, LVEF: left ventricular ejection fraction, MACE: major adverse cardiac events, MI: myocardial infarction, NYHA: New York Heart Association, ONCABG: on-pump coronary artery bypass grafting, OPCABG: off-pump coronary artery bypass grafting, PVD: peripheral vascular disease, RA: radial artery, SITA: single internal thoracic artery, SWC: sternal wound complication.

eTable 4. Variables associated with all-cause mortality, major adverse cardiac events, and major adverse cardiac events and sternal wound complication among patients whose surgery was performed by surgeons who enrolled 51 patients or more in the trial

Variable	All-cause mortality	MACE	MACE + SWC
	HR [95%CI], P value	HR [95%CI], P value	HR [95%CI], P value
Skeletonized vs Pedicled harvesting	1.01 [0.73;1.39], 0.95	1.07 [0.82;1.39], 0.62	1.04 [0.80;1.34] 0.78
Age	1.09 [1.07;1.12], <0.001	1.04 [1.02;1.05], <0.001	1.03 [1.02;1.05], <0.001
Female sex	1.04 [0.72;1.52], 0.83	1.11 [0.81;1.52], 0.52	1.18 [0.88;1.60], 0.27
NYHA class III/IV	1.05 [0.76;1.43], 0.78	1.25 [0.97;1.60], 0.09	1.26 [0.99;1.61], 0.06
Diabetes mellitus	1.26 [0.91;1.73], 0.16	0.99 [0.76;1.30], 0.96	1.04 [0.80;1.35], 0.76
COPD	0.98 [0.58;1.66], 0.95	1.46 [1.00;2.14], 0.05	1.43 [0.99;2.09], 0.06
PVD	1.32 [0.86;2.03], 0.21	1.38 [0.95;1.99], 0.09	1.37 [0.96;1.97], 0.09
Prior stroke	1.70 [0.98;2.95], 0.06	1.10 [0.66;1.84], 0.71	1.15 [0.70;1.90], 0.58
Prior MI	1.27 [0.96;1.70], 0.10	1.19 [0.94;1.51], 0.15	1.21 [0.96;1.52], 0.11
LVEF <50%	1.53 [1.14;2.06], 0.01	1.21 [0.94;1.56], 0.14	1.22 [0.95;1.56], 0.13
BITA vs SITA	0.79 [0.60;1.05], 0.10	0.87 [0.69;1.09], 0.21	0.88 [0.71;1.10], 0.27
Use of RA	0.91 [0.62;1.32], 0.60	0.70 [0.51;0.95], 0.02	0.72 [0.54;0.97], 0.03
OPCABG vs ONCABG	1.02 [0.73;1.42], 0.90	1.01 [0.77;1.33], 0.96	0.97 [0.74;1.27], 0.82

BITA: bilateral internal thoracic artery, CI: confidence interval, COPD: chronic obstructive pulmonary disease, HR: hazard ratio, LVEF: left ventricular ejection fraction, MACE: major adverse cardiac events, MI: myocardial infarction, NYHA: New York Heart Association, ONCABG: on-pump coronary artery bypass grafting, OPCABG: off-pump coronary artery bypass grafting, PVD: peripheral vascular disease, RA: radial artery, SITA: single internal thoracic artery, SWC: sternal wound complication.

eTable 5. Variables associated with all-cause mortality, major adverse cardiac events, and major adverse cardiac events and sternal wound complication among the SITA-only cohort

