

The Final Analysis of the EuroCTO Trial: What We Learned?

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Disclosure of Potential Conflict of Interest



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 - ASAHI Intecc
 - Biosensors
- The presenter, **Gerald S. Werner, MD**, has received speaker honoraria from
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The rationale for CTO PCI

- **Improvement of clinical symptoms**
 - Relief of angina and physical capacity
- Improvement of LV function
- **Improved prognosis ?**
- **But what can we realistically test in a RCT ?**

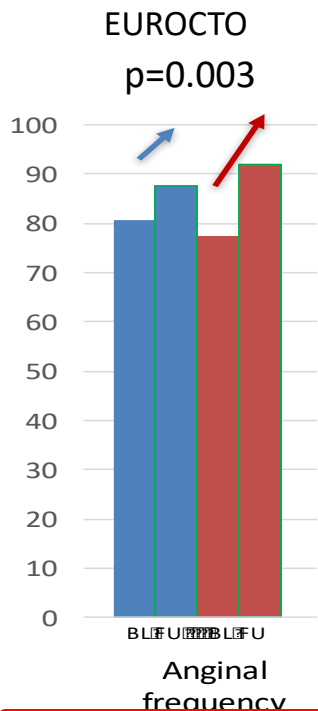


The rationale for CTO PCI

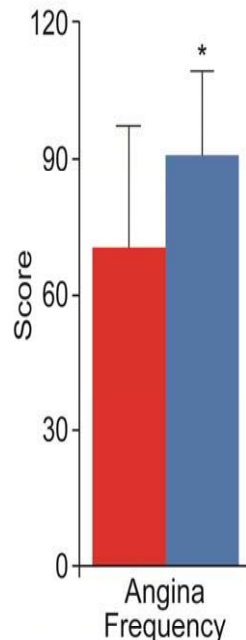
- **Improvement of clinical symptoms**
 - Relief of angina and physical capacity
- Improvement of LV function
- Improved prognosis ?
- **But what can we realistically test in a RCT ?!!**



Higher baseline scores (less symptoms) in RCTs vs. registries ...but improvement also demonstrated in RCT



OPEN-CTO Registry



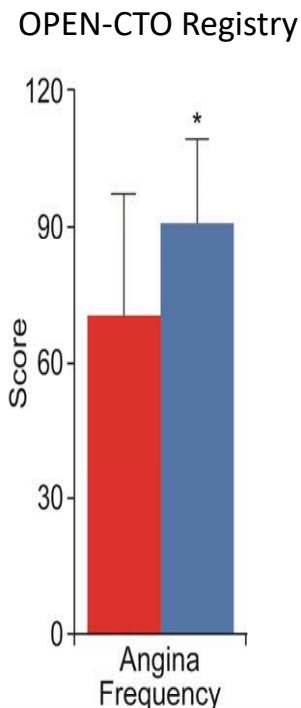
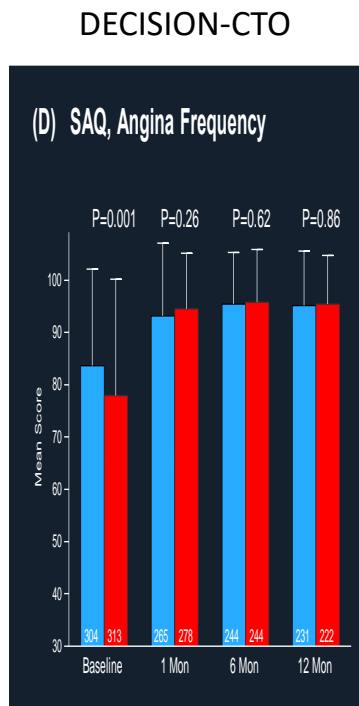
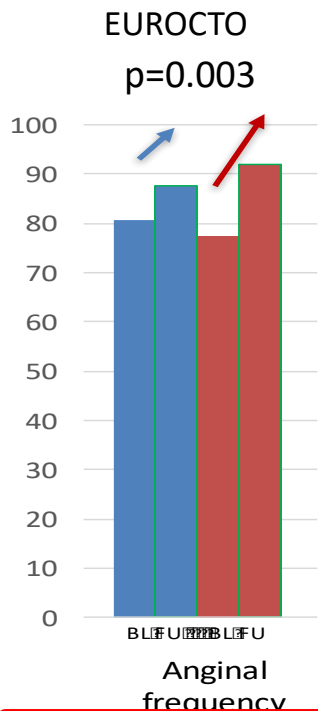
Baseline 81 vs **77**
FUP 87 vs 92 Δ 6 vs 15

