

CABG vs. DES Stenting For Elderly Population: Patient-Level Pooled Analysis from SYNTAX, PRECOMBAT, and BEST Trials

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Introduction

- Elderly patients often have left main or multivessel CAD that represent a significant portion of patients requiring revascularization.
- These patients are at much greater risk of cardiovascular events after either CABG or PCI because of comorbid conditions and reduced functional capacity.

Introduction

- Little data are available to compare CABG versus PCI with DES in elderly patients with left main or multivessel CAD.
- We investigated the long-term outcomes of CABG versus PCI with DES in elderly patients with left main or multivessel CAD.

Methods

- From a merged data base of SYNTAX, PRECOMBAT, and BEST trials,
- 1,079 patients (32.9% of total cohort) with age ≥ 70 years comprised the study population.

Study Outcome

- Primary Outcome: MACCE
 - Death from any cause
 - MI
 - Stroke
 - Any repeat revascularization
- Previously reported definitions from each study were used for individual clinical outcomes

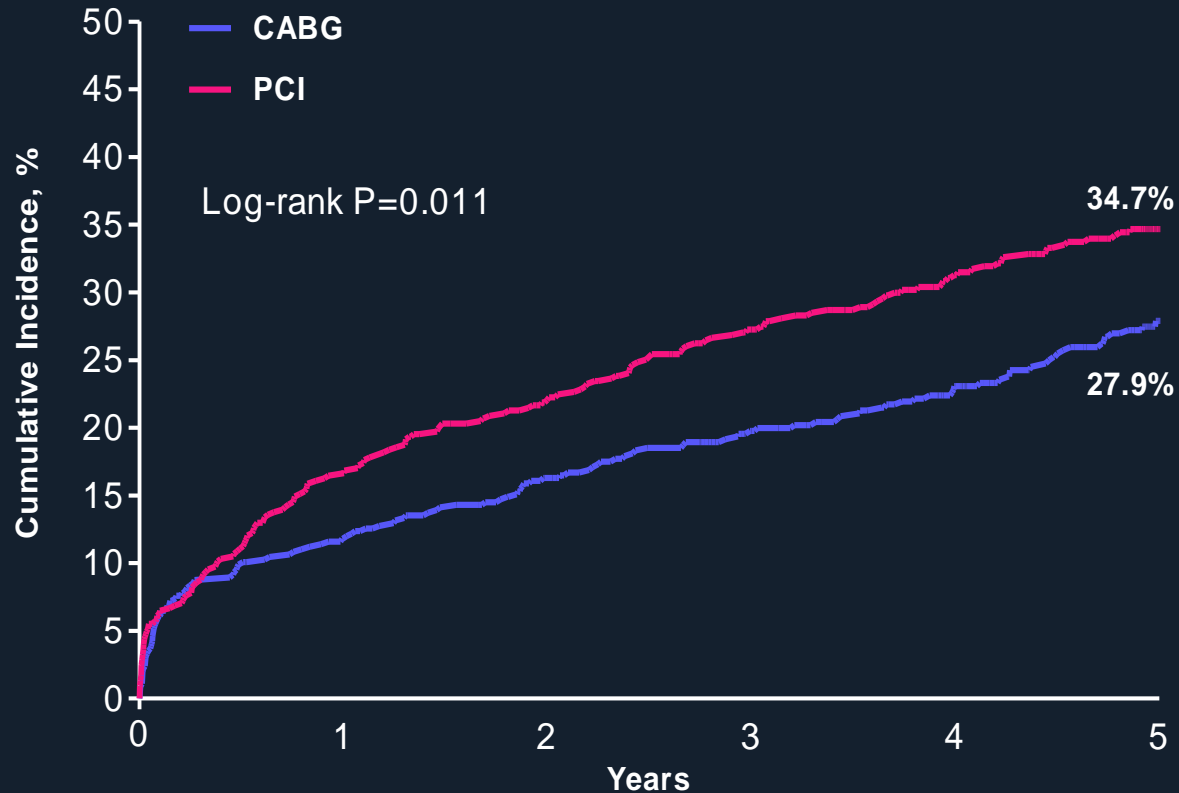
Baseline Characteristics

| | CABG (N=550) | PCI (N=529) |
|------------------------------|-------------------------|------------------------|
| Age (years) | 74.7±3.7 | 74.8±3.7 |
| Male sex | 367 (66.7) | 343 (64.8) |
| Body mass index | 26.0±4.0 | 25.7±3.9 |
| Current smoker | 54 (9.9) | 50 (9.5) |
| Diabetes | | |
| Any | 187 (34.0) | 155 (29.3) |
| Requiring insulin | 44 (8.0) | 32 (6.0) |
| Hypercholesterolemia | 326 (59.4) | 310 (58.8) |
| Hypertension | 370 (67.3) | 381 (72.0) |
| Clinical presentation | | |
| Stable angina | 315 (57.3) | 328 (62.0) |
| ACS | 235 (42.7) | 201 (38.0) |

