SOLACI-CACI@LATAMBIF Group. Lesions in the Left Main]
Coronary Artery: What Is the Best Therapeutic Alternative in 2024?

CURRENT STATUS OF LMCA PCI: CONTRIBUTIONS FROM CLINICAL STUDIES

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Introduction

70's: LMCA versus OMT → CABG

The first PCI was performed by Dr Andreas Gruentzig with balloon angioplasty in 1977

Special trials: SYNTAX, PRECOMBAT, NOBLE, and EXCEL

Revascularization strategy for left main coronary artery disease is uncertain

Syntax score: complex and lack of adequate training

Importance of Heart team and Patient decision

Bruschke AV, Circulation. 1973;47:1154–1163.
Conley MJ Circulation. 1978;57:947–952.
Mäkikallio TI. Lancet. 2016;388:2743–2752.
Holm NR NOBLE trial. Lancet. 2020;395:191–199.

2018 ESC/EACTS Guidelines on Myocardial Revascularization

Left main CAD	CABG		PCI with DES	
Left main disease with low SYNTAX score (0-22) [69, 121, 122, 124,145-148]	I	A	I	A
Left mais disease with intermediate SYNTAX score (23-32) [69, 121, 122, 124, 145-148]	I	A	IIa	A
Left main disease with high SYNTAX score (≥ 33) [c 69, 121, 122, 124, 146-148]	I	A	III	B

2021 ACC/AHA/SCAI Guidelines for Coronary Artery Revascularization

In patients with SIHD and significant left mais stenosis, CABG is recommended to improve survival (9-12)	1	B-R
In selected patients with SIHD and significant left main stenosis for whon PCI can provide equivalet revascularization to that possible with CABG, PCI is reasonable to improve survival (9)	2a	B-NR
In patients who require revascularization for multivessel CAD with complex or diffuse CAD (e.g., SYNTAX score > 33), it is reasonable to choose CABG over PCI to confer a survival Advantage (2-5)	2a	B-R

European Heart Journal. 201;40:87-165.
J Am Coll Cardion. 2022;79:e21-e129.

2022 Joint ESC/EACTS Task Force Review of the 2018 Guidelines for Revascularization of LMCAD in Patients at Low Surgical Risk

Suggested recommendation for type of revascularization in stable patients with left mais disease, coronary anatomy suitable for both procedures and low predicted surgival mortality				
Recomendation	CABG Class[a]	Level[b]	PCI Class[a]	Level[b]
Left main disease with low or intermediate SYNTAX score (0-32)	I	A	IIa	A

Eur J Cardiothorec Surg. 2023 Aug 1;64(2):ezad286. doi: 10.1093/ejects/ezad286

Introduction

- TRIALS

Trial	Year	Sample size	Methodology	Patient population	Conclusions
SYNTAX	2009	1,800	Multicenter, parallel-group, randomized, controlled trial	MVD or LM disease	PCI with increased revascularization rates and CABG with higher stroke rate
PRECOMBAT	2015	600	Prospective, open-label, randomized trial	Unprotected left main coronary artery stenosis	No significant difference regarding the rate of MACCE between PCI and CABG at 5 years
EXCEL	2016	1,905	Multicenter, randomized, open-label trial	Left main coronary stenosis of at least 70%, SYNTAX score of 32 or lower	PCI was noninferior to CABG with respect to the rate of the composite end point of death, stroke, or MI at 3 y
NOBLE	2016	1,201	Prospective, randomized, open-label, noninferiority trial	Left main coronary stenosis diameter > 50% or fractional flow reserve ≤ 0.80 with no more than three additional noncomplex lesions	PCI was not noninferior to CABG for treatment of left main coronary artery disease; CABG might provide a better clinical outcome at 5 y

Abbreviations: CAD, coronary artery disease; CABG, coronary artery bypass grafting; CV, cardiovascular; LM, left main; MACCE, major adverse cardiovascular and cerebrovascular events; MI, myocardial infarction; MVD, multivessel disease; PCI, percutaneous coronary intervention; T2DM, type 2 diabetes mellitus.