71
92 Δ 21



Higher baseline scores (less symptoms) in RCTs vs. registries

...but improvement also demonstrated in RCT except...



Baseline 81 vs **77**

FUP 87 vs 92 Δ 6 vs 15

83 vs **77**

95 vs 96 Δ 12 vs 19

71

92 Δ 21

DECISION-CTO

Patients with CTO
N=811

Multivessel disease 73%

EUROCTO

Patients with CTO
N=396

Multivessel disease 53%

DECISION-CTO

Patients with CTO
N=811

Multivessel disease 73%

Randomized 1:1
and SAQ Evaluation

EUROCTO

Patients with CTO
N=396

Multivessel disease 53%

Non-CTO-PCI
N=107

DECISION-CTO

Patients with CTO
N=811

Multivessel disease 73%

Randomized 1:1
and SAQ Evaluation

CTO PCI
N=413

No CTO PCI
N=398

EUROCTO

Patients with CTO
N=396

Multivessel disease 53%

Non-CTO-PCI
N=107

Randomized 2:1
and SAQ Evaluation

DECISION-CTO

Patients with CTO
N=811

Multivessel disease 73%

Randomized 1:1
and SAQ Evaluation

CTO PCI
N=413

No CTO PCI
N=398

CTO-PCI
N=384

CTO-PCI
N=78

OMT
N=129

EUROCTO

Patients with CTO
N=396

Multivessel disease 53%

Non-CTO-PCI
N=107

Randomized 2:1
and SAQ Evaluation

CTO PCI
N=259

OMT
N=137

CTO-PCI
N=254

OMT
N=5

CTO-PCI
N=10

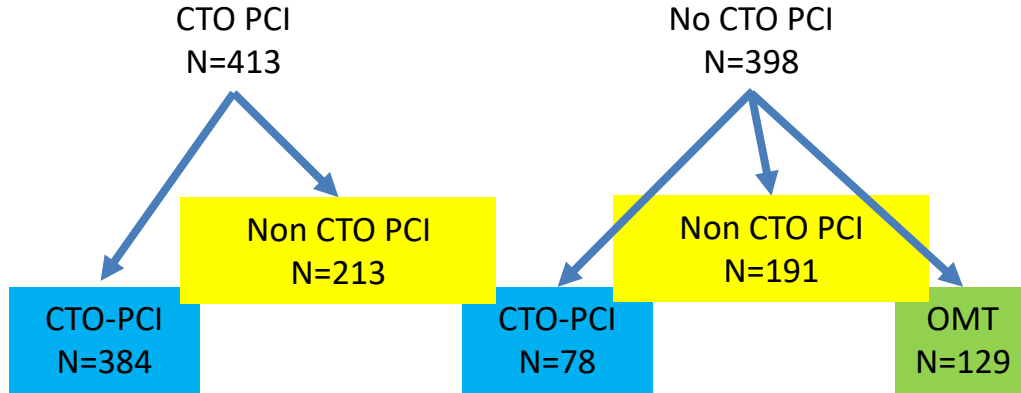
OMT
N=127

DECISION-CTO

Patients with CTO
N=811

Multivessel disease 73%

Randomized 1:1
and SAQ Evaluation



