

Dr. Lene Nyhus Andreasen contributed in preparation of this talk

On behalf of the OCTOBER trial investigators





Disclosures

- Institutional research grants from Abbott, Biosensors, Boston Scientific, Medis medical imaging, Reva medical
- Speaker fees from Abbott, Terumo and Cardirad





Bifurcation lesions

- PCI of coronary bifurcations is associated with worse clinical outcome compared with PCI of simpler lesions
 - SYNTAXES trial
 - 10-year mortality: 30.1% vs 19.8%1
 - E-Ultimaster registry (35,839 patients)
 - MI, TLR and ST increased with bifurcation PCI²



¹Ninomiya K et al. 10-years SYNTAX Trial. JACC Cardiovasc Interv 2022 ²Mohamed MO et al. One-year E-Ultimaster registry. EuroIntervention 2020





Complex PCI for true bifurcation lesions

 True bifurcation lesions may require treatment by complex stenting techniques^{6,7}



One-stent strategy with kissing balloon inflation



Two-stent strategy

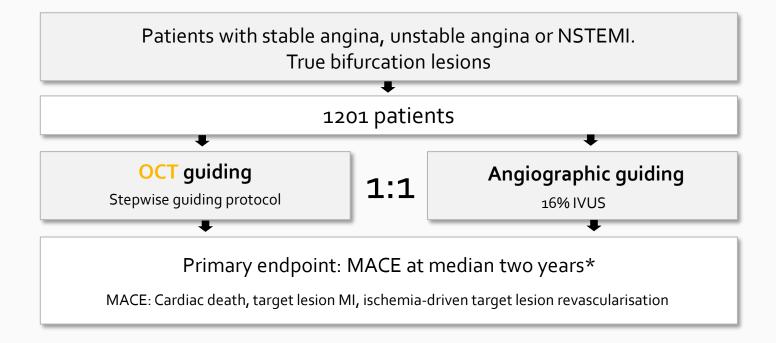
⁶Cheol Woong Yu et al. COBIS II. JACC Cardiovasc Interv. 2015 ⁷Chen SL et al. DK-CRUSH II. J Am Coll Cardiol. 2011







OCTOBER trial overview







Design

- Investigator-initiated study
- Open label design
- 38 heart centers in Europe
- On-site training in OCT-guided PCI
- Feedback on OCT-guided cases

Funding: Abbott and Aarhus University

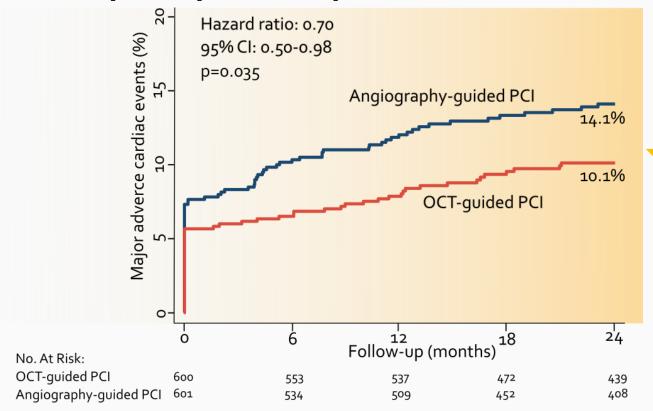




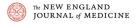




Primary endpoint: 2-year MACE



30% RR reduction



OCT or Angiography Guidance for PCI in Complex Bifurcation Lesions

ORIGINAL ARTICLE

N.R. Holm, L.N. Andreasen, O. Neghabat, P. Lammets, I. Kumsara, J. Bennett, N.T. Olsen, J. Odenstede, P. Hoffmann, J. Dens, S. Chowdhary, P. O'Kane, S.-H. Billow Rasmussen, M. Heigert, O. Handrup, J.P. Van Kujik, S. Biscaglia, L.H. Mogensen, I. Henraler, B. Eurotta, C. Habate Bek, D. Mylotte, M.S. Lass, L. Koltowski, P. Knappen, S. Calic, N. Witt, I. Santos-Pardo, S. Wakins, J. Landrog, A.T. Kristensen, O. Jenesen, F. Calisa, J. Cochburn, A. McNetc, O'A. Hajander, T. Hesstermann, S. Gesche, A. Billakari, J. C. Spratt, and E.H. Christiannen, for the OCT-08ER Train Group?

