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Percutaneous coronary intervention for bifurcation coronary lesions: the 15th consensus document from the European Bifurcation Club

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REVIEW

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2022 Joint ESC/EACTS review of the 2018 guideline recommendations on the revascularization of left main coronary artery disease in patients at low surgical risk and anatomy suitable for PCI or CABG

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2022 joint ESC/EACTS review of the 2018 guideline recommendations on the revascularization of left main coronary artery disease in patients at low surgical risk and anatomy suitable for PCI or CABG



Objective

Review new data since the 2018 ESC/EACTS Guidelines on myocardial revascularization as they apply to patients with left main disease with low-to-intermediate SYNTAX score (0–32)

Task Force



Interventional cardiologists



Cardiac surgeons



General cardiologists



Methodologist/statistician

6

ESC appointees

6

EACTS appointees



Heart Team

The Heart Team continues to be of central importance to the consideration of revascularization modality in patients with LM disease as outlined in the 2018 ESC/EACTS Guidelines on myocardial revascularization

Summary of clinical trial evidence

Review of clinical trial evidence for stable patients with left main coronary artery disease, low or intermediate SYNTAX score, low predicted surgical risk, and suitable anatomy for PCI and CABG

100 people undergoing PCI at 5 years

20%



Event^a

80%



Alive, no event

89%



Alive

100 people undergoing CABG at 5 years

16%



Event^a

84%



Alive, no event

90%



Alive

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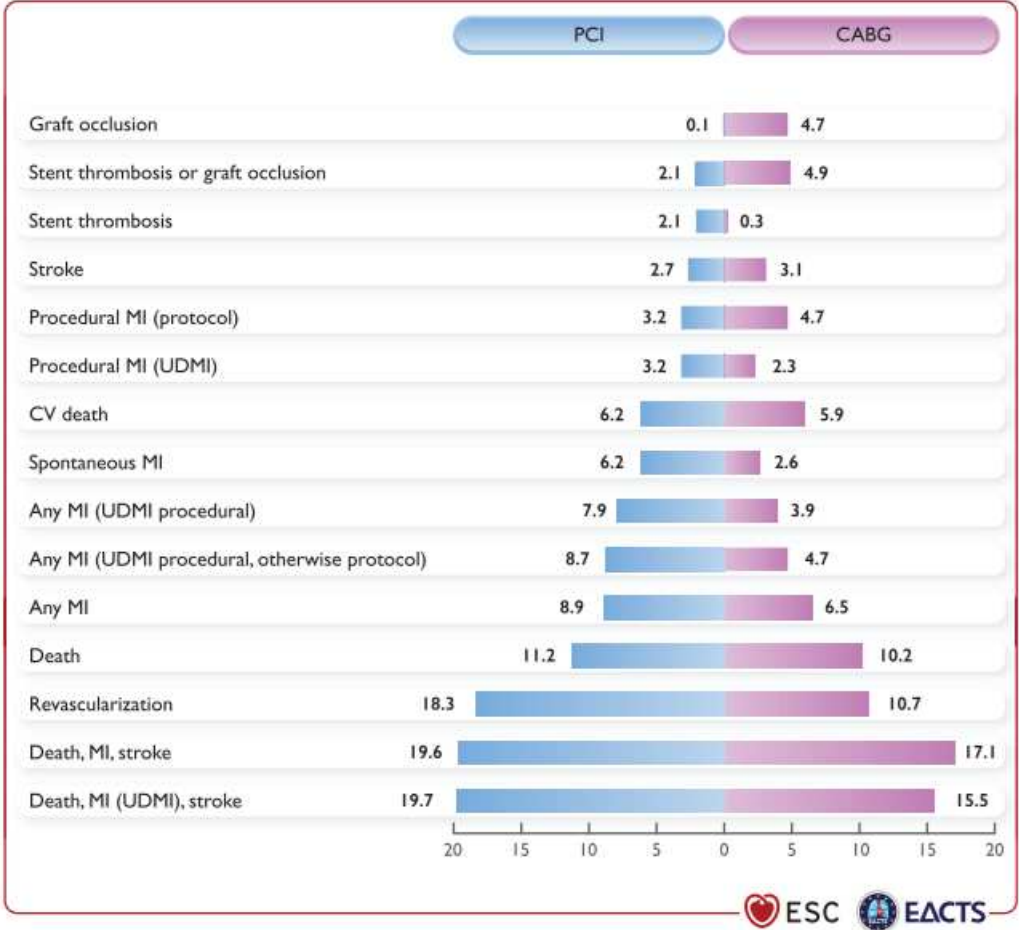