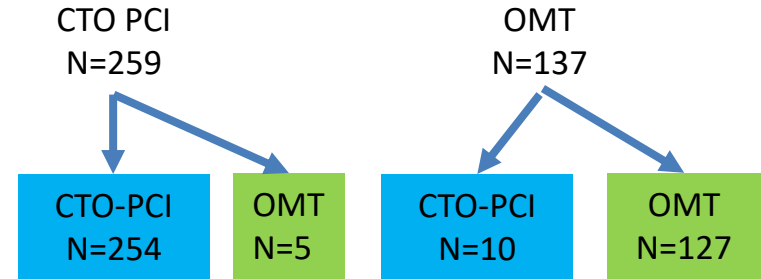
EUROCTO

Patients with CTO
N=396

Multivessel disease 53%

Non-CTO-PCI
N=107

Randomized 2:1
and SAQ Evaluation

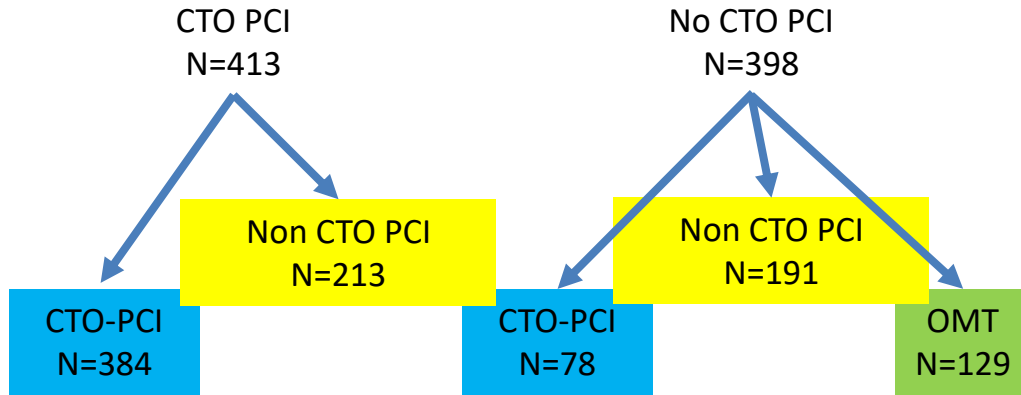


DECISION-CTO

Patients with CTO
N=811

Multivessel disease 73%

Randomized 1:1
and SAQ Evaluation



Only 15% were on “real” OMT

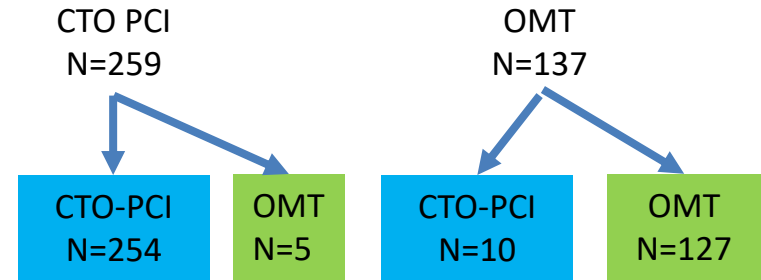
EUROCTO

Patients with CTO
N=396

Multivessel disease 53%

Non-CTO-PCI
N=107

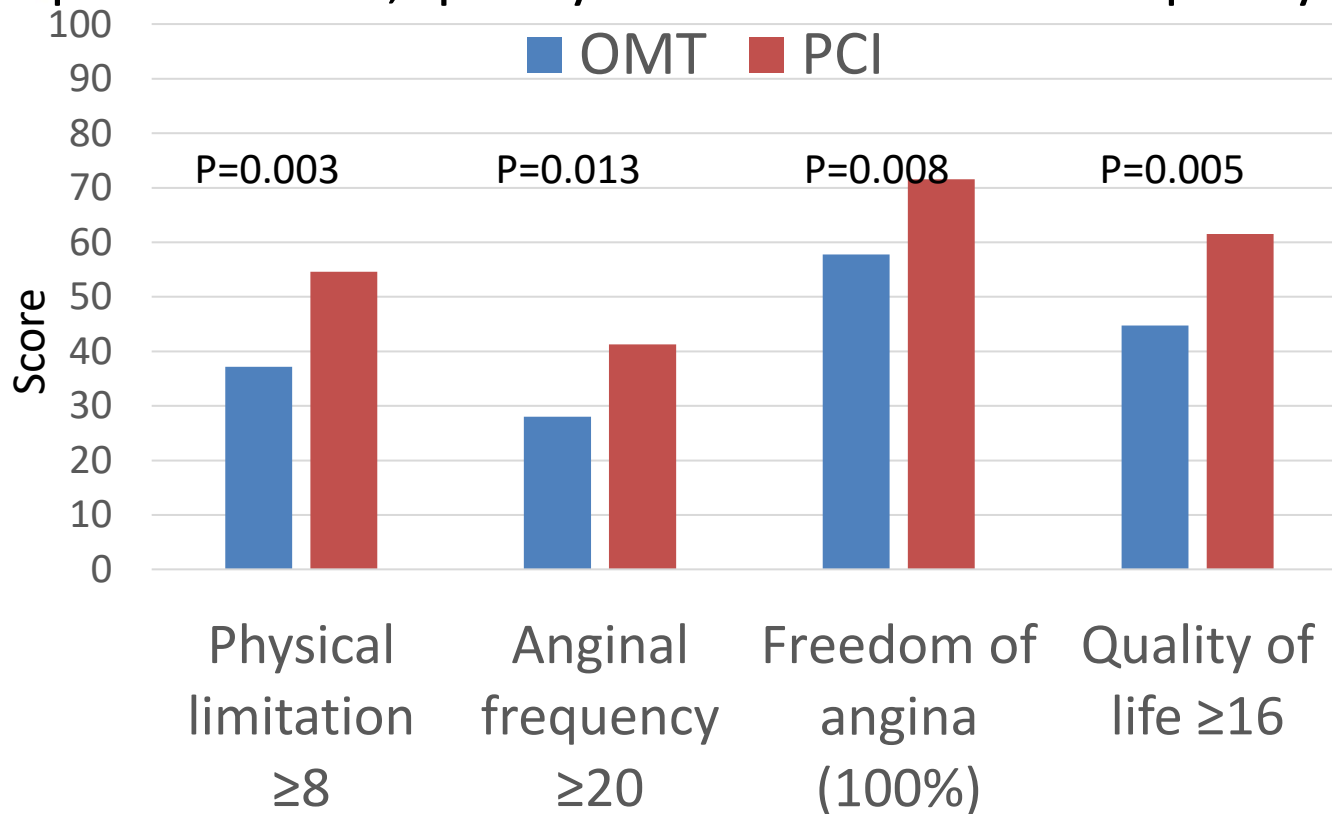
Randomized 2:1
and SAQ Evaluation



Almost half were single vessel CTO



EuroCTO: More patients free of angina, better symptom control, quality of life and exercise capacity

