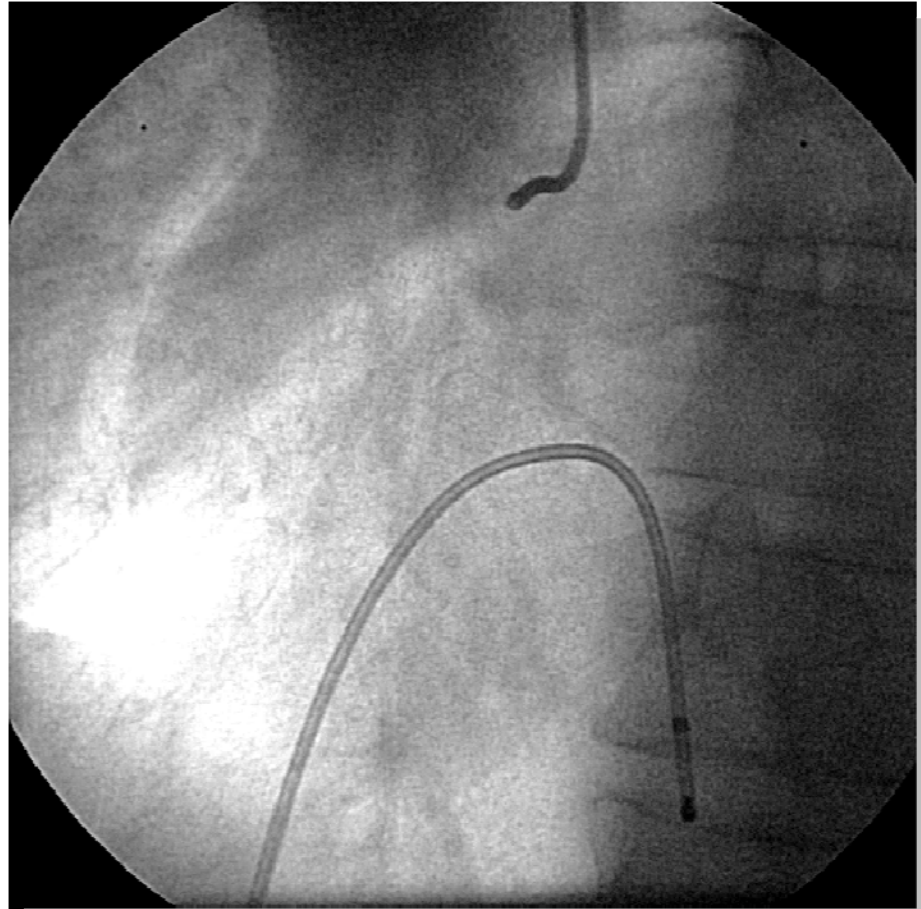


Revascularització coronària després de l'angioplàstia primària: Revascularització completa

Dr. Ll. Teruel Gila
Àrea de Malalties del Cor. IDIBELL
Hospital Universitari de Bellvitge.
Universitat de Barcelona.

Exemple



- **Revascularització completa vs incompleta en general.**
- **Revascularització completa vs incompleta a l'IAM:**
 - Shock cardiogènic.
 - Dubtes diagnòstics.
 - Multivàs.
- **Conclusions.**

