

Late and Very Late Stent Thrombosis following Elective Drug Eluting Stent Implantation in Unprotected Left Main Coronary Artery: a Multicentre Registry

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Backgrounds I

- Some concerns have been recently raised regarding the risk of late and very late stent thrombosis following drug-eluting stent implantation.
- Registry data of percutaneous coronary interventions (PCI) with drug-eluting stents (DES) use in unprotected left main coronary artery (LMCA) lesions showed that, at mid-term clinical follow-up, this is a feasible and safe approach.

Backgrounds II



- To date, no data is available on the prevalence of late and very late stent thrombosis (ST) following elective DES implantation in unprotected LMCA lesions.

Aim of the Study



The aim of the present study is to evaluate the occurrence of late and very late ST following elective DES implantation in unprotected LMCA stenosis in a large multicenter registry including 6 international centers

Methods



This study included all consecutive patients who had a stenosis in an unprotected LMCA electively treated with PCI and sirolimus- (SES, Cypher, Cordis, Johnson and Johnson Company, Warren, NJ) or paclitaxel-eluting stent (PES, Taxus, Boston Scientific, Natick, MA) in 6 Centres (San Raffaele Hospital and EMO Centro Cuore Columbus in Milan, San Giovanni Battista Hospital in Turin, Italy; Erasmus Medical Center-Thoraxcenter, The Netherlands; the Asan Medical Center, Korea and UCLA in Los Angeles, USA) .



ST was defined on the basis of the ARC definitions according to the timing of presentation in *early* (0 to 30 days), *late* (31 to 360 days), or *very late* (>360 days) and to the following trilevel of certainty:

- **Definite** in the presence of an ACS and either angiographic or pathological (autopsy) confirmation of stent thrombosis;
- **Probable** in case of AMI involving the target-vessel territory without angiographic confirmation of thrombosis or other identified culprit lesion and/or any unexplained death within 30 days;
- **Possible** in case of any unexplained death after 30 days.

Baseline Clinical Characteristics I

	DES (n = 731)
Age, years	63.1±11.8
Current or ex-smoker	247 (33.8%)
Hypercholesterolemia	368 (50.3%)
Systemic hypertension	427 (58.4%)
Diabetes Mellitus	176 (24.0%)

Baseline Clinical Characteristics II



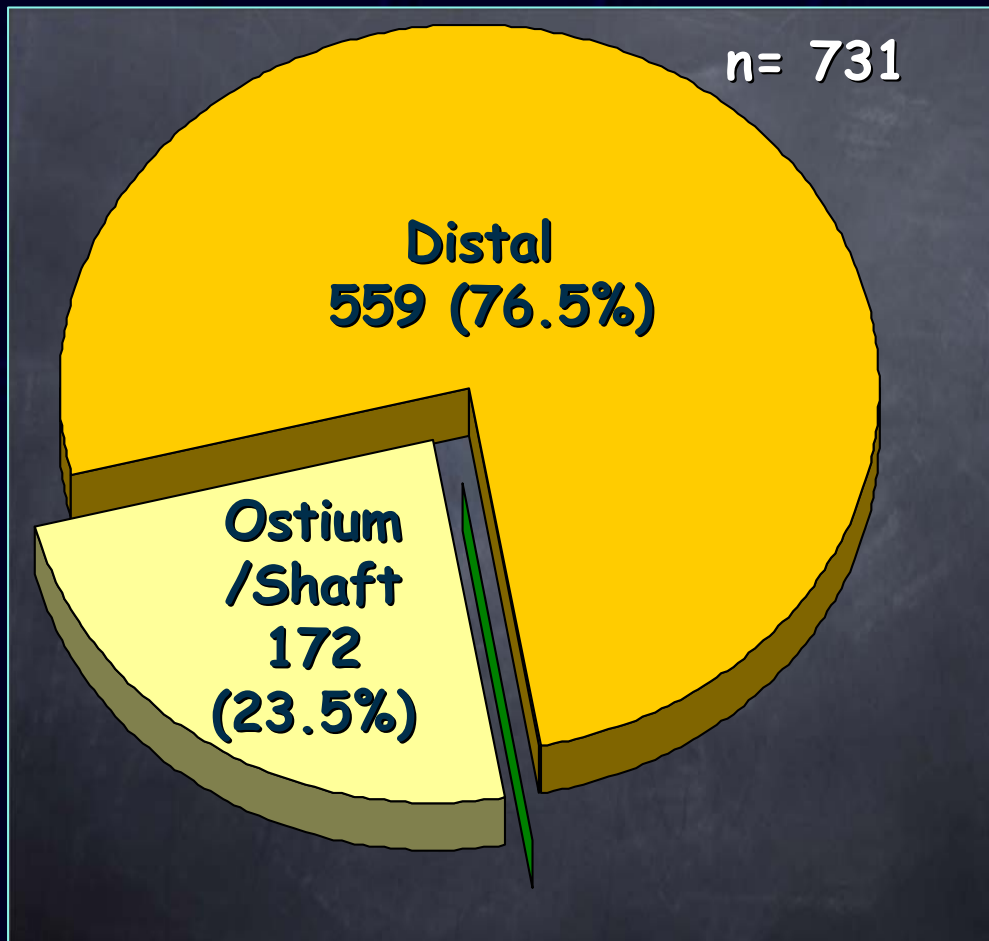
	DES (n = 731)
Unstable Angina n (%)	333 (45.5)
LVEF, %	54.8±10.9
Chronic Renal Failure, n (%)	40 (5.5)
Euroscore, median (IRQ)	3.0 (2.0-6.0)
Euroscore >6, n (%)	262 (35.8)
DAT duration, months, median (IRQ)	8.8 (6.0-20.7)