Baseline Characteristics

| | CABG (N=550) | PCI (N=529) |
|---------------------------------------|-------------------------|------------------------|
| Previous myocardial infarction | 119 (21.8) | 109 (20.8) |
| Previous stroke | 32 (6.8) | 24 (5.2) |
| Peripheral artery disease | 52 (9.5) | 46 (8.7) |
| CKD (Cr <200 µmol/L) | 12 (2.2) | 7 (1.3) |
| Left ventricular dysfunction | 26 (5.9) | 19 (4.9) |
| Diseased vessels | | |
| Proximal LAD disease | 348 (64.0) | 314 (59.6) |
| Left main disease | 212 (38.6) | 199 (37.6) |
| Multivessel disease | 338 (61.4) | 330 (62.4) |
| SYNTAX score | 29.2±10.8 | 28.1±10.8 |
| EuroSCORE | 5.5±2.1 | 5.4±2.0 |

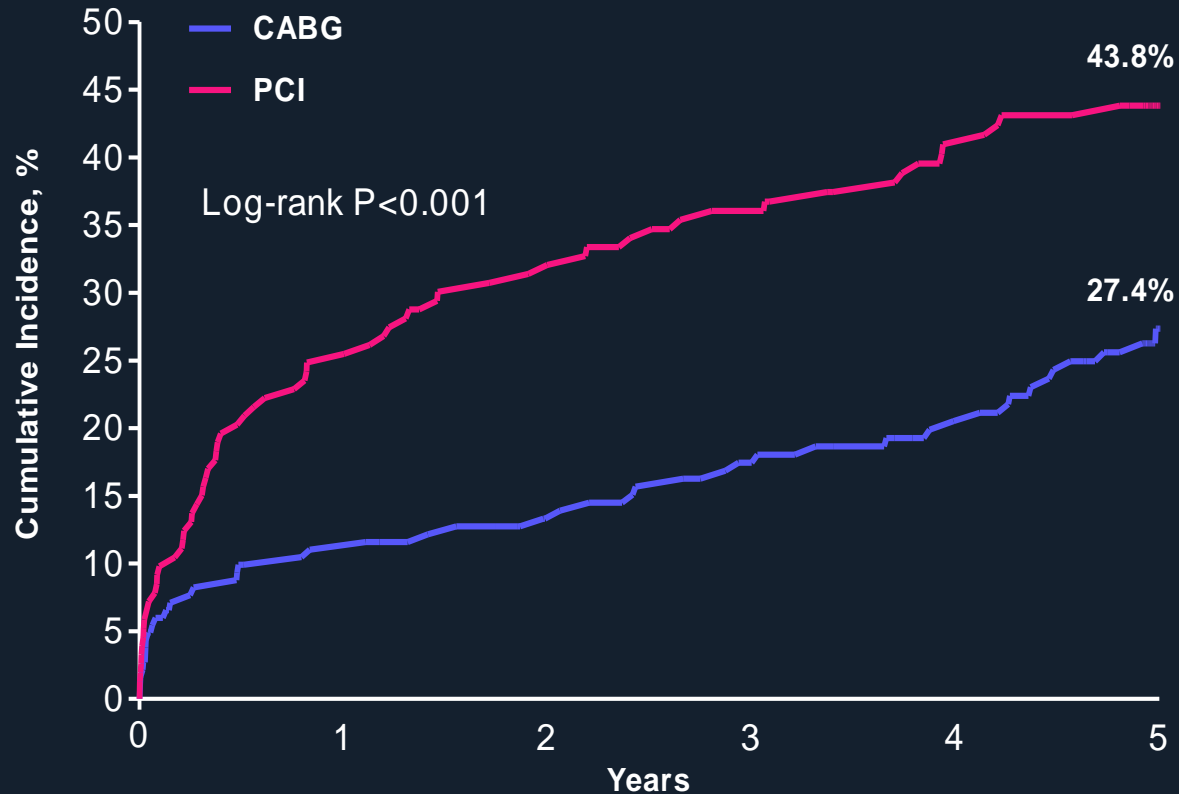
Primary Outcome Death, MI, Stroke, RR



Patient at risk

| | | | | | | |
|------|-----|-----|-----|-----|-----|-----|
| CABG | 550 | 460 | 419 | 381 | 341 | 152 |
| PCI | 529 | 436 | 397 | 358 | 314 | 160 |