Incomplete Revascularization in the Era of Drug-Eluting Stents

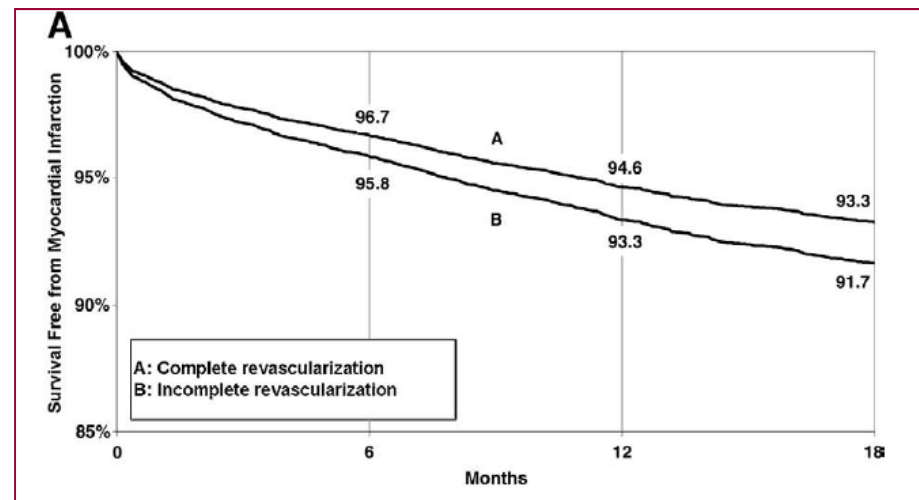
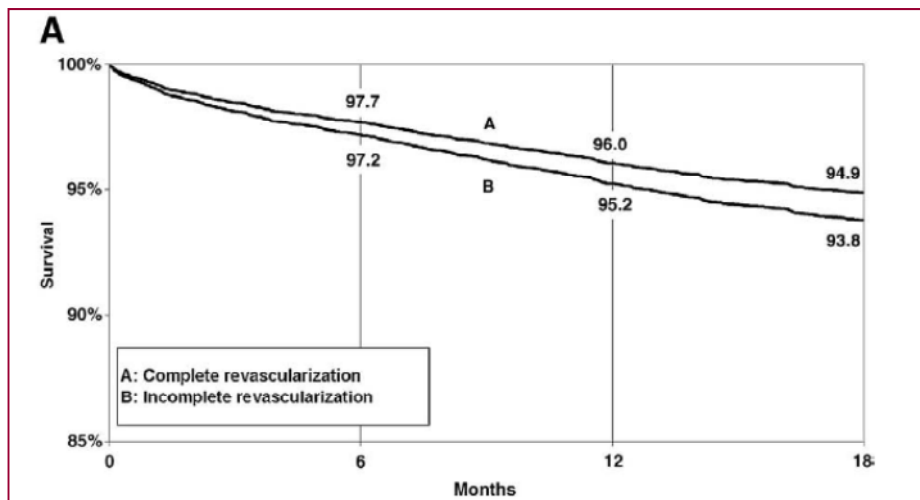
Impact on Adverse Outcomes

Edward L. Hannan, PhD, FACC,* Chuntao Wu, MD, PhD,*† Gary Walford, MD, FACC,‡
David R. Holmes, MD, FACC,§ Robert H. Jones, MD, FACC,|| Samin Sharma, MD, FACC,¶
Spencer B. King III, MD, MACC#

- n= 11.294 pacients.
- Registre Estat NY.
- Pitjors catact basals en grup IR

Table 2. Adjusted HR (IR and IR Subgroups vs. CR) and 95% CI for 18-Month Mortality and Mortality/MI by Subgroups of IR

Patient Group	No. of Cases	Mean Length of Follow-up (Months)	Mortality			Mortality/MI		
			No. of Events	Adjusted HR* (95% CI)	p Value	No. of Events	Adjusted HR† (95% CI)	p Value
CR	3,499	19.0	165	Reference		216	Reference	
IR	7,795	18.9	551	1.23 (1.04–1.45)	0.01	736	1.27 (1.09–1.47)	0.002



SYNTAX sequelae

- **Residual SYNTAX Score aplicat a l' SCASEST de l' ACUITY (>8) és predictor independent de mortalitat a l'any. n=2686.**
- **La revascularització incompleta en el SYNTAX és predictora independent de MACE després de l'angioplàstia i no després de la cirurgia.**

Genereux et al. JACC 2012 Mar 31. Epub ahead of print

Head et al. Eur J Cardiothorac Surg 2012 Mar; 41(3):535

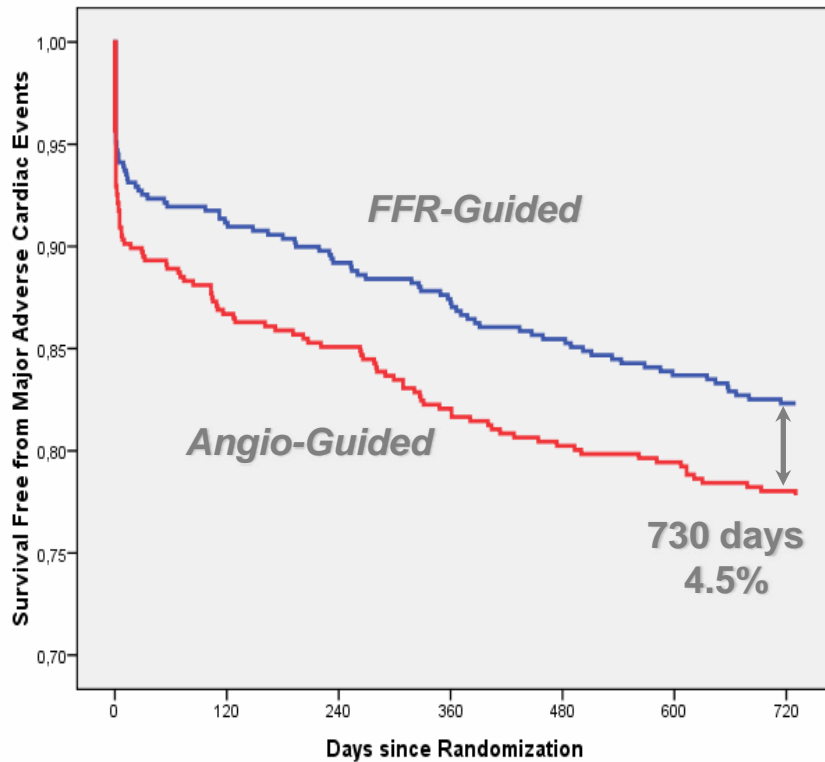
Fractional Flow Reserve versus Angiography for Guiding Percutaneous Coronary Intervention