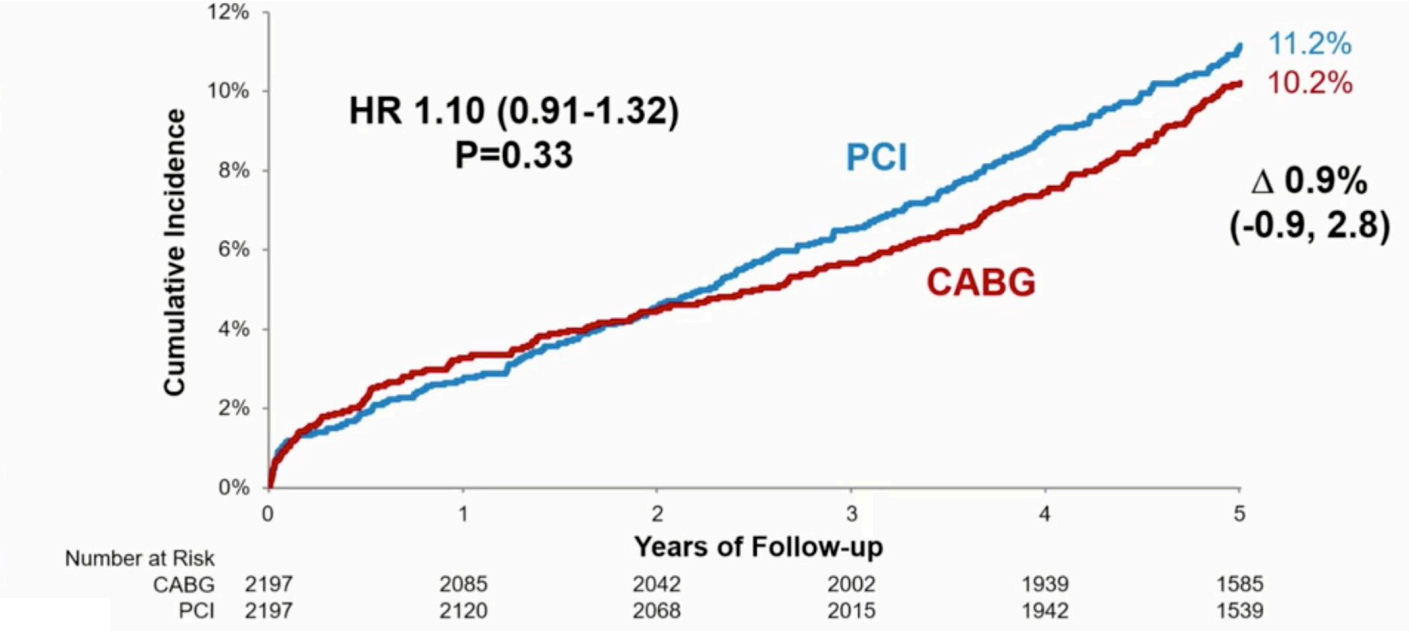
Individual Patient Data Pooled Analysis from EXCEL, NOBLE, SYNTAX, and PRECOMBAT (n = 4,394)

All 4934 patients judged by a Heart Team to be equally suitable candidates for either PCI or CABG		
Characteristic	PCI (N = 2197)	CABG (N = 2197)
Age, Years	66 (59-73)	66 (59-72)
Male	77	77
Diabetes	26	25
LVEF < 50%	12	12
SYNTAX score	25 (19-31)	24 (18-31)
Left main only	16	16
Left main + multivessel (≥ 2V) disease	52	53
# stents / conduits	2 (1-3)	2 (2-3)
IVUS use	68	
LIMA		36
All arterial		23