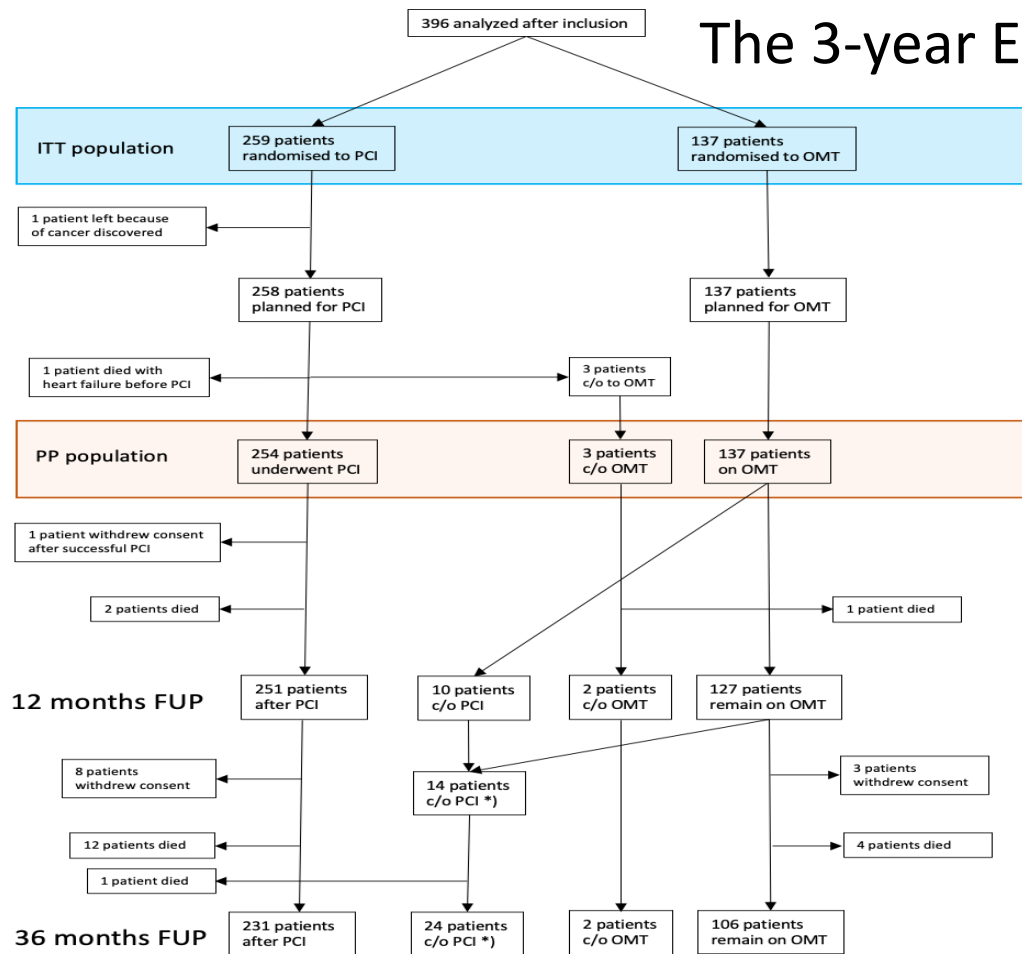


Higher score, better health status

*) Spertus et al. JACC 1995;25:333-41



The 3-year EuroCTO follow-up



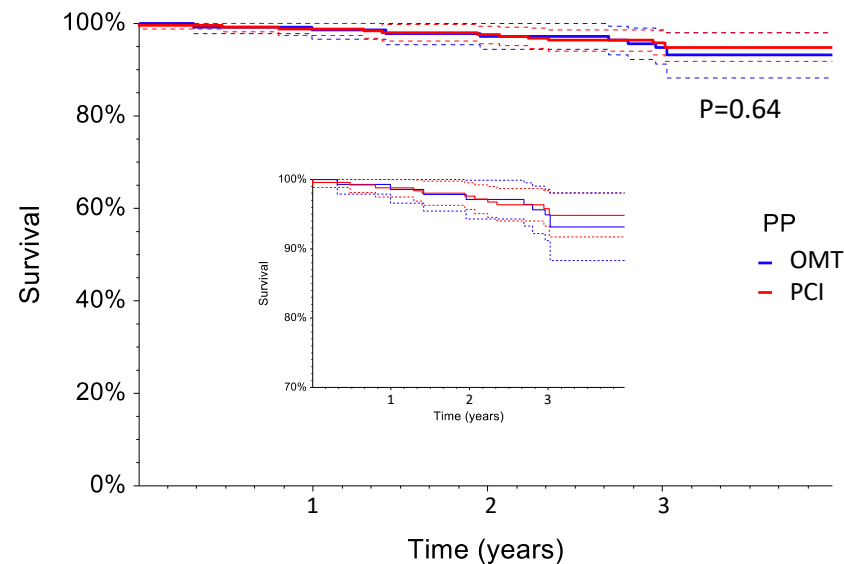
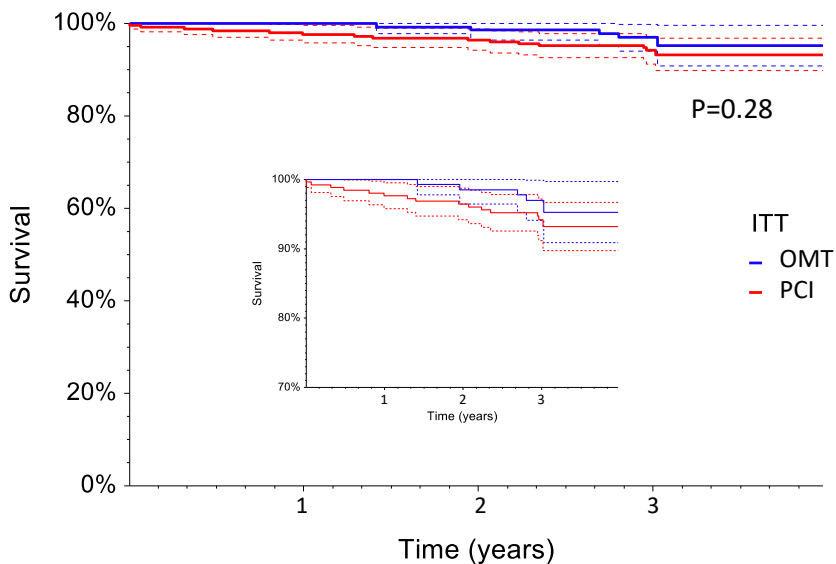
Crossover from OMT to PCI
overall 17.5%