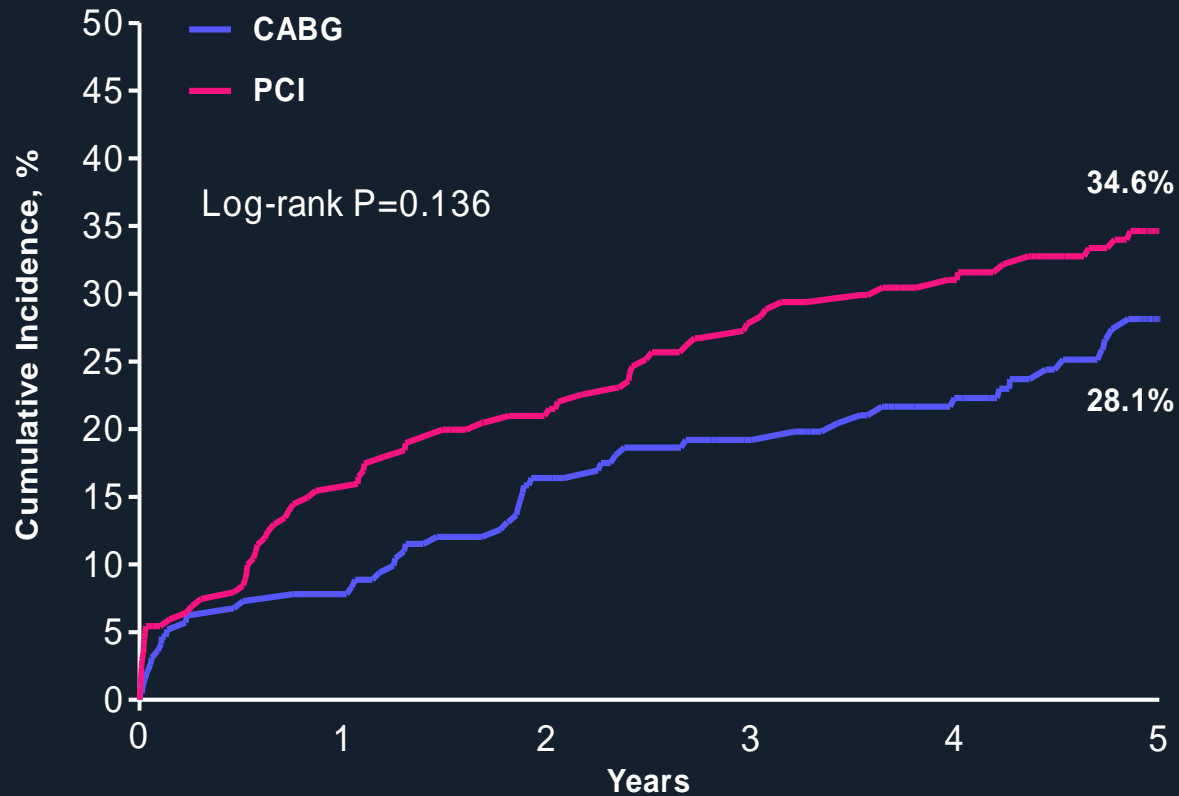
Primary Outcome: High SYNTAX



Patient at risk

| | | | | | | |
|------|-----|-----|-----|-----|-----|----|
| CABG | 185 | 159 | 149 | 140 | 128 | 61 |
| PCI | 156 | 116 | 105 | 96 | 84 | 44 |