Figure 1: 5-year clinical outcomes with PCI vs. CABG in pooled analysis of randomized trials. CABG, coronary artery bypass grafting; CV, cardiovascular; MI, myocardial infarction; PCI, percutaneous coronary intervention; UDMI, Universal Definition of Myocardial Infarction.

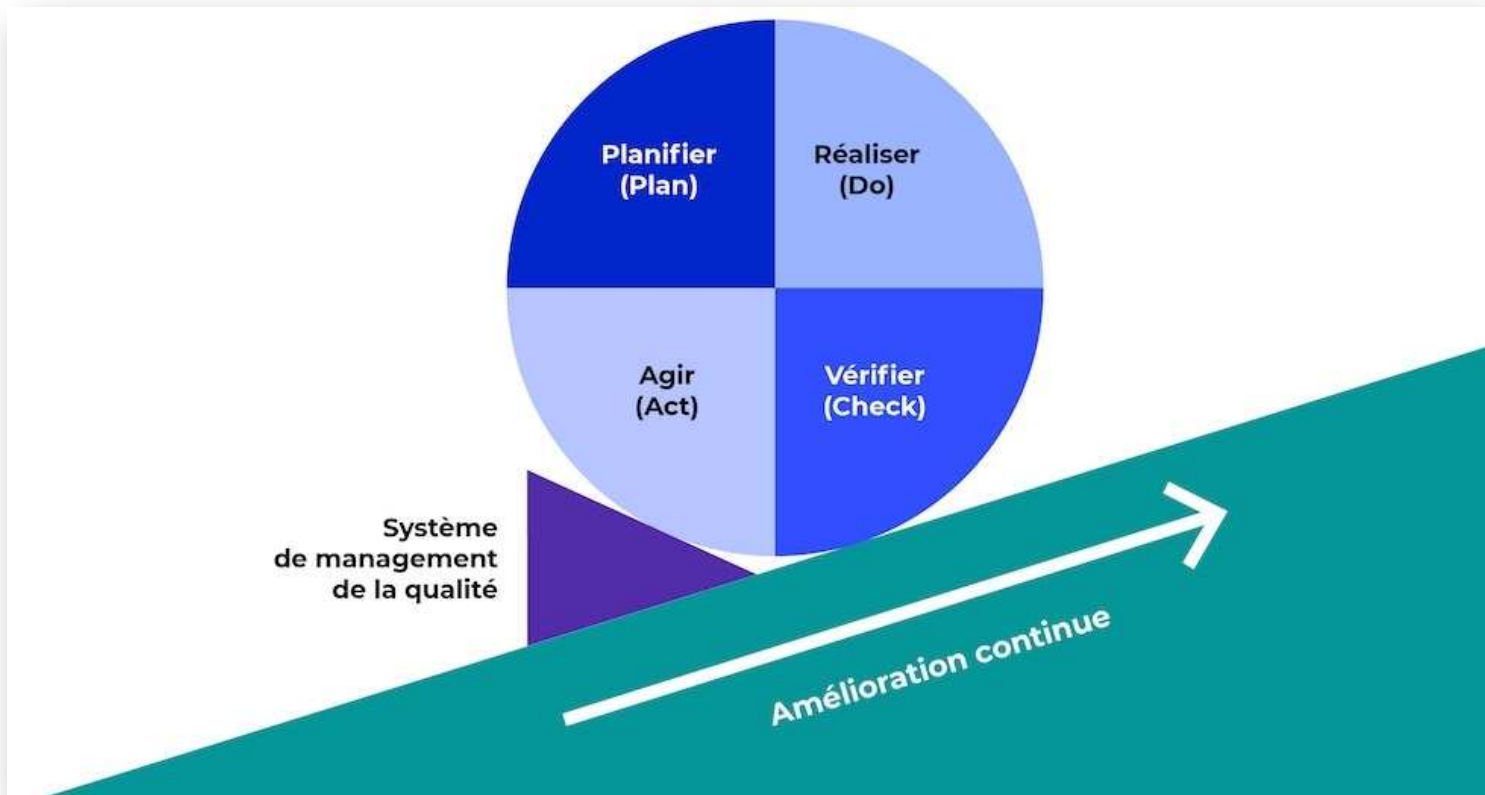
Table 1: Suggested recommendation for type of revascularization in stable patients with left main disease, coronary anatomy suitable for both procedures and low predicted surgical mortality