Pim A.L. Tonino, M.D., Bernard De Bruyne, M.D., Ph.D., Nico H.J. Pijls, M.D., Ph.D.,
Uwe Siebert, M.D., M.P.H., Sc.D., Fumiaki Ikeno, M.D., Marcel van 't Veer, M.Sc., Volker Klauss, M.D., Ph.D.,
Ganesh Manoharan, M.D., Thomas Engström, M.D., Ph.D., Keith G. Oldroyd, M.D., Peter N. Ver Lee, M.D.,
Philip A. MacCarthy, M.D., Ph.D., and William F. Fearon, M.D., for the FAME Study Investigators*

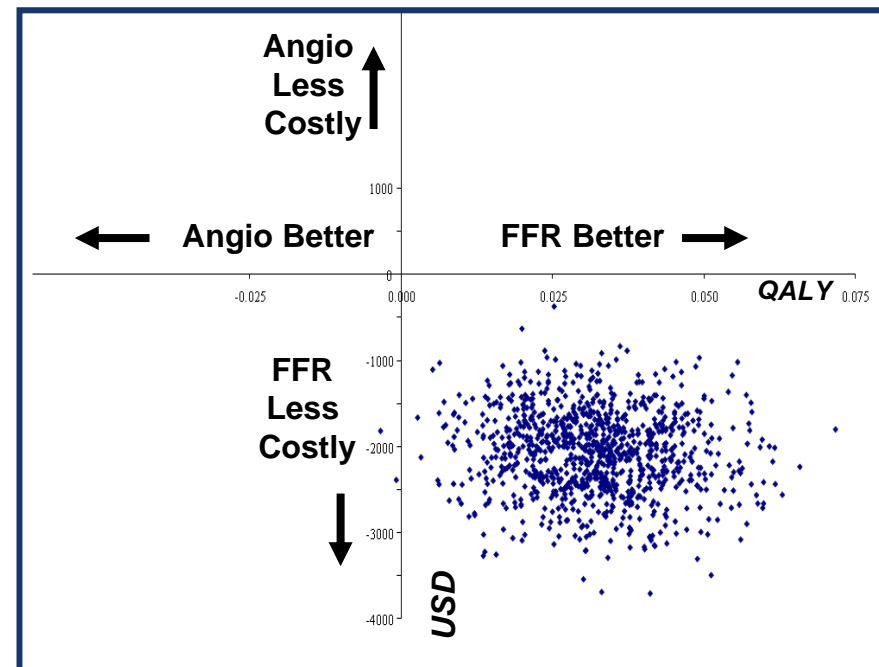
	Angio-Guided n= 496	FFR-Guided n= 509	P value
Lesions w PCI ide			
FFR-Guided PCI performed on indicate Lesions only if FFR < 0.80	2.7 ± 0.9	2.8 ± 1.0	0.34
Composite MI and repe (MACE) a	2.7 ± 1.2	1.9 ± 1.3	<0.001
Individual rates and repeat rev and functional status at 2 years	70 ± 44	71 ± 43	0.51
	302 ± 127	272 ± 133	<0.001
	6007	5332	<0.001
	3.7 ± 3.5	3.4 ± 3.3	0.05