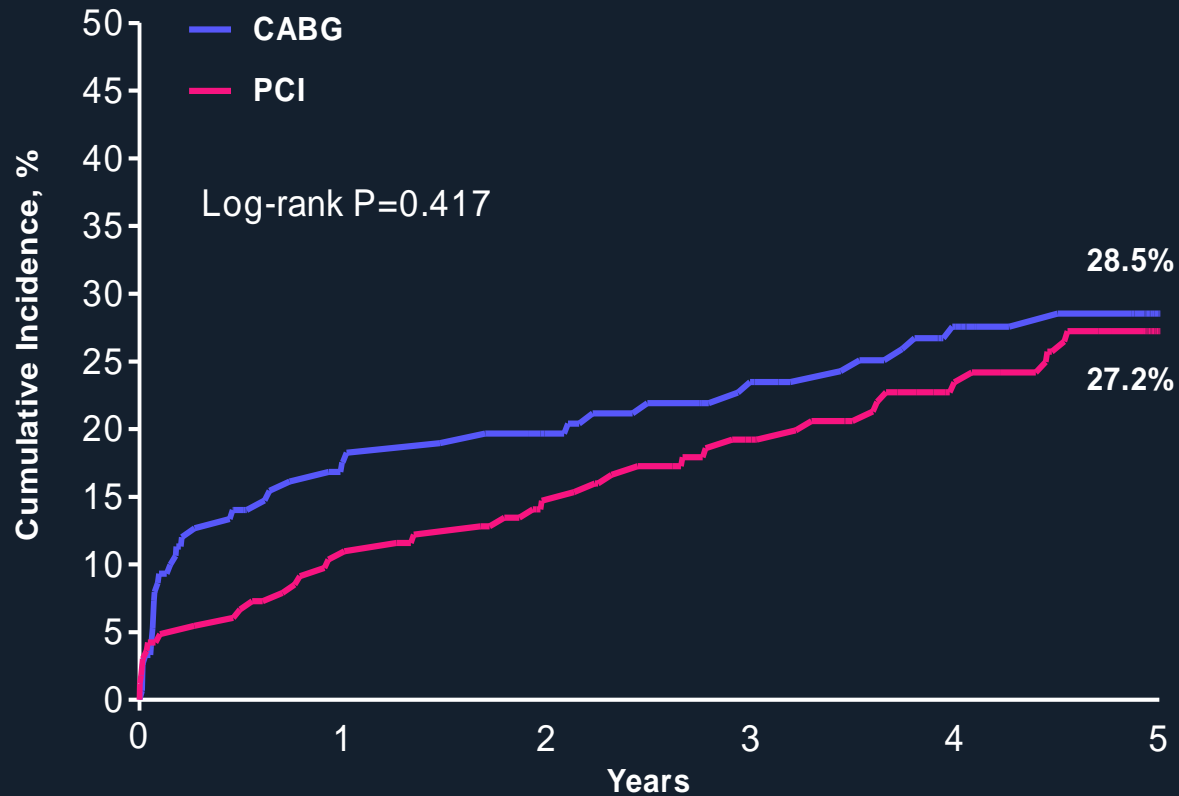
Primary Outcome: Intermediate SYNTAX



Patient at risk

| | 0 | 1 | 2 | 3 | 4 | 5 |
|------|-----|-----|-----|-----|-----|----|
| CABG | 197 | 177 | 154 | 137 | 122 | 45 |
| PCI | 203 | 170 | 155 | 137 | 123 | 61 |