Recommendation	CABG		PCI	
	Class ^a	Level ^b	Class ^a	Level ^b
Left main disease with low or intermediate SYNTAX score (0-32).	I	A	Ila	A

CABG, coronary artery bypass graft; PCI, percutaneous coronary intervention; SYNTAX, Synergy Between Percutaneous Coronary Intervention with TAXUS and Cardiac Surgery.

^aClass of recommendation.

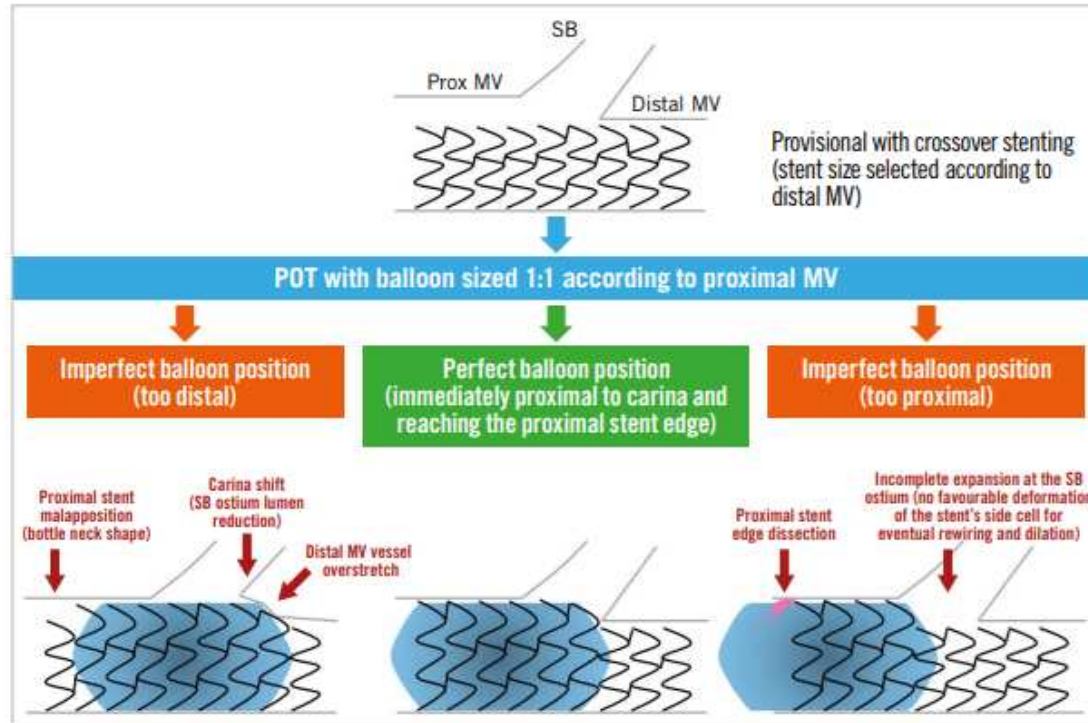
^bLevel of evidence.



Percutaneous coronary intervention for bifurcation coronary lesions: the 15th consensus document from the European

One-stent strategy

- When treating before MV stenting
- POT efficacy is carina and reaching
- Kissing balloon re-cross and short
- POT-side-POT efficacy is strong
- The definition c



may be considered

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step.