Variable	All-cause mortality	MACE	MACE + SWC
	HR [95%CI], P value	HR [95%CI], P value	HR [95%CI], P value
Skeletonized vs Pedicled harvesting	1.25 [0.93;1.68], 0.14	1.52 [1.18;1.95], 0.001	1.46 [1.15;1.87], 0.002
Age	1.10 [1.08;1.13], <0.001	1.04 [1.03;1.06], <0.001	1.04 [1.03;1.06], <0.001
Female sex	0.91 [0.61;1.35], 0.64	0.95 [0.68;1.33], 0.77	0.98 [0.70;1.35], 0.88
NYHA class III/IV	0.99 [0.70;1.41], 0.97	1.10 [0.83;1.46], 0.53	1.13 [0.86;1.49], 0.38
Diabetes mellitus	1.38 [1.00;1.89], 0.05	1.25 [0.96;1.64], 0.10	1.26 [0.97;1.64], 0.09
COPD	1.49 [0.91;2.44], 0.12	1.62 [1.07;2.44], 0.02	1.55 [1.03;2.33], 0.04
PVD	1.18 [0.72;1.92], 0.51	1.35 [0.91;2.00], 0.13	1.32 [0.89;1.95], 0.17
Prior stroke	1.66 [0.90;3.07], 0.10	1.27 [0.72;2.23], 0.41	1.23 [0.70;2.16], 0.47
Prior MI	1.17 [0.87;1.56], 0.30	1.03 [0.81;1.31], 0.81	1.04 [0.82;1.32], 0.75
LVEF <50%	1.87 [1.39;2.52], <0.001	1.35 [1.04;1.75], 0.02	1.35 [1.04;1.74], 0.02
OPCABG vs ONCABG	1.09 [0.81;1.47], 0.57	0.96 [0.75;1.24], 0.77	0.93 [0.73;1.19], 0.56

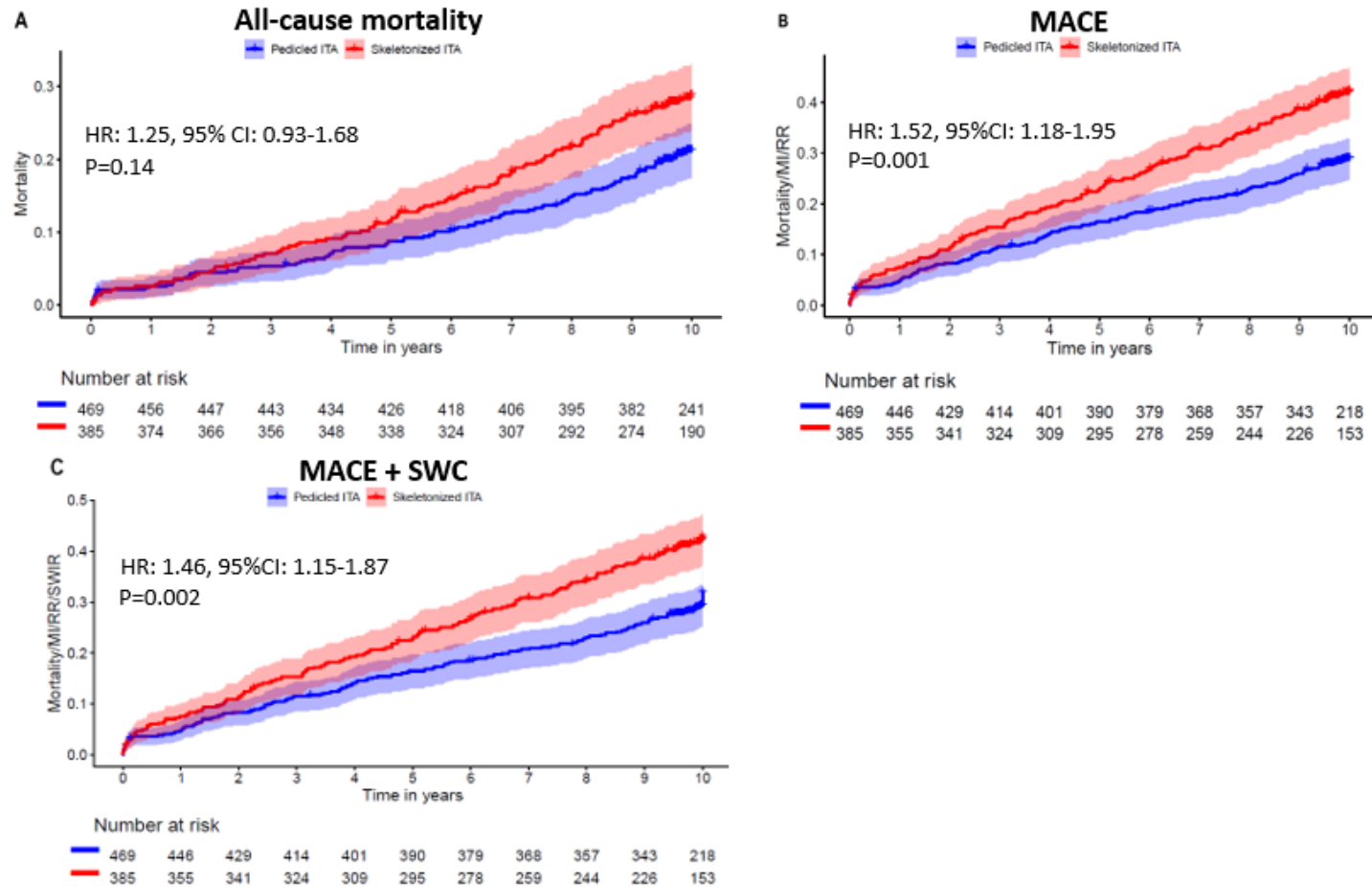
CI: confidence interval, COPD: chronic obstructive pulmonary disease, HR: hazard ratio, LVEF: left ventricular ejection fraction, MACE: major adverse cardiac events, MI: myocardial infarction, NYHA: New York Heart Association, ONCABG: on-pump coronary artery bypass grafting, OPCABG: off-pump coronary artery bypass grafting, PVD: peripheral vascular disease, SITA: single internal thoracic artery, SWC: sternal wound complication.