Sebatine MS et al. Lancet 2021;398;2247-57

4 Randomized Trials of PCI with DES vc CABG (n = 4,394)

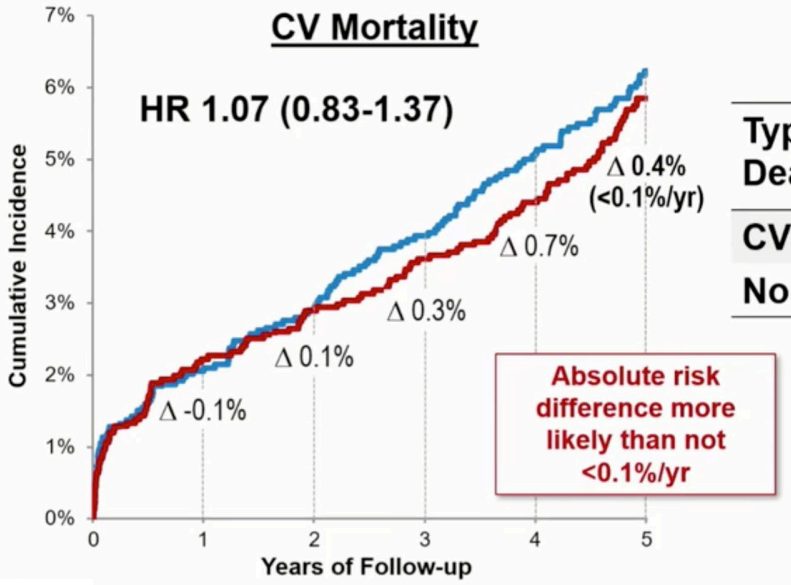
Primary Endpoint: All-cause Mortality



Sebatine MS et al. Lancet 2021;398;2247-57

4 Randomized Trials of PCI with DES vc CABG (n = 4,394)

CV and Non-CV Mortality



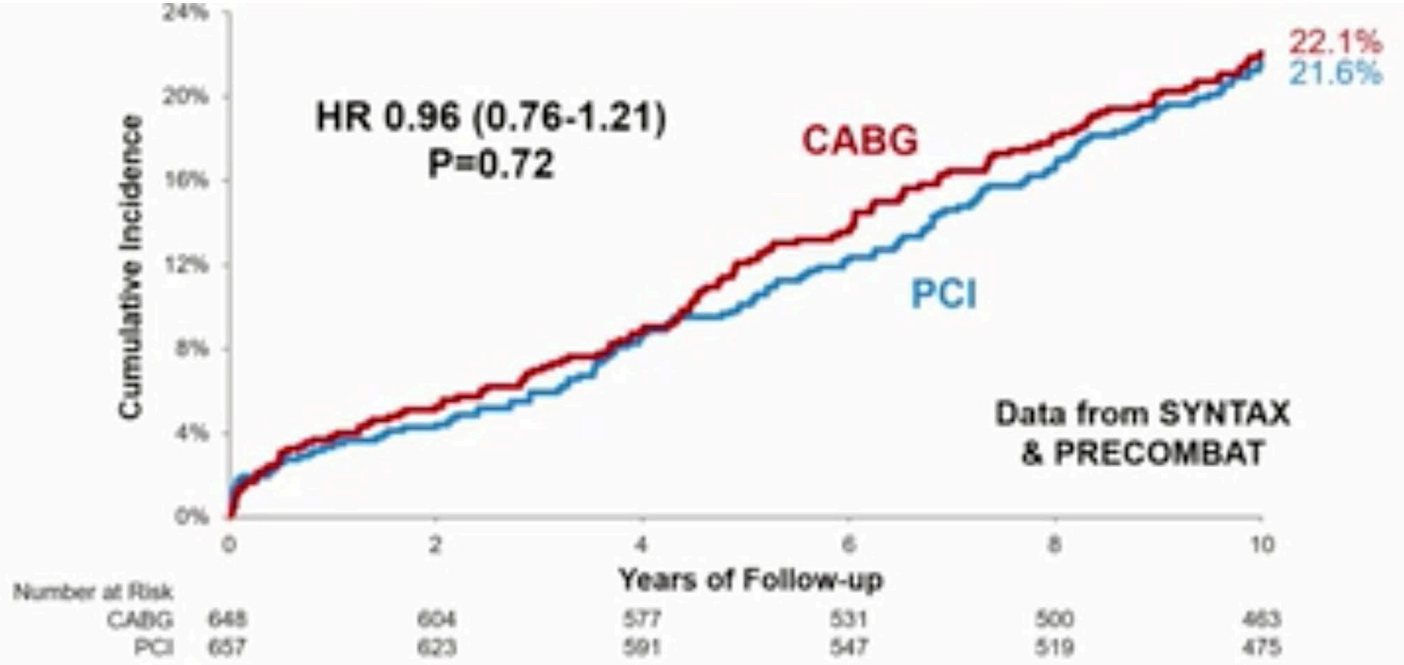
Type of Death	5-Year KM Rates		
	PCI	CABG	Δ
CV	6.2	5.9	0.4 (-1.1, 1.8)
Non-CV	5.2	4.5	0.7 (-0.6, 2.0)

Higher rate of non-CV death was driven by increased late (>1-year) rates of malignancy and sepsis in PCI-treated pts in EXCEL, with no evidence of increased risk in the other 3 trials or any prior trial of PCI vs. CABG.