Percutaneous coronary intervention for bifurcation coronary lesions: the 15th consensus document from the European Bifurcation Club

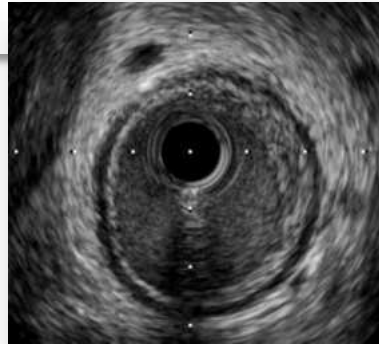
Two-stent strategy

- The use of a 2-stent technique should be selected according to **bifurcation anatomy and the operator's experience**.
- **Extensive understanding** of the 2-stent technical steps is pivotal since adherence to best practice (sequences of ballooning, etc.) impacts on the efficacy of all 2-stent techniques.
- **The use of POT (one, two or even three times)** is part of an optimal 2-stent technique.
- In 2-stent techniques, **final kissing** might be regarded as a measure of procedural quality since failure in its performance continues to be strongly associated with adverse late clinical outcome

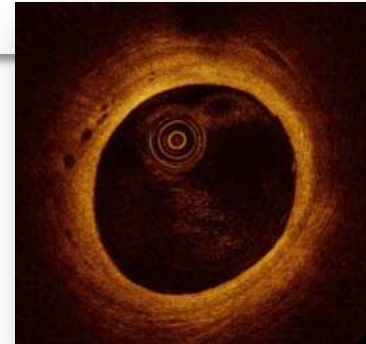
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Intracoronary imaging

- OCT combined with angio co-registration and sophisticated real-time analysis software provides real advantages for a stepwise bifurcation approach, especially 3D reconstruction to facilitate guidewire re-crossing towards the SB
- Intracoronary imaging should be available in the cath lab and it is recommended that it is used when faced with procedural complications or unexpected technical challenges

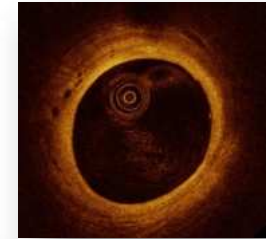
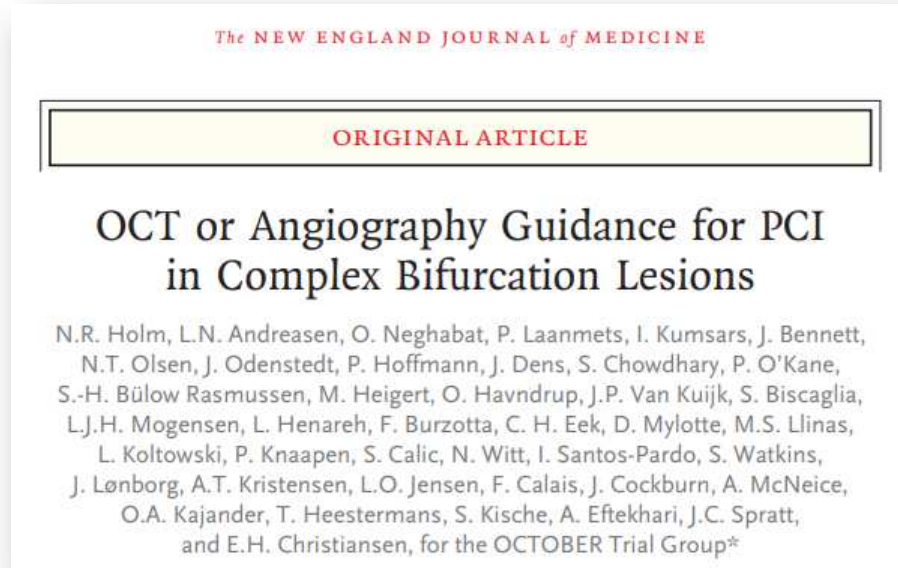


IVUS (*Intravascular Ultrasound*)