Procedural Characteristics

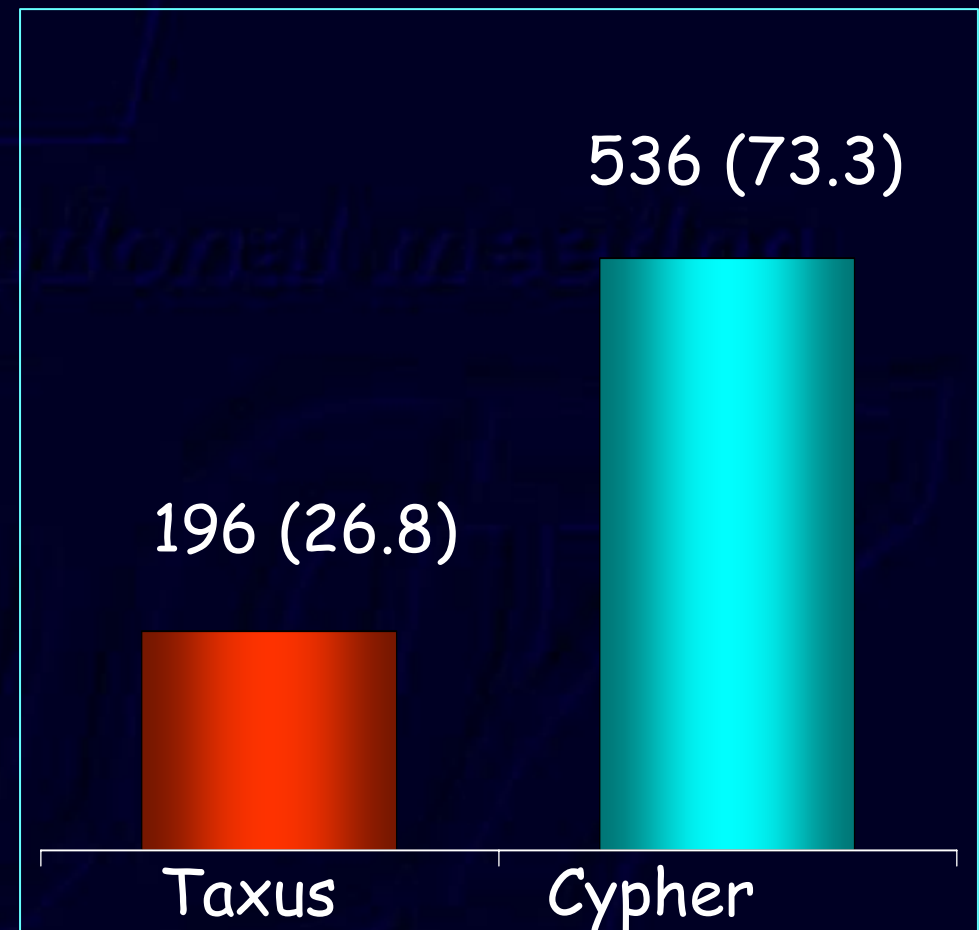
	DES (n = 731)
Number of vessels treated	2.2±0.8
Number of lesions treated	2.3±1.5
IABP, n (%)	96 (13.1)
GP IIb/IIIa inhibitors usage, n (%)	102 (13.9)
IVUS guidance, n (%)	337 (46.1)
DCA or Rotablator, n (%)	24 (3.3)