Sebatine MS et al. Lancet 2021;398;2247-57

4 Randomized Trials of PCI with DES vc CABG (n = 4,394)

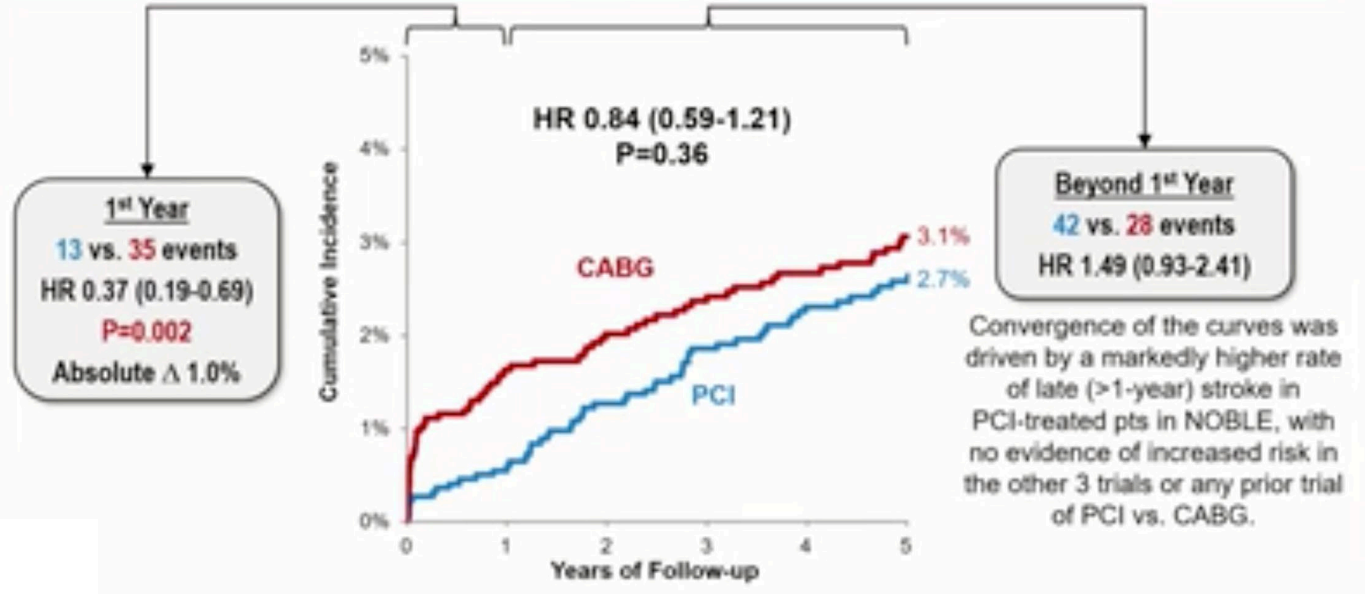
Two Trials with 10-Year Mortality Data



Sebatine MS et al. Lancet 2021;398;2247-57

4 Randomized Trials of PCI with DES vc CABG (n = 4,394)

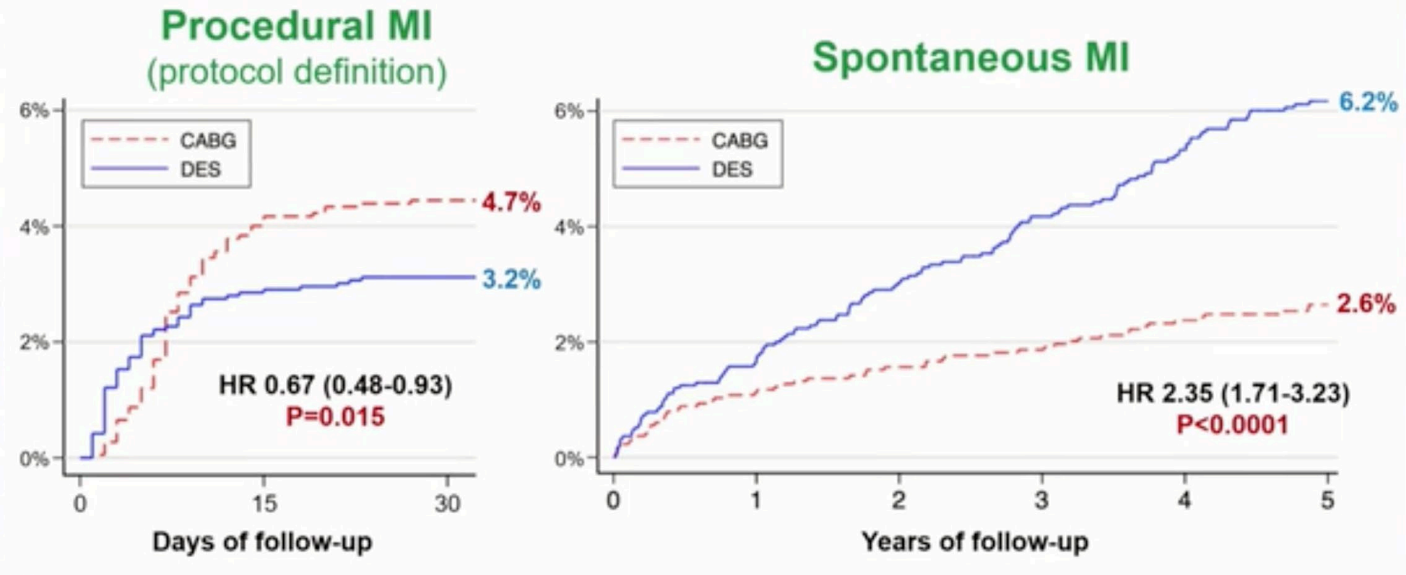
Stroke



Sebatine MS et al. Lancet 2021;398;2247-57

4 Randomized Trials of PCI with DES vc CABG (n = 4,394)

Procedural and Spontaneous MI