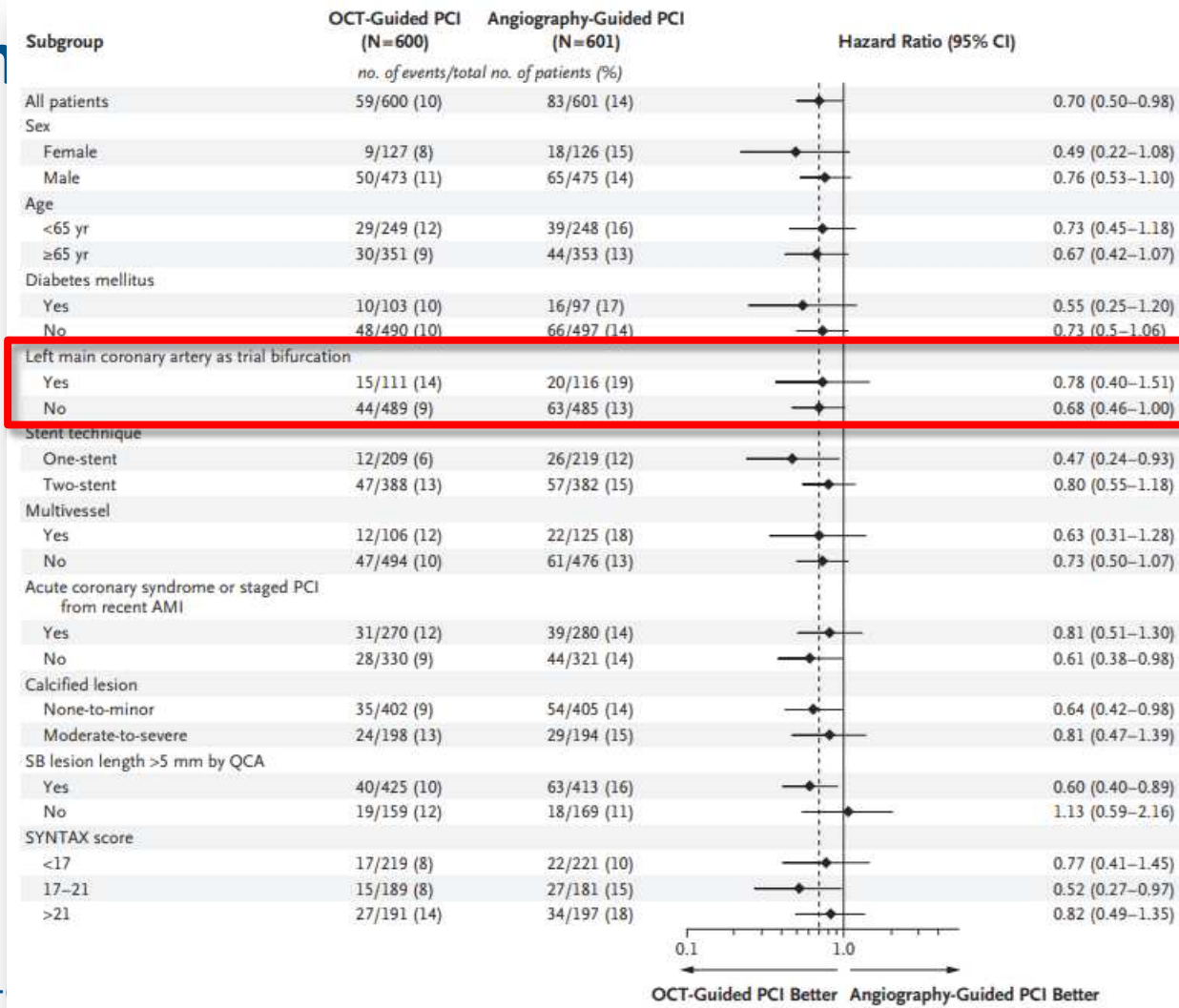
OCT (*Optical Coherence Tomography*)

Imagerie endocoronaire: OCTOBER Trial



OCT (*Optical Coherence Tomography*)

METHODS We conducted a multicenter, randomized, open-label trial at 38 centers in Europe. Patients with a clinical indication for PCI and a complex bifurcation lesion identified by means of coronary angiography were randomly assigned in a 1:1 ratio to OCT-guided PCI or angiography-guided PCI. The primary end point was a composite of major adverse cardiac events (MACE), defined as death from a cardiac cause, target-lesion myocardial infarction, or ischemia-driven target-lesion revascularization at a median follow-up of 2 years.