eTable 6. Baseline characteristics in the matched cohort

	Entire cohort			SITA-only cohort		
	Pedicled	Skeletonized	SMD	Pedicled	Skeletonized	SMD
N°	859	859		304	304	
Age (median [IQR])	65.0 [58.0, 70.0]	65.0 [58.0, 71.0]	0.05	66.0 [58.0, 72.0]	67.00 [59.0, 72.0]	0.09
Female sex (%)	114 (13.3)	136 (15.8)	0.07	39 (12.8)	39 (12.8)	<0.001
NYHA class III/IV (%)	194 (22.6)	190 (22.1)	0.01	78 (25.7)	76 (25.0)	0.02
Diabetes mellitus (%)	225 (26.2)	230 (26.8)	0.01	75 (24.7)	75 (24.7)	<0.001
COPD (%)	53 (6.2)	56 (6.5)	0.01	17 (5.6)	22 (7.2)	0.07
PVD (%)	64 (7.5)	69 (8.0)	0.02	24 (7.9)	25 (8.2)	0.01
Prior stroke (%)	26 (3.0)	28 (3.3)	0.01	10 (3.3)	13 (4.3)	0.05
Prior MI (%)	339 (39.5)	342 (39.8)	0.01	143 (47.0)	133 (43.8)	0.07
LVEF <50% (%)	213 (24.8)	212 (24.7)	0.003	83 (27.3)	77 (25.3)	0.05
Use of BITA (%)	446 (51.9)	437 (50.9)	0.02			
Use of RA (%)	221 (25.7)	220 (25.6)	0.003			
OPCABG (%)	431 (50.2)	465 (54.1)	0.08	170 (55.9)	181 (59.5)	0.07