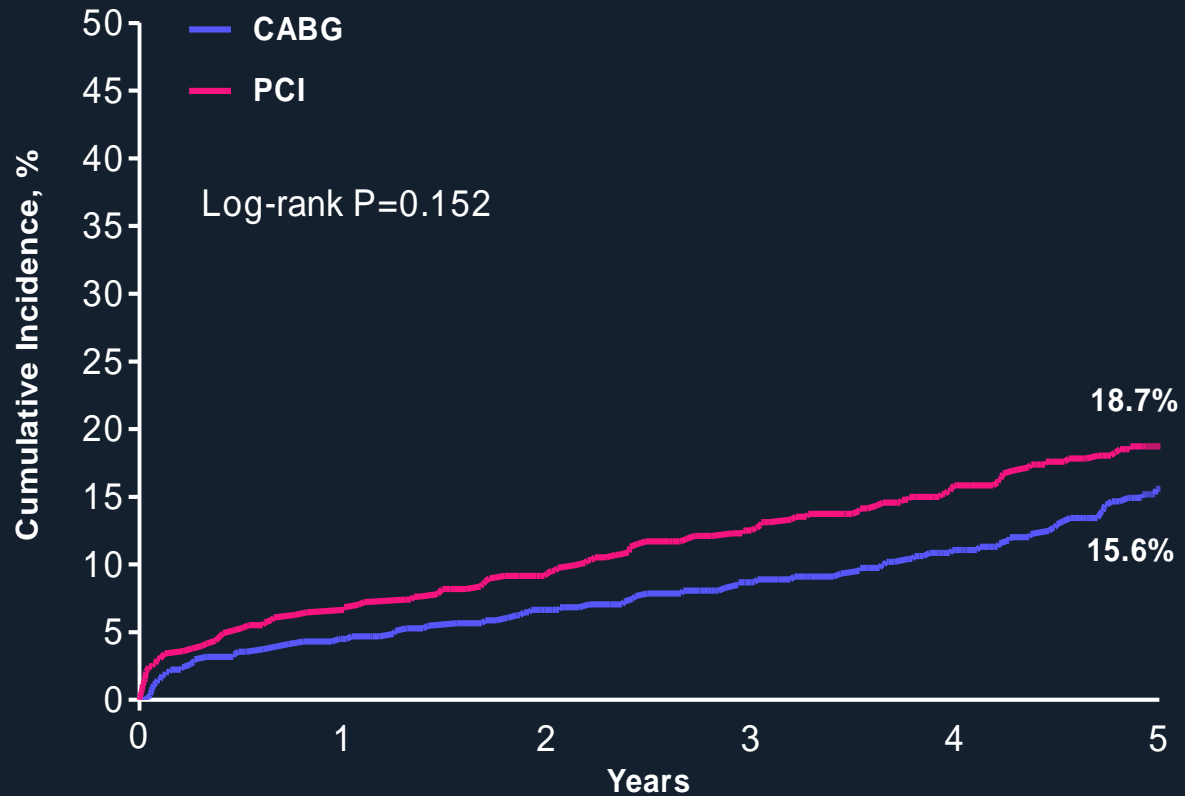
Primary Outcome: Low SYNTAX



Patient at risk

| | 0 | 1 | 2 | 3 | 4 | 5 |
|------|-----|-----|-----|-----|-----|----|
| CABG | 153 | 117 | 110 | 99 | 86 | 52 |
| PCI | 165 | 147 | 135 | 123 | 104 | 58 |