FAME trial

Avaluació Clínica



Avaluació Econòmica



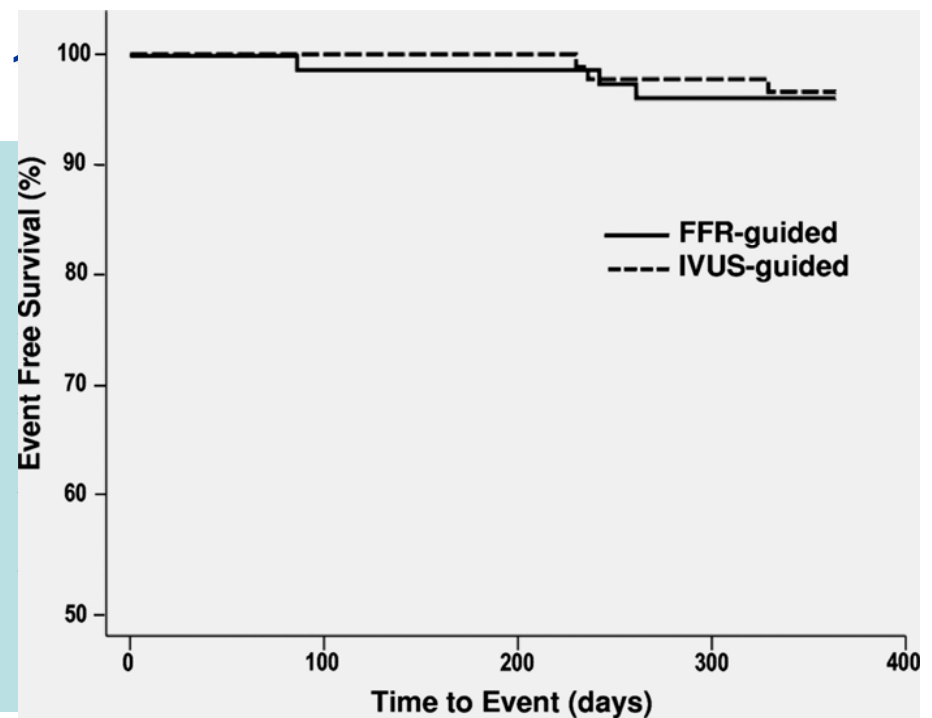
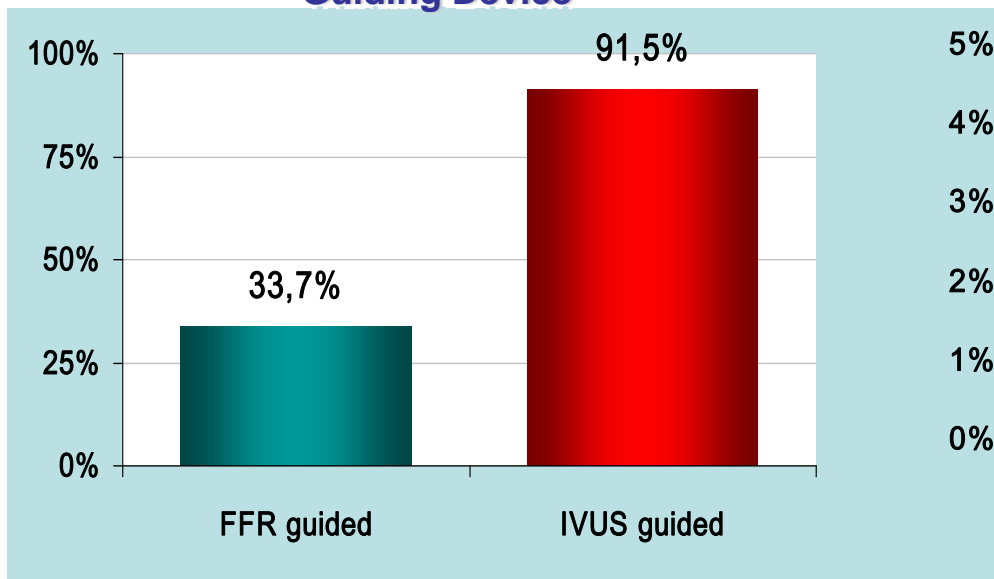
Outcomes of Percutaneous Coronary Intervention in Intermediate Coronary Artery Disease