Crossover from PCI to OMT
1.9%

Procedural success 87.3%



Survival free of MI or cardiovascular death



OMT	137	137	131	85
PCI	259	249	237	124

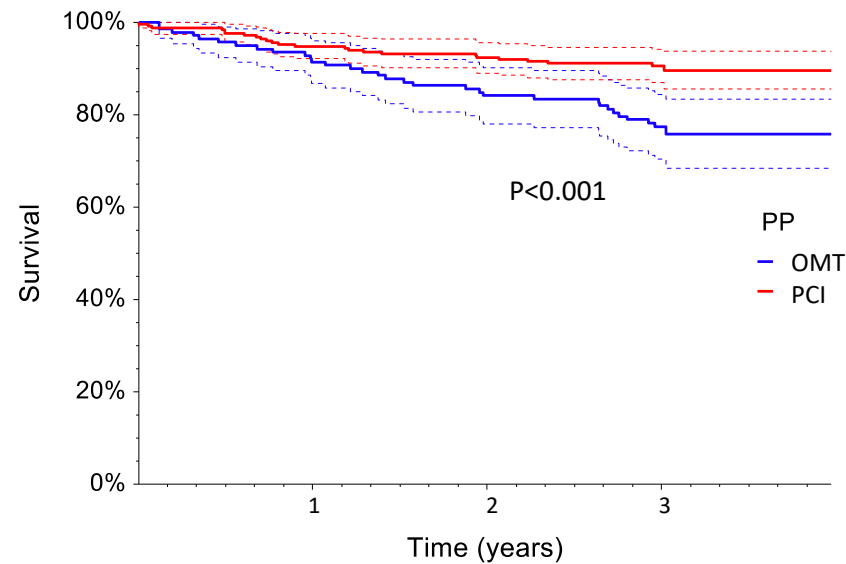
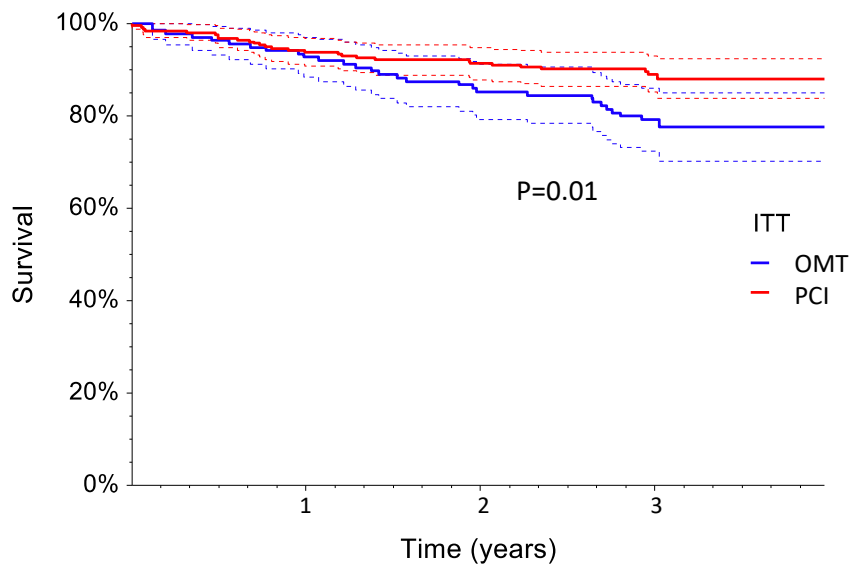
OMT	140	138	132	85
PCI	254	248	236	124