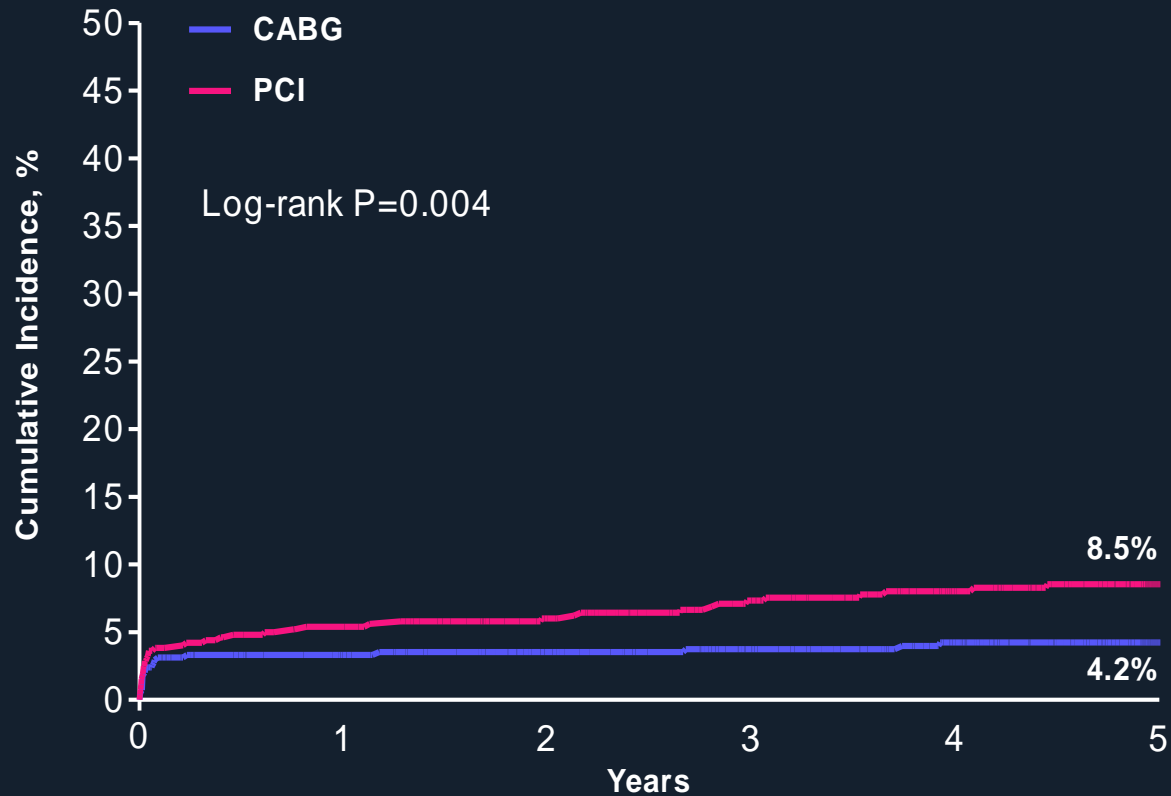
Death From Any Cause



Patient at risk

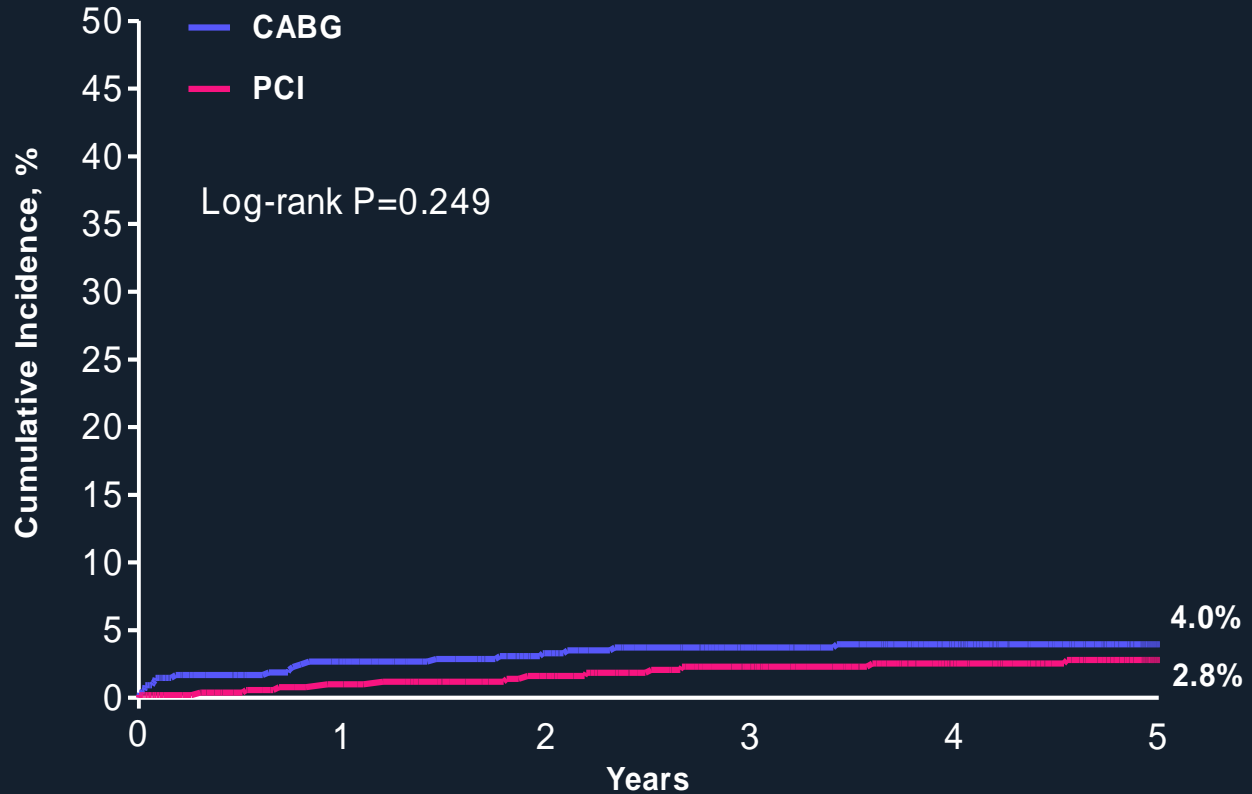
| | | | | | | |
|------|-----|-----|-----|-----|-----|-----|
| CABG | 550 | 499 | 469 | 438 | 398 | 185 |
| PCI | 529 | 491 | 466 | 434 | 392 | 213 |

Myocardial Infarction



| Patient at risk | 0 | 1 | 2 | 3 | 4 | 5 |
|-----------------|-----|-----|-----|-----|-----|-----|
| CABG | 550 | 487 | 456 | 424 | 385 | 175 |
| PCI | 529 | 476 | 448 | 413 | 370 | 197 |