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Defining complexity in bifurcation PCI

– The complexity of PCI on bifurcation lesion in clinical practice is a multifactorial phenomenon including clinical, angiographic and procedural aspects.

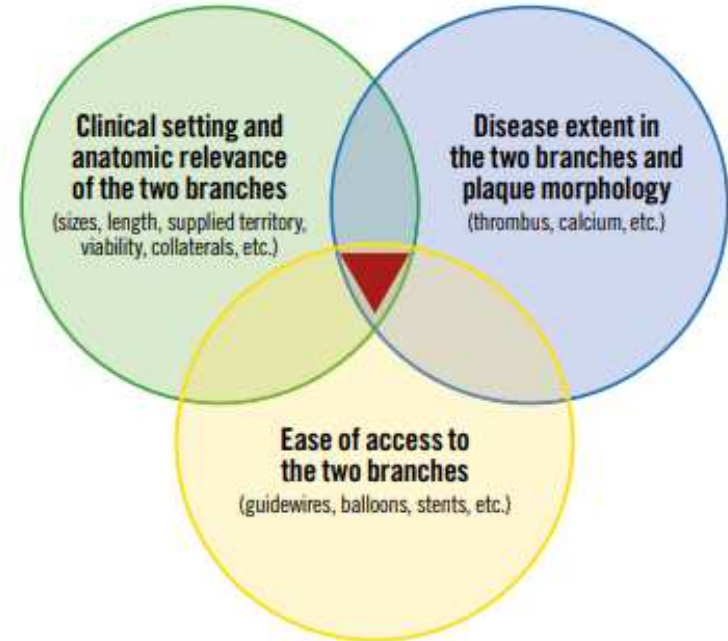


Figure 2. Main determinants of bifurcation PCI complexity.

IMPACT des CALCIFICATIONS

10-Year All-Cause Mortality Following Percutaneous or Surgical Revascularization in Patients With Heavy Calcification



Hideyuki Kawashima, MD,^{a,b} Patrick W. Serruys, MD, PhD,^{a,c} Hironori Hara, MD,^{a,b} Masafumi Ono, MD,^{a,b} Chao Gao, MD,^{a,d} Rutao Wang, MD,^{a,d} Scot Garg, MD, PhD,^e Faisal Sharif, MD, PhD,^a Robbert J. de Winter, MD, PhD,^b Michael J. Mack, MD, PhD,^f David R. Holmes, MD,^g Marie-Claude Morice, MD,^h Arie Pieter Kappetein, MD, PhD,ⁱ Daniel J.F.M. Thuijs, MD, PhD,^j Milan Milojevic, MD, PhD,^{k,l} Thilo Noack, MD,^k Friedrich-Wilhelm Mohr, MD, PhD,^k Piroze M. Davierwala, MD,^{l,m} Yoshinobu Onuma, MD, PhD,ⁿ for the SYNTAX Extended Survival Investigators

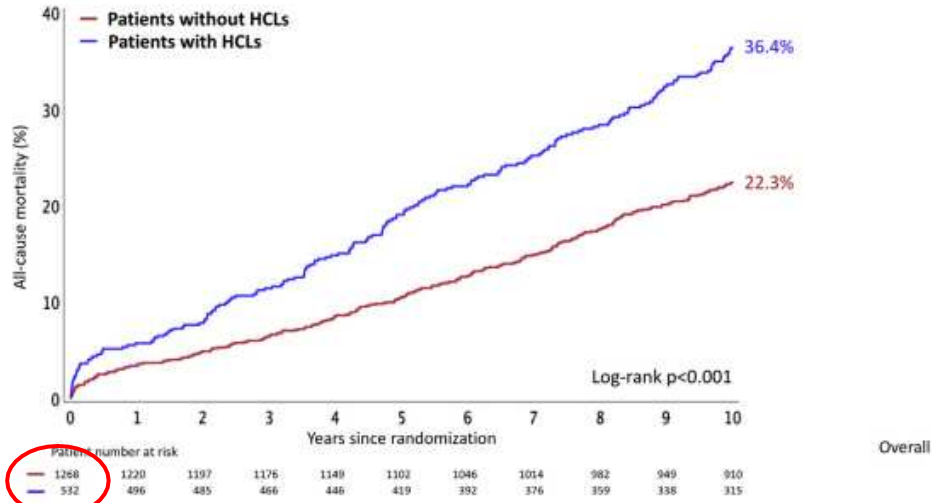
METHODS This substudy of the **SYNTAXES** (Synergy Between PCI With Taxus and Cardiac Surgery Extended Survival) study assessed **10-year all-cause mortality** according to the presence of HCLs within lesions with >50% diameter stenosis and identified during the calculation of the anatomical SYNTAX (Synergy Between PCI With Taxus and Cardiac Surgery) score among **1,800 patients** with the 3-vessel disease and/or left main disease randomized to PCI or CABG in the SYNTAX trial. Patients with HCLs were further stratified according to disease type (3-vessel disease or left main disease) and assigned treatment (PCI or CABG).