Fractional Flow Reserve–Guided Versus Intravascular Ultrasound–Guided

Chang-Wook Nam, MD, PhD,* Hyuck-Jun Yoon, MD,* Yun-Kyeong Cho, MD, PhD,*
Hyoung-Seob Park, MD,* Hyungseop Kim, MD, PhD,* Seung-Ho Hur, MD, PhD,*
Yoon-Nvun Kim, MD, PhD,* In-Sung Chung, MD, PhD* Bon-Kwon Koo, MD, PhD.†

n= 167 patients
Lesions intermitjtes: 51%
SCA 55-60%
End Point: MACE

Rate of Performing PCI According to Type of Guiding Device

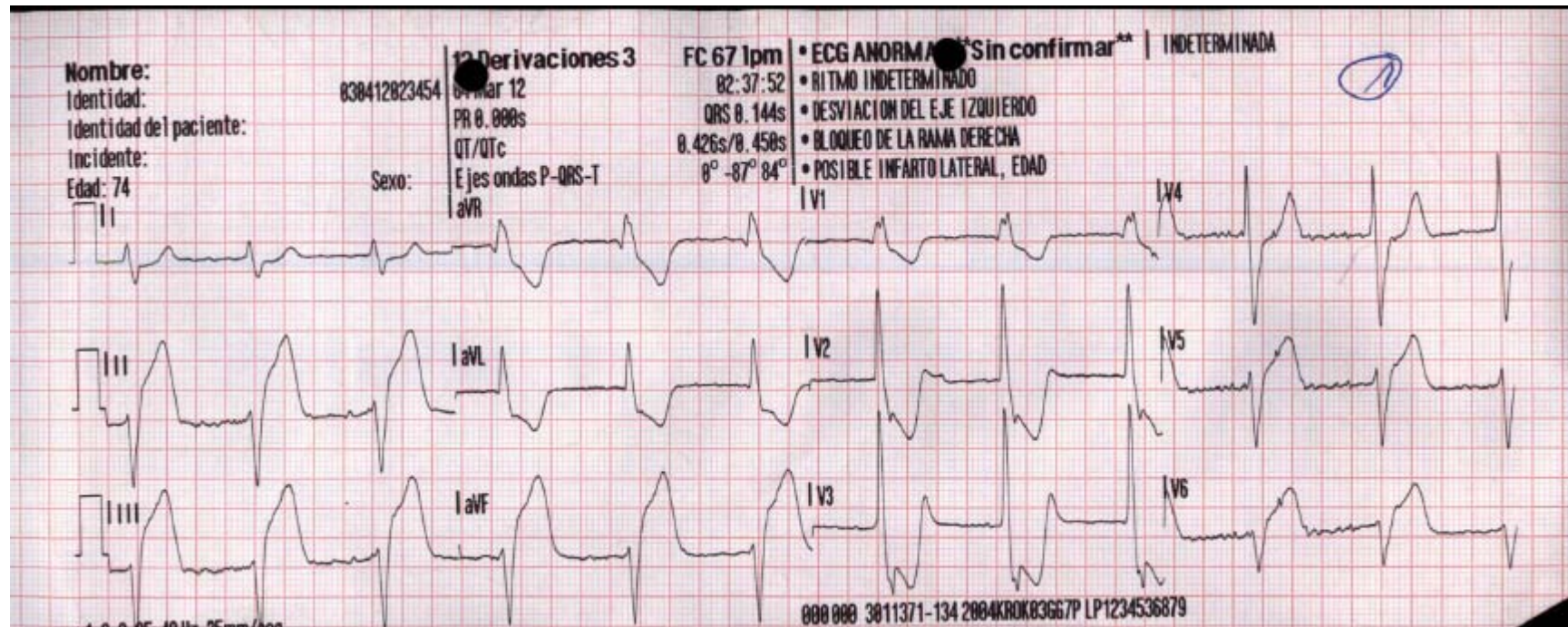


Revascularització en IAM

Table 13 Recommendations for reperfusion strategies in ST-segment elevation myocardial infarction patients