Lesion and Procedural Characteristics

Lesion Location

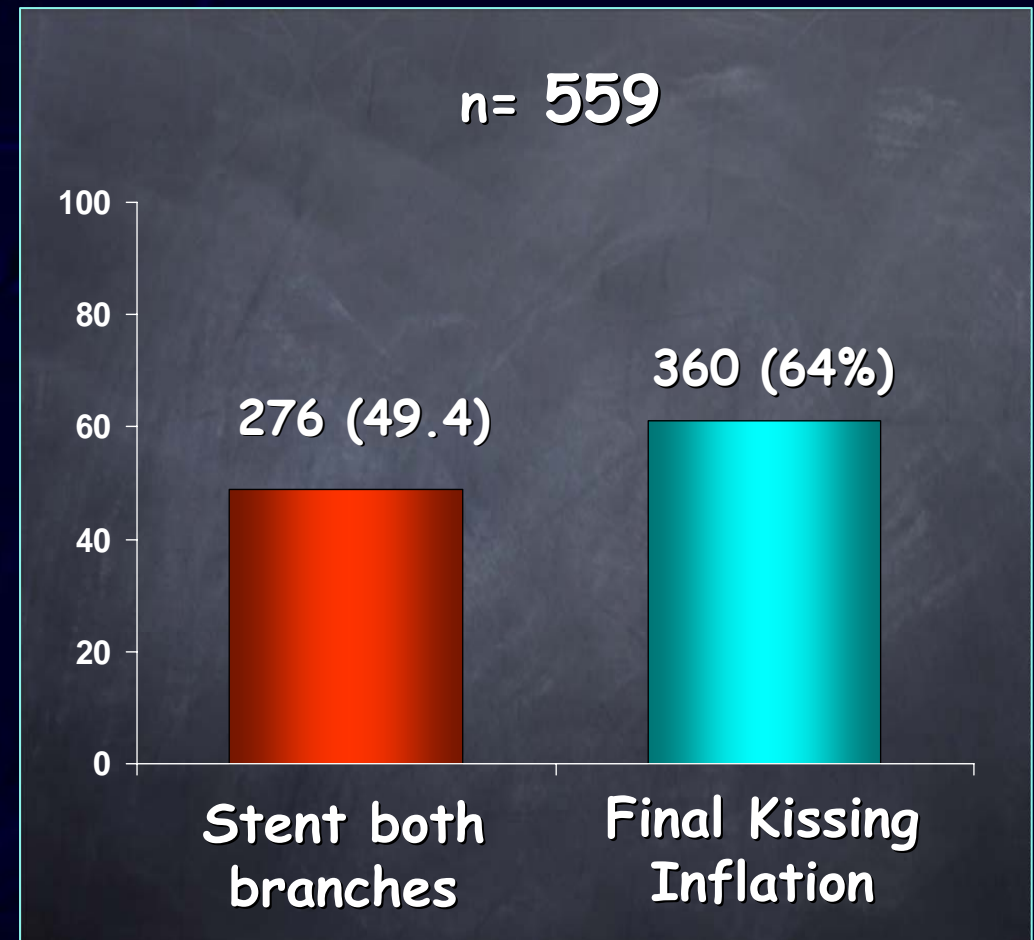
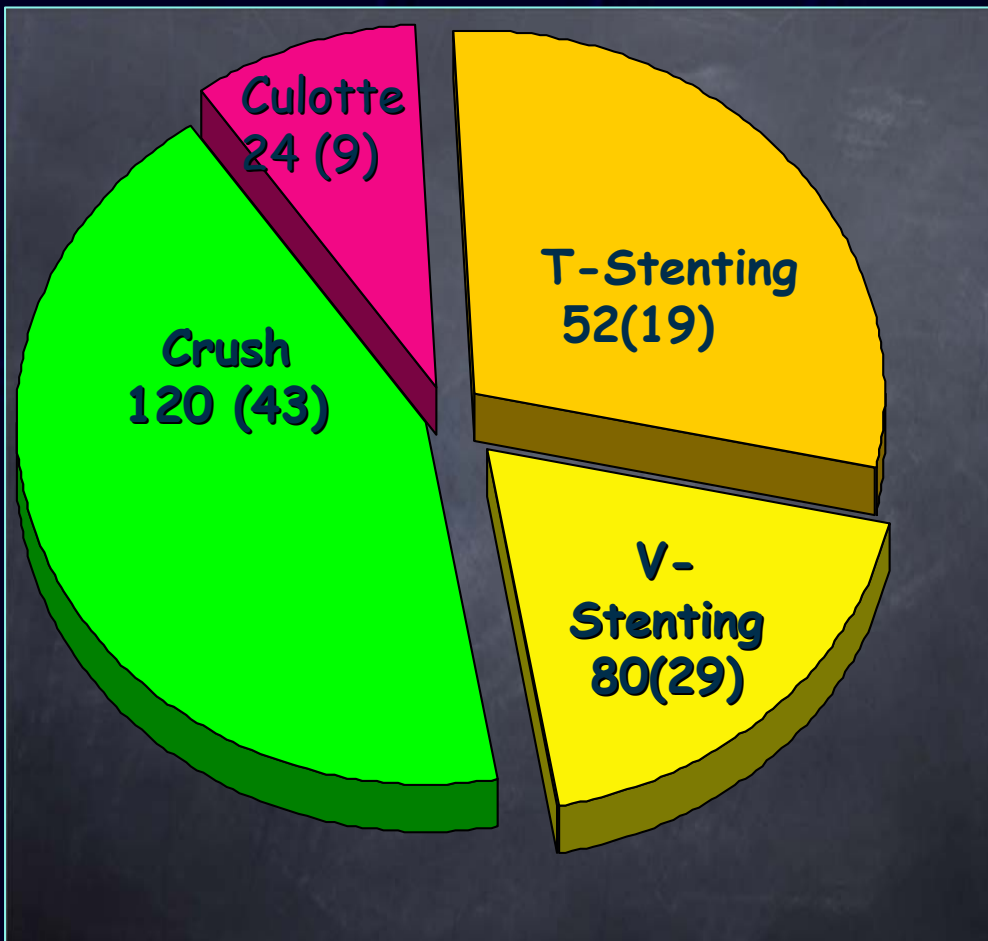