IMPACT des CALCIFICATIONS

10-Year All-Cause Mortality Following Percutaneous or Surgical Revascularization in Patients With Heavy Calcification

Impact Ca++

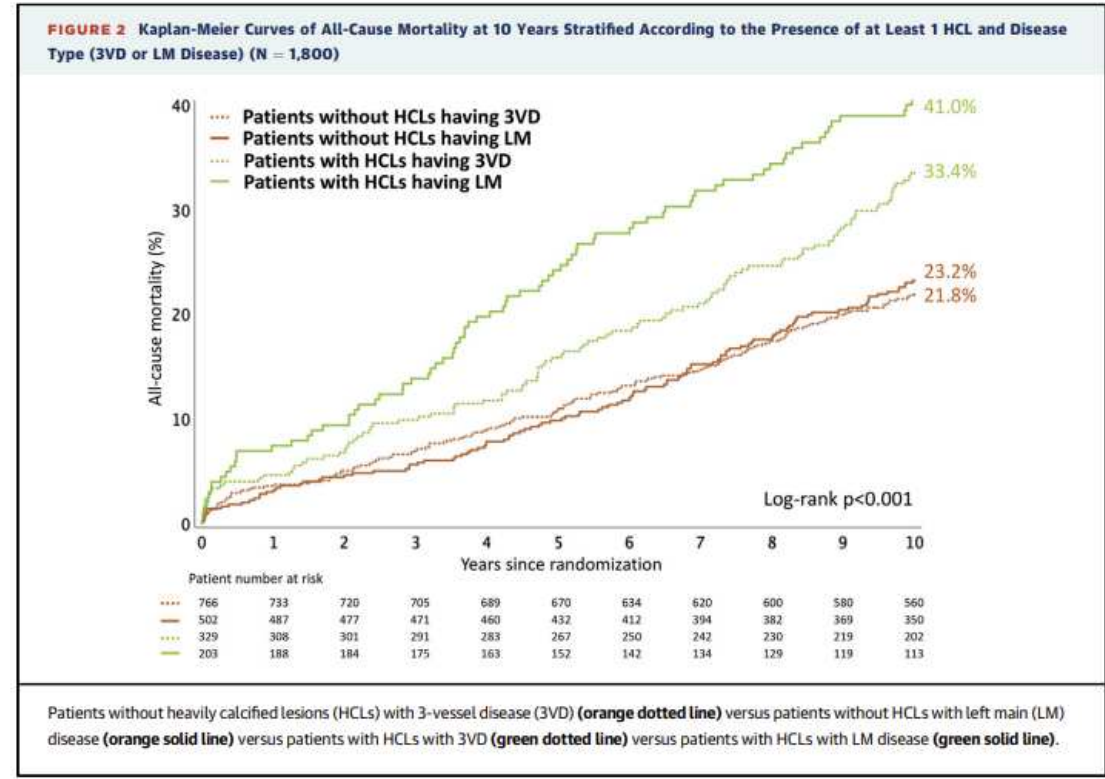
FIGURE 1 Kaplan-Meier Curves of All-Cause Mortality at 10 Years According to the Presence of at Least 1 HCL (N = 1,800)



Patients without heavily calcified lesions (HCLs) (red line) versus patients with at least 1 HCL (blue line).