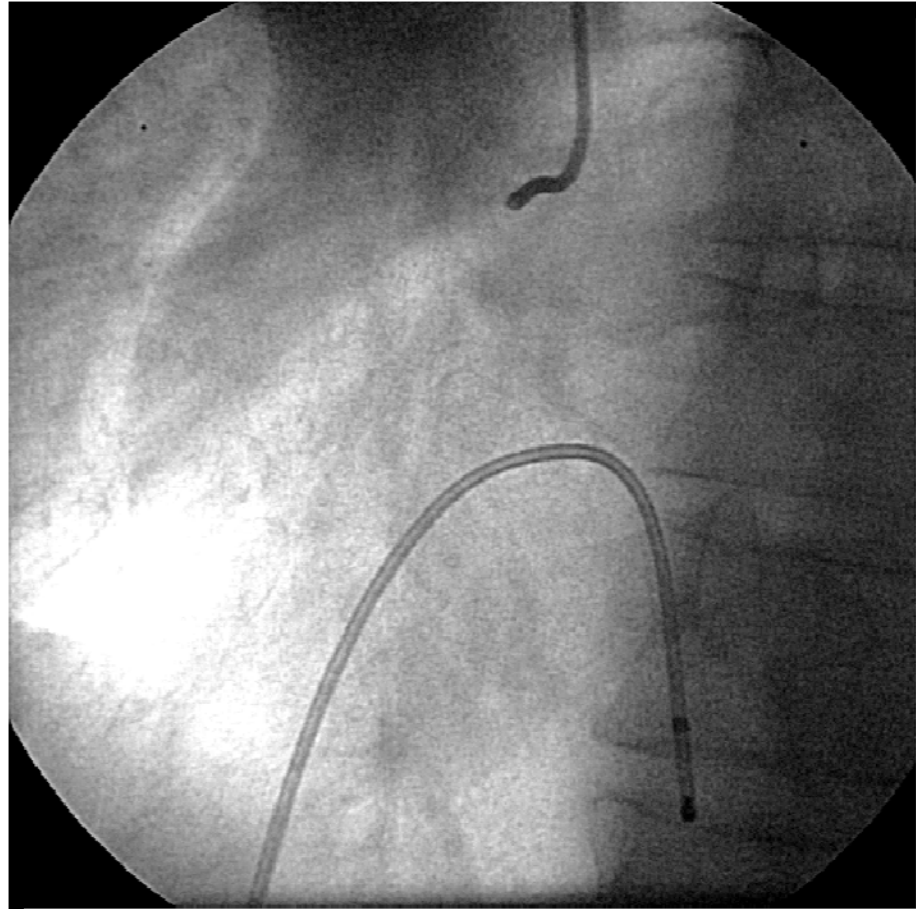
	Class ^a	Level ^b	Ref. ^c
Implementation of a well-functioning network based on pre-hospital diagnosis, and fast transport to the closest available primary PCI-capable centre is recommended.	I	A	74,75
Primary PCI-capable centres should deliver 24 h per day/7 days per week on-call service, be able to start primary PCI as soon as possible and within 60 min from the initial call.	I	B	76, 82, 102–105
In case of fibrinolysis, pre-hospital initiation by properly equipped EMS should be considered and full dose administered	IIa	A	81
With the exception of cardiogenic shock, PCI (whether primary, rescue, or post-fibrinolysis) should be limited to the culprit stenosis	IIa	B	96, 106, 107
In PCI-capable centres, unnecessary intermediate admissions to the emergency room or the intensive care unit should be avoided.	III	A	94, 108, 109
The systematic use of balloon counterpulsation, in the absence of haemodynamic impairment, is not recommended.	III	B	96, 97