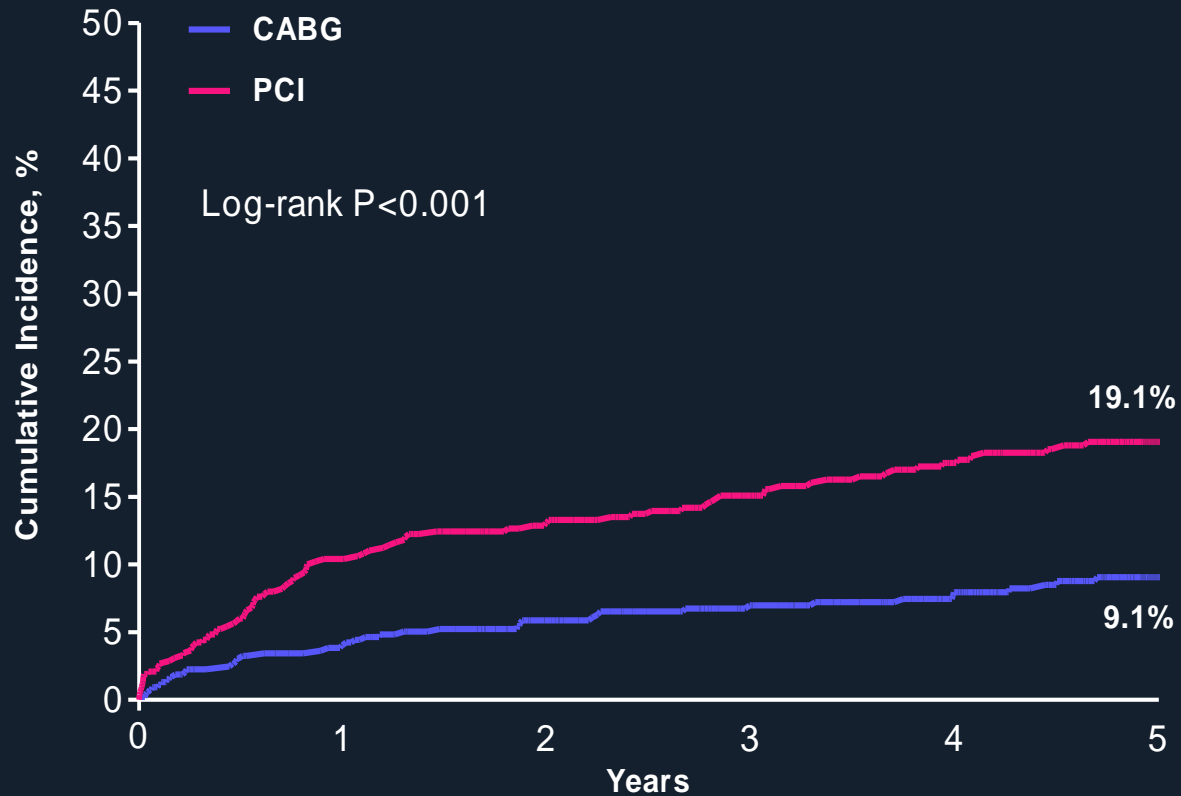
Stroke



Patient at risk

| | | | | | | |
|------|-----|-----|-----|-----|-----|-----|
| CABG | 550 | 486 | 454 | 421 | 382 | 178 |
| PCI | 529 | 486 | 459 | 426 | 384 | 208 |