IMPACT des CALCIFICATIONS

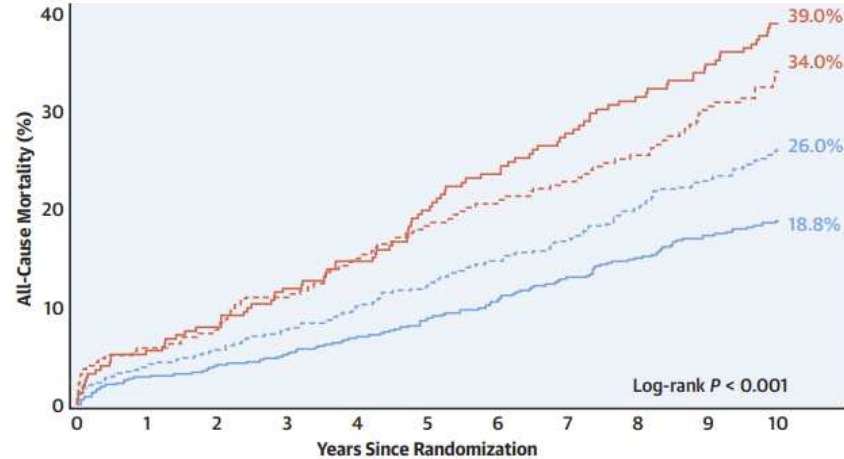
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IMPACT des CALCIFICATIONS

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CENTRAL ILLUSTRATION Kaplan-Meier Curves of All-Cause Mortality According to the Presence of at Least 1 Heavily Calcified Lesion and Randomized Treatment With PCI or CABG (N = 1,800)



No. at risk:

---	627	602	591	578	563	536	503	488	468	449	422
—	641	618	606	598	586	566	543	526	514	500	488
---	276	258	253	244	232	221	208	202	194	181	170
—	256	238	232	222	214	198	184	174	165	157	145

--- Patients Without HCL
Undergoing PCI

— Patients Without HCL
Undergoing CABG

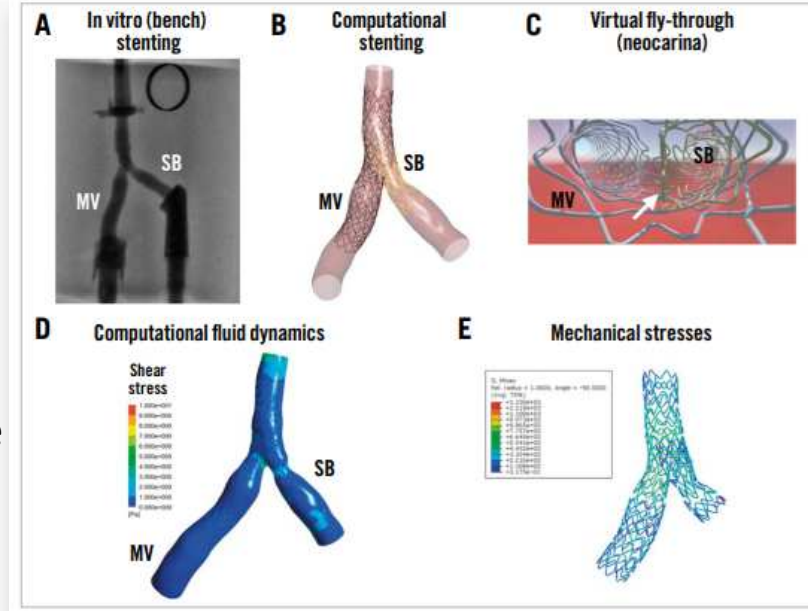
— Patients With HCL
Undergoing CABG

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In vivo, in vitro and computational simulations

– **In vitro** (bench testing), ex vivo and computational simulations have an increasingly recognised relevance to improve the knowledge in the field of bifurcation interventions and to facilitate education and training on bifurcation techniques.

– **Patient-specific stenting simulations** have the potential to facilitate preprocedural planning, optimise stenting techniques, guide device refinement, and provide the foundation for virtual (in silico) clinical trials in bifurcations.



TC: BONNE INDICATION ?