Cas 1: Shock

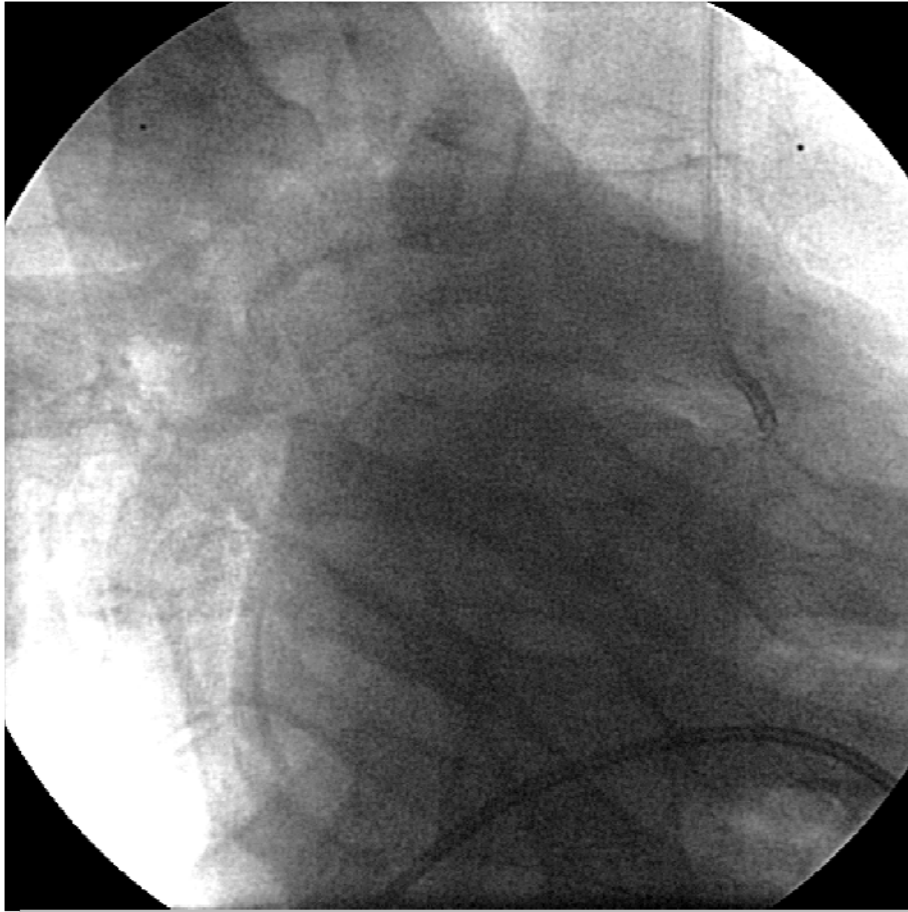


Home 74 a. IAM inf-post-lat de 4 hores evol., killip IV en shock cardiogènic. Codi IAM.