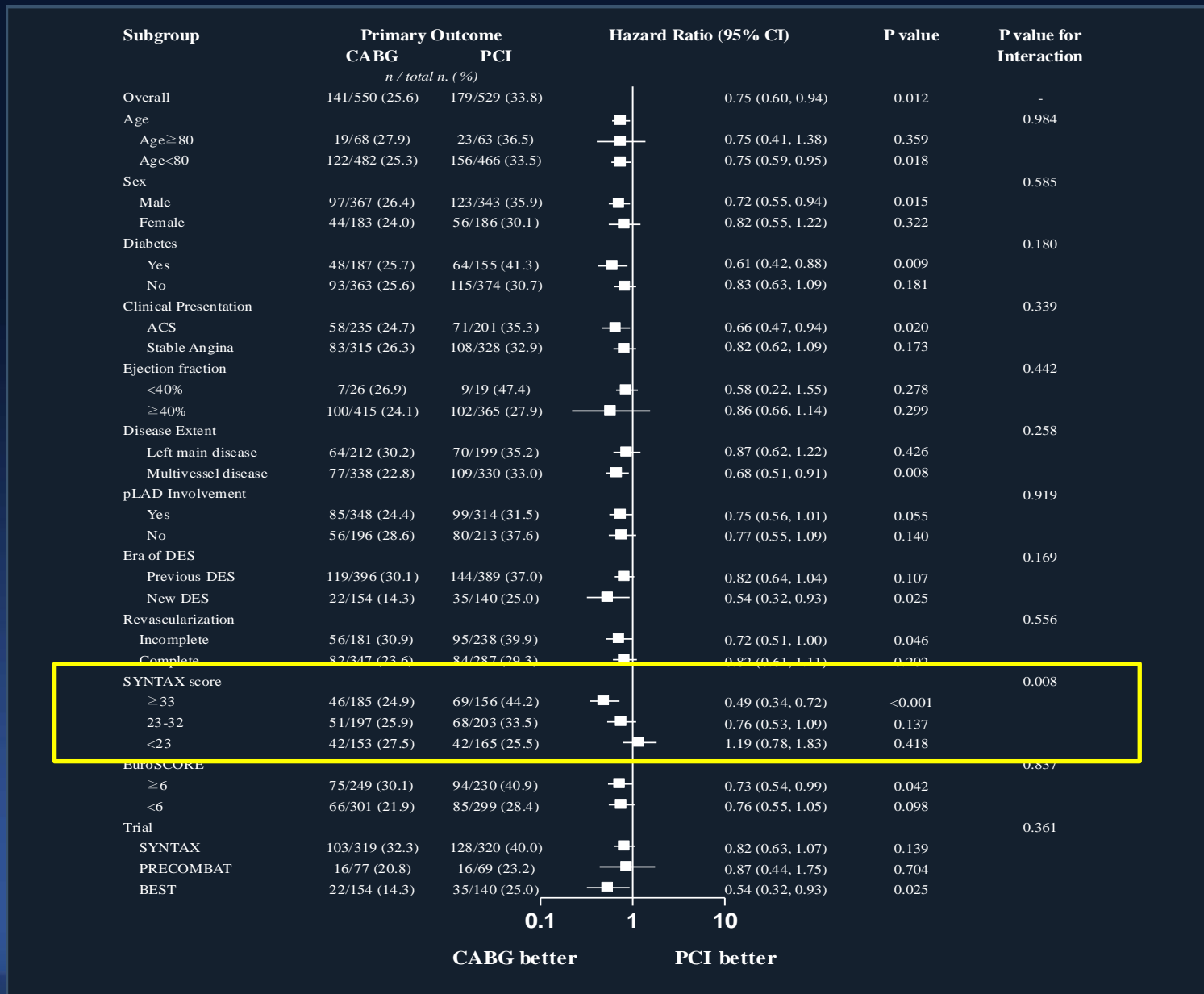
Repeat Revascularization



Patient at risk

| | | | | | | |
|------|-----|-----|-----|-----|-----|-----|
| CABG | 550 | 482 | 443 | 407 | 366 | 168 |
| PCI | 529 | 447 | 409 | 370 | 326 | 172 |

Subgroup Analysis



Clinical Outcomes

| | CABG (N=550) | PCI (N=529) | Hazard ratio (95%CI) | p-value |
|----------------------------------|-----------------|----------------|-------------------------|---------|
| | no. (%) | | | |
| Primary outcome: | | | | |
| Death, MI, stroke, or RR | 141 (25.6) | 179 (33.8) | 0.75 (0.60-0.94) | 0.012 |
| Secondary outcomes | | | | |
| Death from any causes | 77 (14.0) | 95 (18.0) | 0.80 (0.60-1.09) | 0.153 |
| Death from cardiac causes | 38 (6.9) | 58 (11.0) | 0.65 (0.43-0.98) | 0.037 |
| MI | 22 (4.0) | 44 (8.3) | 0.48 (0.29-0.80) | 0.005 |
| Stroke | 21 (3.8) | 14 (2.6) | 1.49 (0.76-2.92) | 0.252 |
| Repeat revascularization | 43 (7.8) | 91 (17.2) | 0.44 (0.31-0.64) | <0.001 |
| Death or MI | 92 (16.7) | 120 (22.7) | 0.75 (0.57-0.98) | 0.036 |

Predictors of Primary Outcome

| Variables | HR | 95% CI | p-value |
|-----------------------------------|-------------|------------------|------------------|
| CABG (versus PCI) | 0.60 | 0.47-0.76 | <0.001 |
| Peripheral artery disease | 1.79 | 1.29-2.48 | <0.001 |
| Complete revascularization | 0.72 | 0.58-0.91 | 0.006 |
| SYNTAX score | 1.01 | 1.00-1.02 | 0.015 |
| EuroScore | 1.07 | 1.01-1.13 | 0.022 |
| Discharge medications | | | |
| Antiplatelet therapy | 0.23 | 0.15-0.36 | <0.001 |
| Statin | 0.57 | 0.44-0.73 | <0.001 |

Summary

- In this pooled patient-level analysis, we found that elderly patients (≥ 70 years) with left main or multivessel CAD had lower rates of MACCE in the CABG group than in the PCI group.
- This difference was largely driven by reduced rates of myocardial infarction and repeat revascularization.

Summary

- The advantage of CABG was particularly pronounced in patients with high SYNTAX scores (≥ 33), but not in those with low-to-intermediate SYNTAX scores (< 33).
- In addition, the two groups had similar rates of death from any causes and stroke.