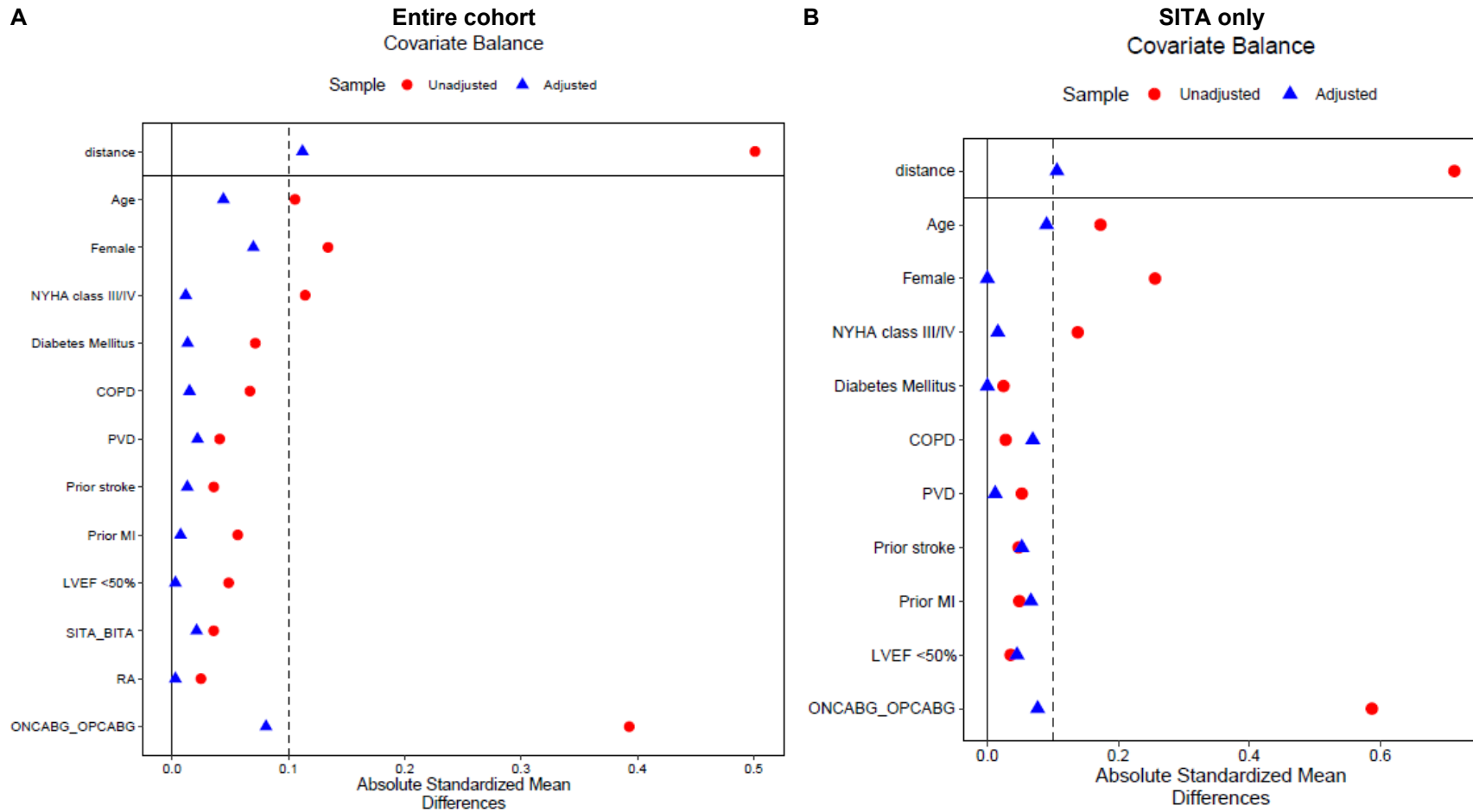
BITA: bilateral internal thoracic artery, COPD: chronic obstructive pulmonary disease, IQR: interquartile range, LVEF: left ventricular ejection fraction, MI: myocardial infarction, NYHA: New York Heart Association, OPCABG: off-pump coronary artery bypass grafting, PVD: peripheral vascular disease, RA: radial artery, SITA: single internal thoracic artery, SMD: standardized mean difference.

eFigure 1. Kaplan Meier curves of all-cause mortality, major adverse cardiac events, and major adverse cardiac events and sternal wound complication among the SITA-only cohort