MACE: cardiac death, target lesion myocardial infarction, ischemia-driven target lesion revascularization

Kaplan Meier estimates

Comparison by unadjusted Cox analysis

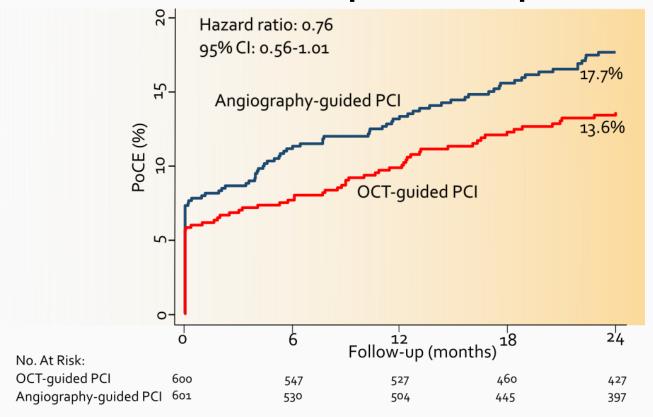
Comparison by unadjusted Cox analys Confirmed by adusted Cox analysis







Patient-oriented Composite Endpoint (PoCE)



PoCE: All-cause mortality, Any myocardial infarction, any repeat revascularization

Kaplan Meier estimates
Secondary endpoint. Not powered





The totality of data

- 22 randomized trials
 - IVUS vs angiography
 - OCT vs angiography
 - IVUS or OCT vs angiography
 - OCT vs IVUS
 - All using DES
- 15.964 patients
- Mean FU: 24.7 months
- Primary endpoint: TLF

Intravascular imaging-guided coronary drug-eluting stent implantation: an updated network meta-analysis

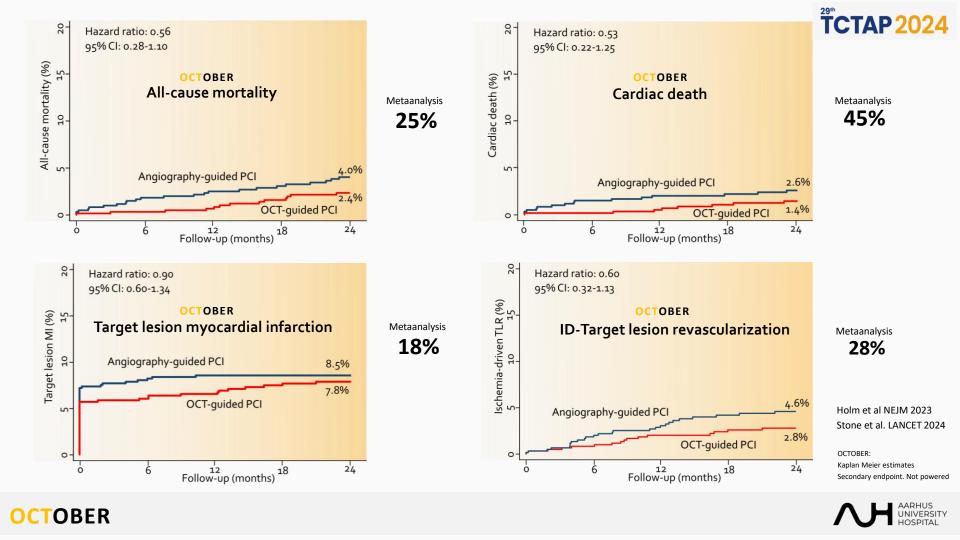
Greqq W Stone, Evald H Christiansen, Ziad A Ali, Lene N Andreasen, Akiko Maehara, Yousif Ahmad, Ulf Landmesser, Niels R Holm

	Intravascular imaging		Angiography		RR (95% CI	l) Weight (random)	Weight (fixed)
	Events	N	Events	N			
HOME DES IVUS (2010) ³⁴	11	105	12	105	0.92 (0.42-	-1.98) 2.5%	2.0%
AVIO (2013)31	23	142	29	142	0.79 (0.48	-1·30) 5·9%	4.9%
RESET (2013)12	12	269	20	274	0.61 (0.30	-1.23) 3.0%	3.3%
AIR-CTO (2015)30	21	115	26	115	0.81 (0.48	-1.35) 5.5%	4.4%
Kim et al (2015) ³⁷	2	58	3	59	0.68 (0.12-	-3·91) 0·5%	0.5%
Tan et al (2015) ¹³	8	61	17	62	0.48 (0.22-	-1.03) 2.5%	2.8%
CTO-IVUS (2015) ³²	5	201	14	201	0.36 (0.13-	-0.97) 1.5%	2.4%
OCTACS (2015) ¹⁵	0	40	2	45	0.22 (0.01-	-4·54) 0·2%	0.3%
DOCTORS (2016) ³³	3	120	2	120	1.50 (0.26-	-8.82) 0.5%	0.3%
ROBUST (2018) ¹⁷	5	105	1	96	4.57 (0.64	-38-43) 0-3%	0.2%
Liu et al (2019) ³⁸	22	167	37	169	0.60 (0.37-	-0.97) 6.2%	6.2%
IVUS-XPL (2020)14	36	700	70	700	0.51 (0.35-	-0.76) 19.5%	11.8%
ILUMIEN III (2021)35	8	289	2	142	1.97 (0.42-	-9·13) 0·6%	0.5%
ULTIMATE (2021) ⁴¹	47	714	76	709	0.61 (0.43-	-0.87) 11.6%	12.9%
iSIGHT (2021) ³⁶	6	101	3	49	0-97 (0-25-	-3.72) 0.8%	0.7%
RENOVATE-COMPLEX-PCI (2023) ¹⁶	76	1092	60	547	0.63 (0.46	-0.88) 13.5%	13.5%
ILLIMIENTA (2023)9	76	1222	86	125/	0.00 (0.67	_1.71) 15.6%	14.49
OCTOBER (2023) ¹⁰	59	600	83	601	0.71 (0.52-	-0.97) 14.2%	14.0%
GUIDE DES (2023) ⁸	29	765	29	763	1.00.(0.60-	-1-65) 5-7%	4.99
Fixed-effect model	449	6877	572	6153	0.71 (0.63	-0.80) -	100.09
Random-effect model (primary analysis)					0.71 (0.63	-0.80) 100.0%	-
Test for heterogeneity: I²=2%, χ²=18·33 Test for overall effect (fixed): Z=-5·72 (j					0.25 1.00 5.00 25.00		
Test for overall effect (random): Z=-5-6	0 (p<0.0001)		F	avascular imaging Favours angiography		