	OMT	PCI	P-value
Cardiac Death (%)	2.2	3.1	0.75
MI (%)	1.5	3.1	0.33

	OMT	PCI	P-value
Cardiac Death (%)	2.9	2.4	0.76
MI (%)	2.9	2.4	0.76



MACCE free survival in EuroCTO trial



	0	1	2	3
OMT	137	127	113	71
PCI	259	239	224	113

	0	1	2	3
OMT	140	128	114	71
PCI	254	238	223	113



Failed PCI vs OMT vs successful PCI

	OMT	Failed PCI	Successful PCI
Primary endpoint (%)	5.7	12.2	3.6
MACCE (%)	22.9	15.2	8.6



Lessons learned from EuroCTO trial

- In RCT only less symptomatic patients are included if the alternative is OMT vs PCI
- CTO PCI requires best possible success rates, but expert operators have difficulties to randomise referred patients
- Mortality improvement cannot be the primary goal of therapy in stable angina
- Improving the QoL is a valid goal of a physician's intervention for symptomatic chronic coronary syndrome



Lesson learned – people writing guidelines are unable to read and understand and compare studies properly



COR

LOE

RECOMMENDATION

2b

B-R

1. In patients with suitable anatomy who have refractory angina on medical therapy, after treatment of non-CTO lesions, the benefit of PCI of a CTO to improve symptoms is uncertain (1-4).

Although the EURO CTO (Randomized Multicentre Trial to Compare Revascularization With Optimal Medical Therapy for the Treatment of Chronic Total Occlusions) trial demonstrated a greater reduction in angina frequency and improved quality of life with PCI of a CTO than with optimal medical therapy (2), a much larger trial, the DECISION-CTO (Drug- Eluting Stent Implantation Versus Optimal Medical Treatment in Patients With Chronic Total Occlusion) trial, did not demonstrate any difference in symptoms or clinical outcomes with CTO PCI (1).



Why is antianginal medication considered Gold Standard?

Table 2 Angina Frequency and Nitroglycerin Use (CARISA)

		Placebo	Ranexa 750 mg [·]	Ranexa 1000 mg [·]
Angina Frequency (attacks/week)	N	258	272	261
	Mean	3.3	2.5	2.1
	<i>p-value vs placebo</i>	—	0.006	< 0.001
Nitroglycerin Use (doses/week)	N	252	262	244
	Mean	3.1	2.1	1.8
	<i>p-value vs placebo</i>	—	0.016	< 0.001
· ·		Twice daily		



If you are 50 or 60 and have this chronic coronary syndrome

- According to guidelines, you should first swallow a bunch of drugs, every day until you die





...or would you prefer to live with just statins and aspirin
pain-free ?