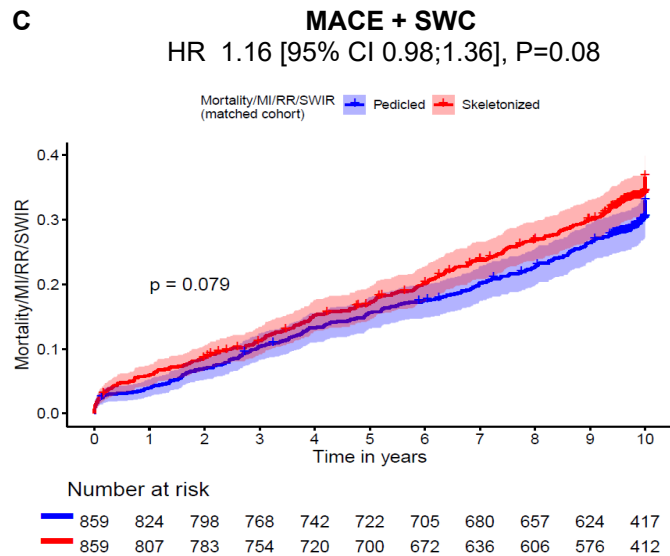
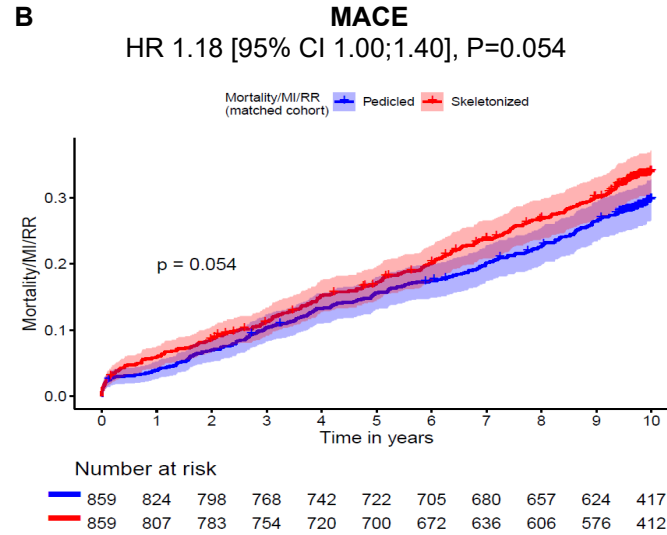
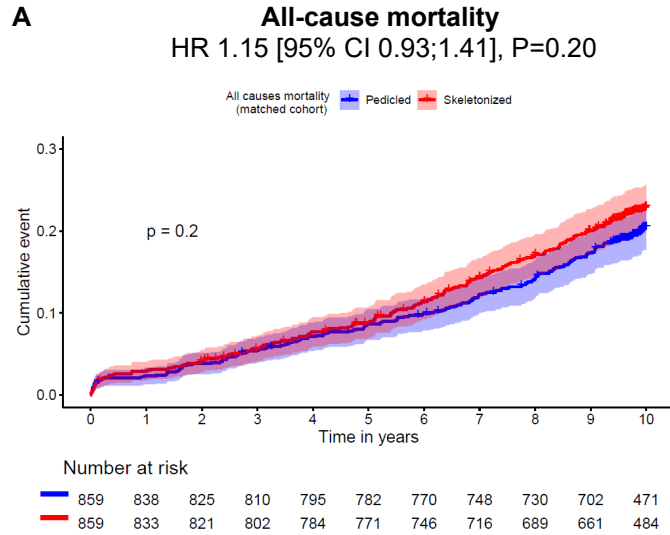
HR adjusted for age, female sex, New York Heart Association class III/IV, diabetes mellitus, chronic obstructive pulmonary disease, peripheral vascular disease, prior stroke, prior myocardial infarction, left ventricular ejection fraction <50%, and use of off-pump coronary artery bypass grafting. CI: confidence interval, HR: hazard ratio, ITA: internal thoracic artery, MI: myocardial infarction, RR: repeat revascularization, SITA: single internal thoracic artery, SWC: sternal wound complication.

eFigure 2. Balance plot for assessment of standardized mean difference before and after propensity score matching among the entire cohort and the SITA-only cohort