The Lancet 2024

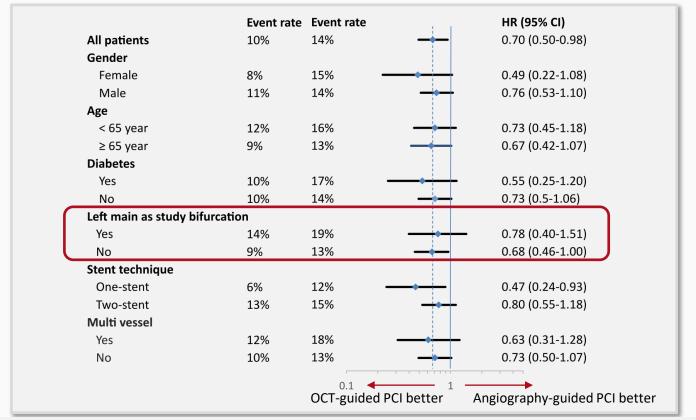








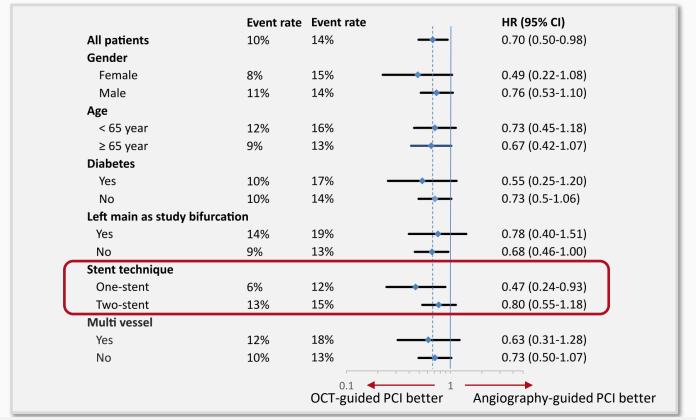
OCTOBER subgroup analyses 1/2







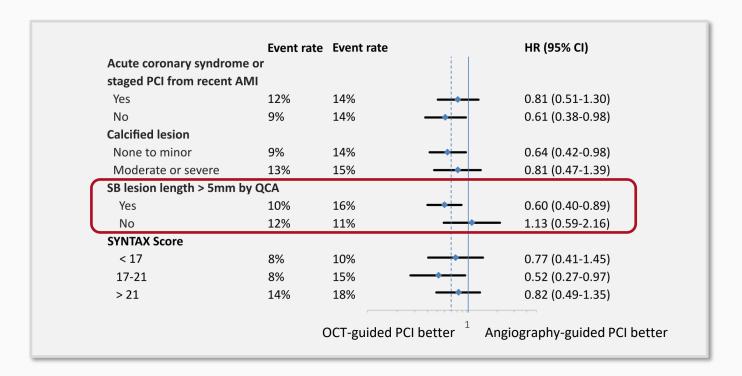
OCTOBER subgroup analyses 1/2





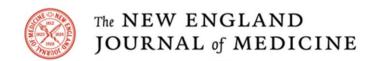


OCTOBER Subgroup analyses 2/2









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Conclusion



- OCT-guided PCI was associated with a lower incidence of the composite endpoint of twoyear MACE than angiography-guided PCI in treatment of complex bifurcation lesions
- The totality of data show that routine use of IVI in PCI reduces mortality substantially
- The outcomes after OCT guided bifurcation PCI appears to be in line with or better than the overall metaanalysis results
- Implementing routine OCT guiding for PCI of complex bifurcation lesions may be justified in particular as the effect was shown with 16% ad hoc IVUS in the control arm and despite
 the Covid-19 pandemic affecting invasive follow-up