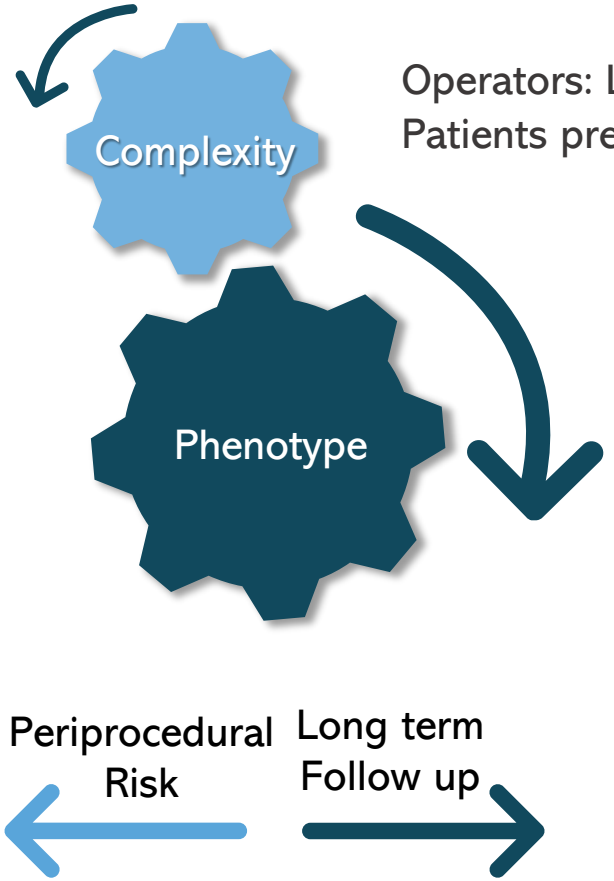


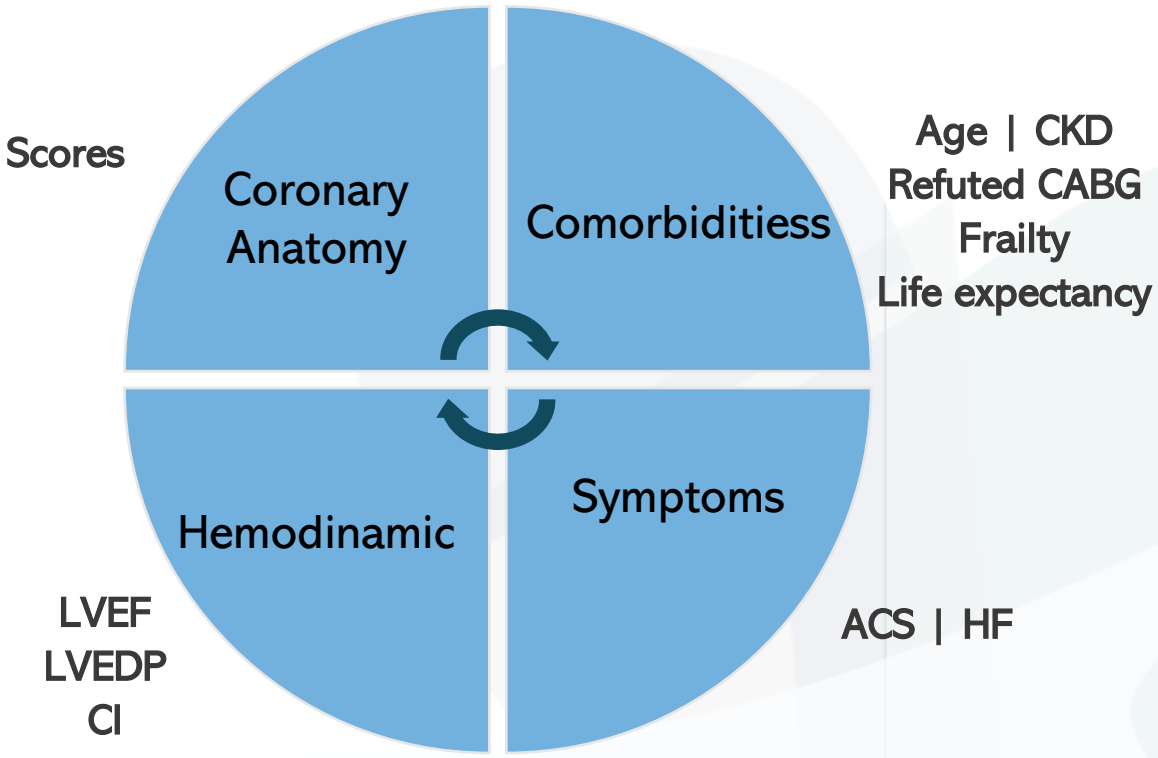
What about all the Other outcomes?

- Infections/sepsis
- Renal dysfunction
- Atrial fibrillation/arrhythmias
- Vascular complications
- Major bleeding/transfusions
- Rehospitalizations
- Other reoperations
- Recuttent angina
- Chest pain
- Musculoskeletal disorders
- Dyspnea and fatigue (HF)
- Time to recovery
- Depression
- Cognitive decline

REAL WORLD

Definition of angioplasty complex and high-risk should include all





Key principles of a Complex Injuries Team

CABG

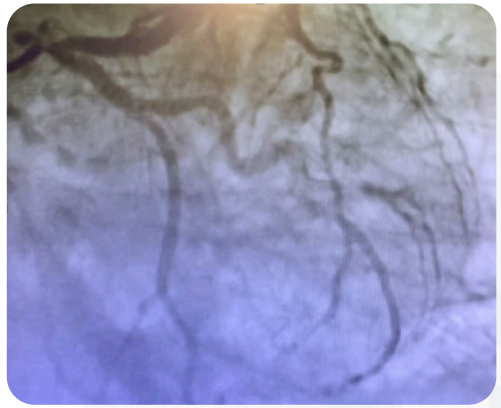
- Young people
- Chronic kidney
- LV dysfunction
- Diabetics
- Injury complexity
- Associated valve disease

Heart Team

- Socio-economic factors
- Patient preference
- Operators
- Material availability

PCI

- Type of injury
- High surgical risk
- Patient instability
- Life expectancy



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#FamilyTeam