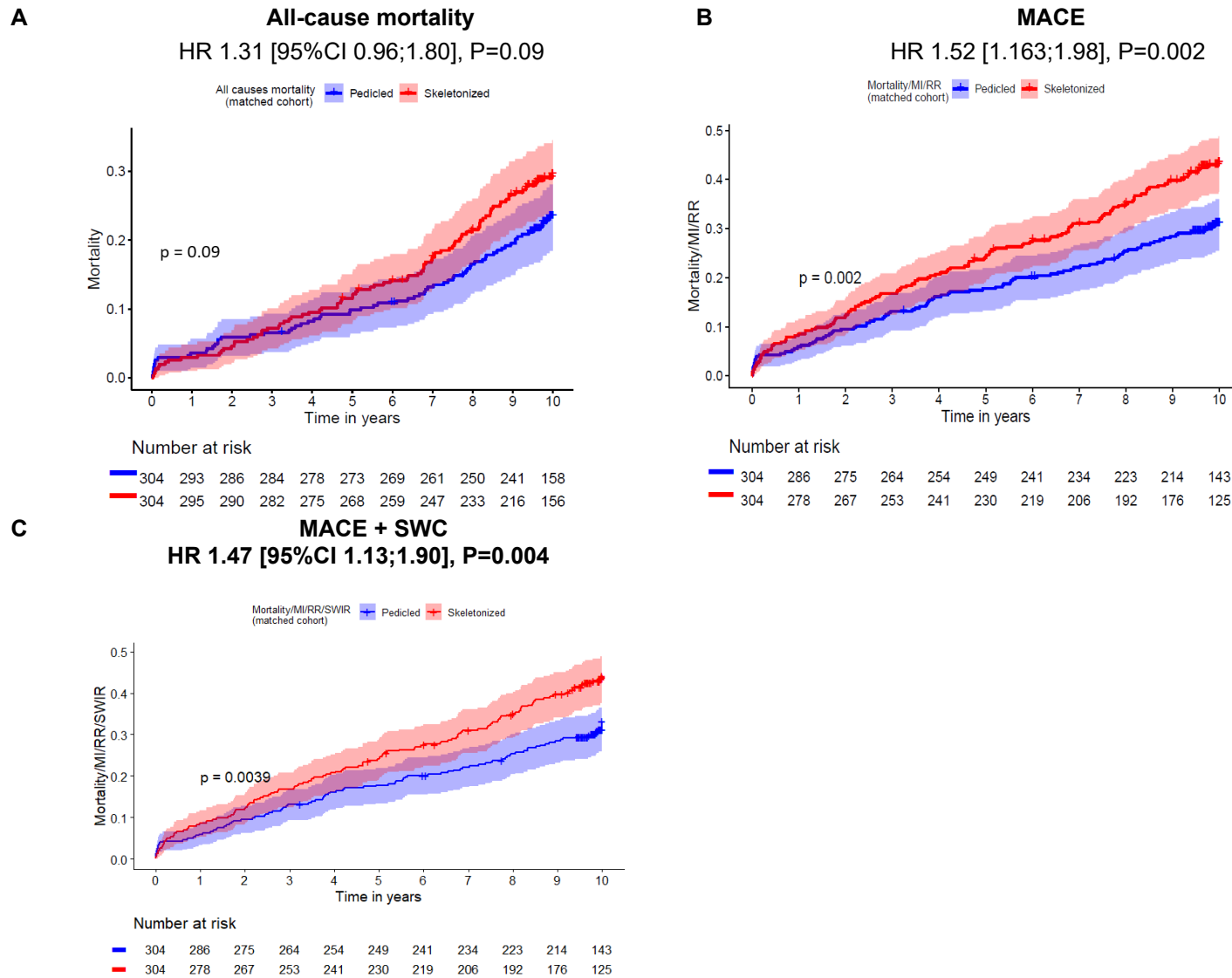
BITA: bilateral internal thoracic artery, COPD: chronic obstructive pulmonary disease, LVEF: left ventricular ejection fraction, MI: myocardial infarction, NYHA: New York Heart Association, ONCABG: on-pump coronary artery bypass grafting, OPCABG; off-pump coronary artery bypass grafting, PVD: peripheral vascular disease, RA: radial artery, SITA: single internal thoracic artery.

eFigure 3. Kaplan Meier curves of all-cause mortality, major adverse cardiac events, and major adverse cardiac events and sternal wound complication among the entire cohort after propensity matching



CI: confidence interval, HR: hazard ratio, MACE: major adverse cardiac events, SWC: sternal wound complication.

eFigure 4. Kaplan Meier curves of all-cause mortality, major adverse cardiac events, and major adverse cardiac events and sternal wound complication among the SITA-only cohort after propensity matching



CI: confidence interval, HR: hazard ratio, MACE: major adverse cardiac events, SITA: single internal thoracic artery, SWC: sternal wound complication.