Stent Type



Procedural Characteristics

Stenting Technique



Multicenter Registry LMCA

In-Hospital and Long Term Clinical Fup

	In Hospital n=731	Follow-up (29.5.±13.7 ms) n= 726
Cardiac Death, n (%)	5 (0.7)	26 (3.6)
Total Death, n (%)	5 (0.7)	40 (5.5)
MI, n (%)	69(9.4)	11 (1.5%)
TLR, n (%)	2 (0.3)	76 (10.5)
TVR, n (%)	2 (0.3)	95 (13.0)
MACE, n (%)	73 (9.9%)	138 (19.0)

Multicenter Registry LMCA

Stent Thrombosis - *ARC Definitions*

n = 731	
Definite Stent Thrombosis	4* (0.54%)
Probable Stent Thrombosis	3 (0.4%)
Possible Stent thrombosis	20 (2.7%)

0.9%

*Late thrombosis in a Taxus stent in LAD at 3 ms

Characteristics of Pts with Definite and Probable Stent Thrombosis



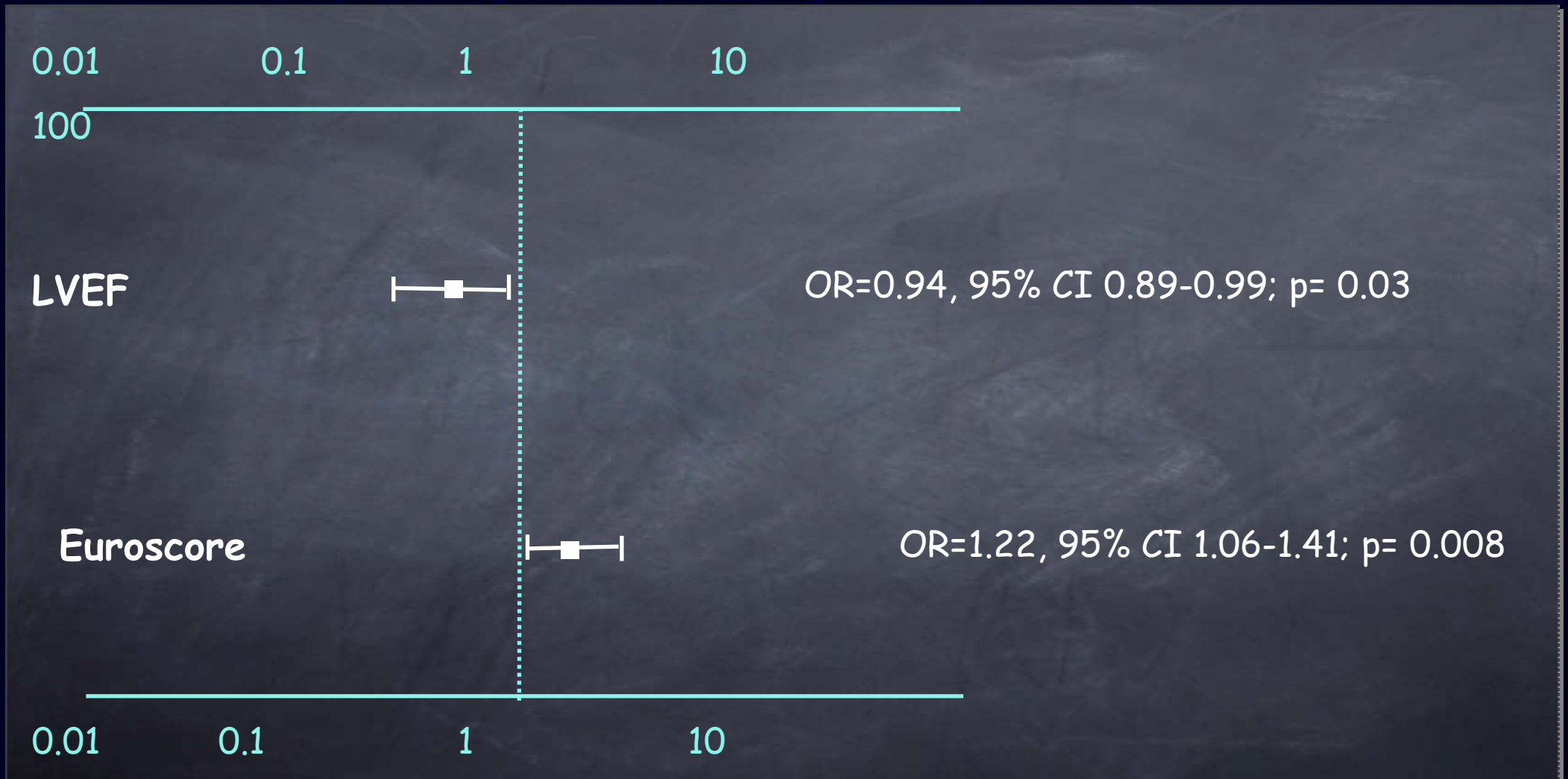
	Euro score	Age, years	EF, %	UA	Lesion location	Stent technique	Time of the event, days
DST 1	1	55	55	no	distal	crush	0
DST 2	9	72	30	yes	distal	cross	0
DST 3	10	71	45	yes	distal	v	12
DST 4	11	71	35	no	distal	crush	116
PST 1	12	76	40	yes	distal	crush	12
PST 2	15	78	39	yes	ostium	na	1
PST 3	10	85	30	yes	distal	cross	3

DST= definite ST, PST= probable ST

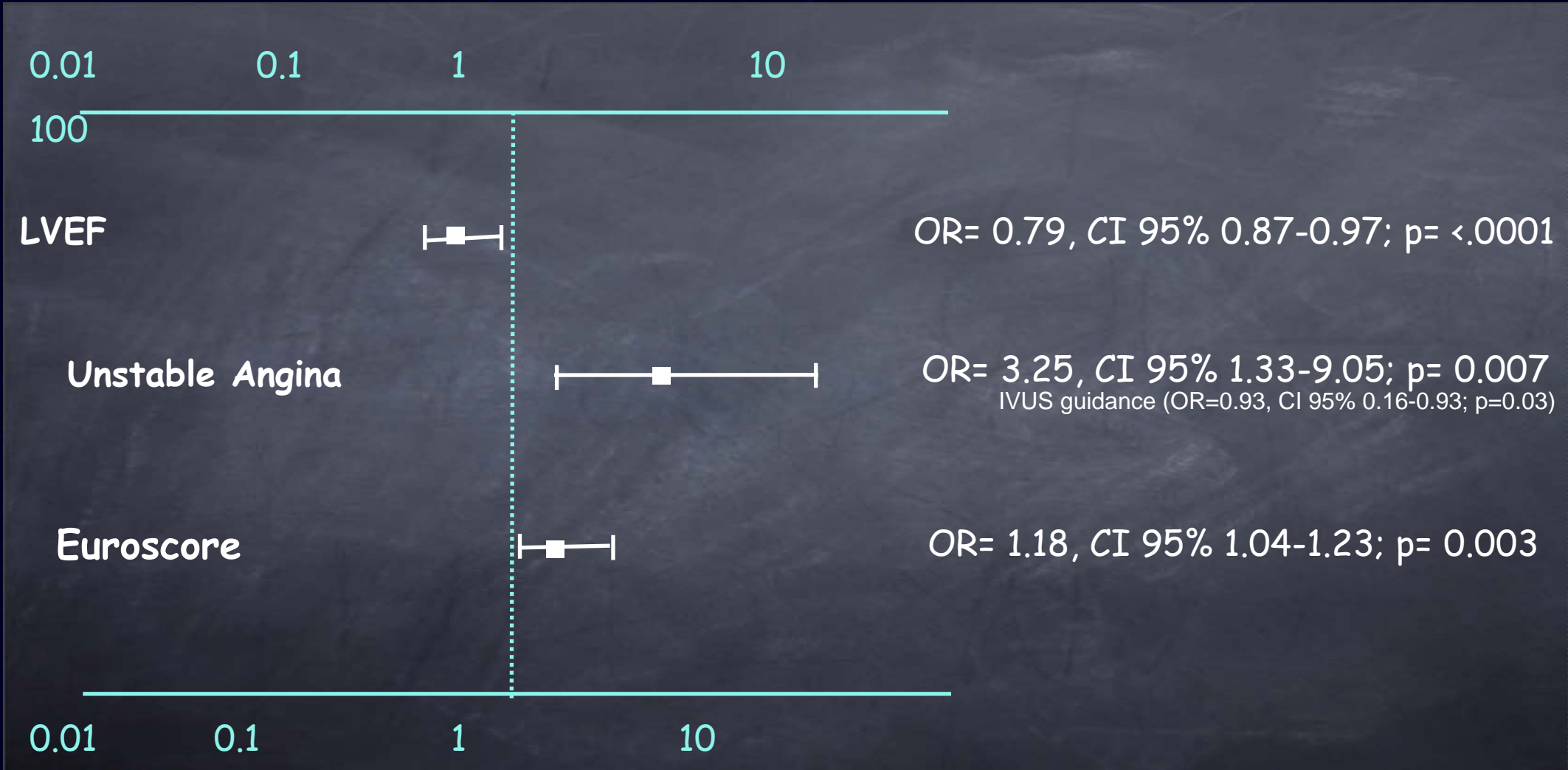
Clinical Characteristics of Patients with Possible ST

	DES (n = 20)
Older than 75 years	8 (40%)
Euroscore	8.2±5.3
Diabetes Mellitus	8 (40%)
Unstable Angina	14 (70%)
LVEF < 40%	13 (65%)
Distal	18 (90%)
Stent both branches	8 (40%)
Dual Antiplatelet Therapy	8 (40%)

Correlated to DST+PST at Conditional Univariate Analysis

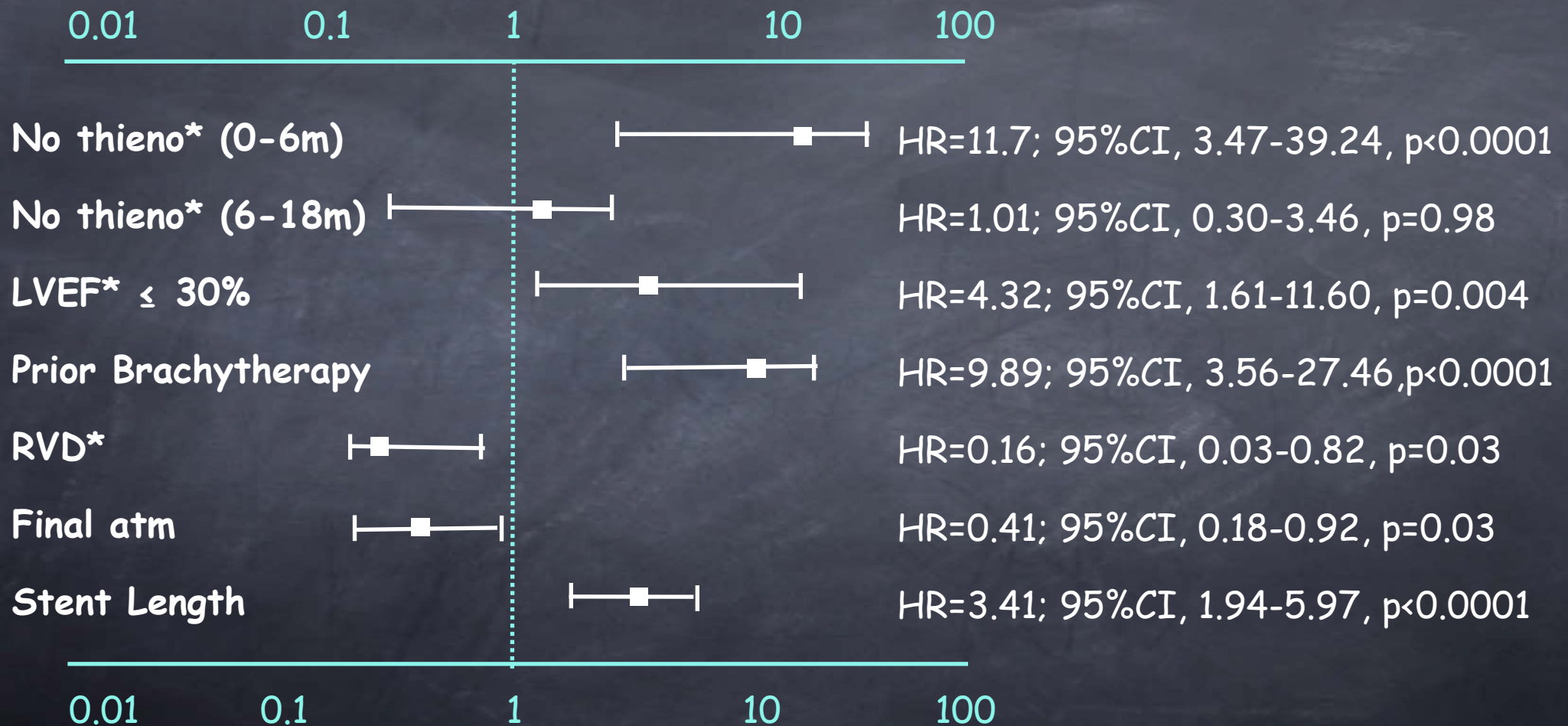


Correlated to Cardiac Death at Conditional Univariate Analysis



At unconditional analysis >>IVUS guidance (OR=0.93, CI 95% 0.16-0.93; p=0.03)

Predictors of stent thrombosis



* Abbreviations: thieno=thienopyridine; LVEF=left ventricle ejection fraction; RVD=reference vessel diameter

Conclusions

In this multicenter registry, the use of DES in unprotected LMCA stenosis appeared to be safe and effective at 29.5.±13.7 clinical follow-up. Definite and probable stent thrombosis occurred in 0.9% of the patients.