Cas 1

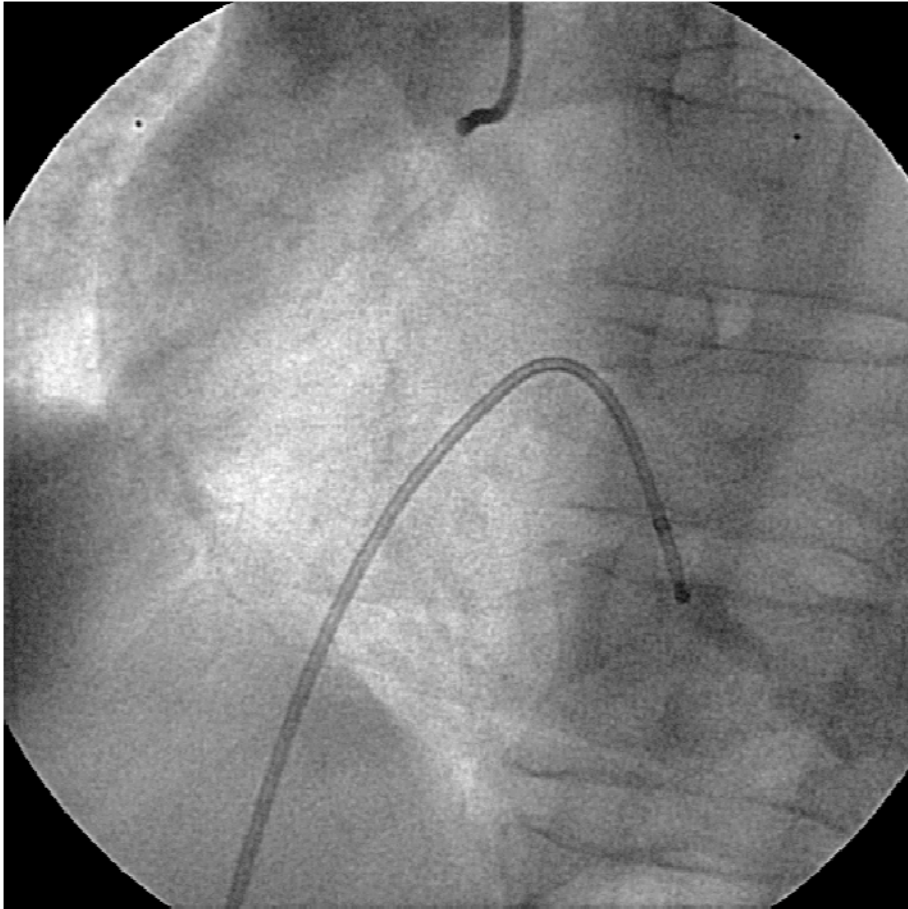


Cas 1

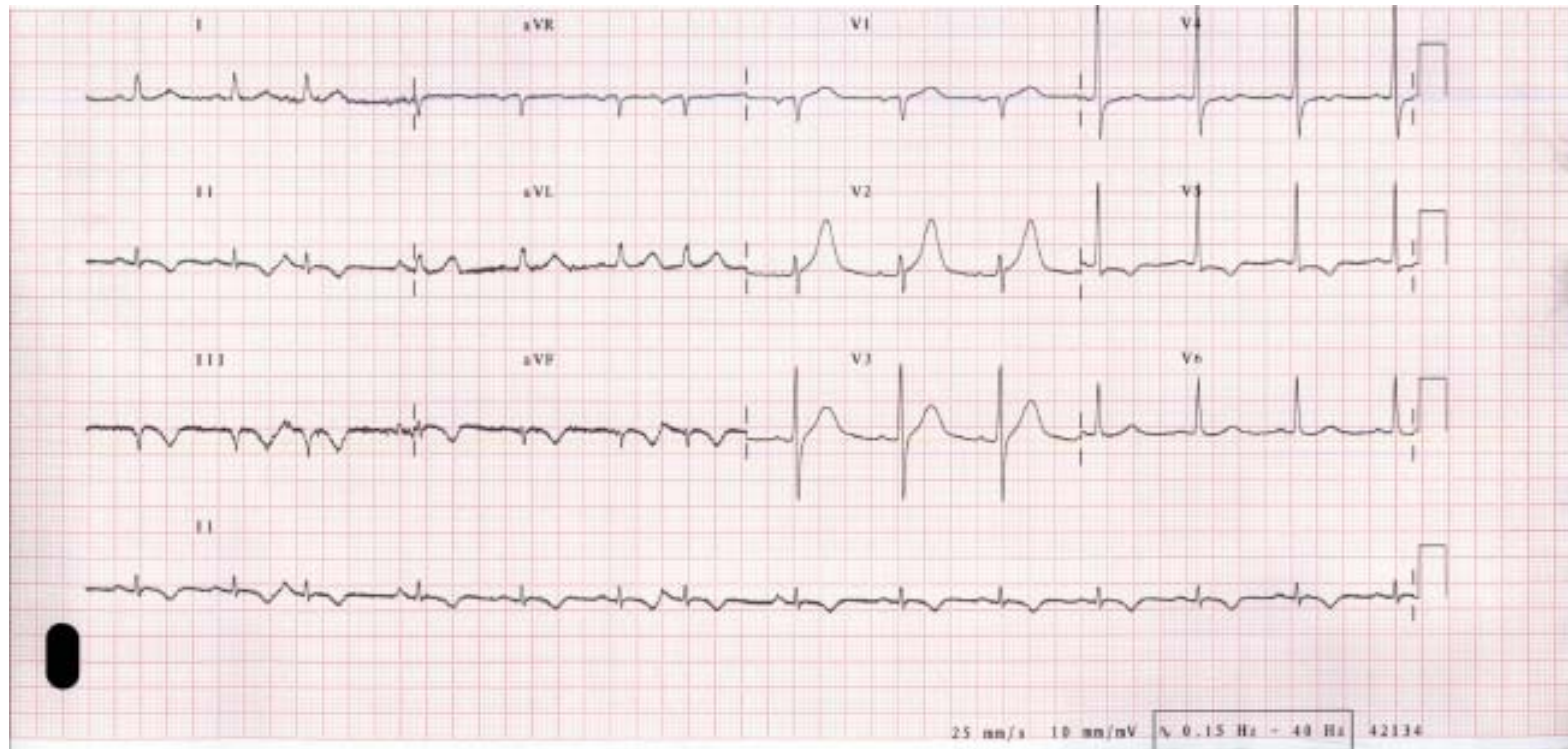


- **FV x2, BAV 3º, asistolia.**
- **Drogas, EKT, BCPIAo.**
- **IOT + VM**

Cas 1



Cas 1



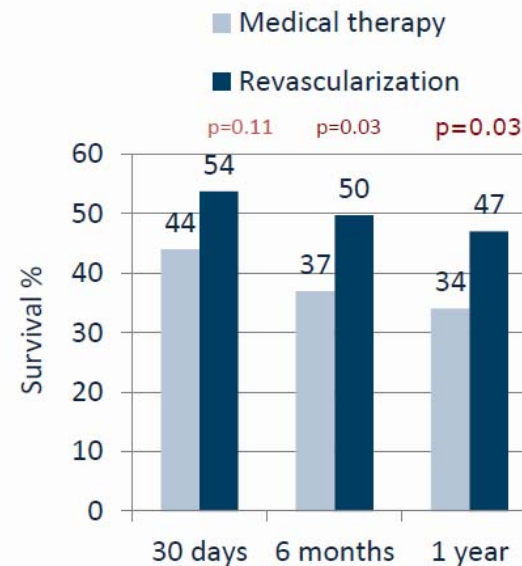
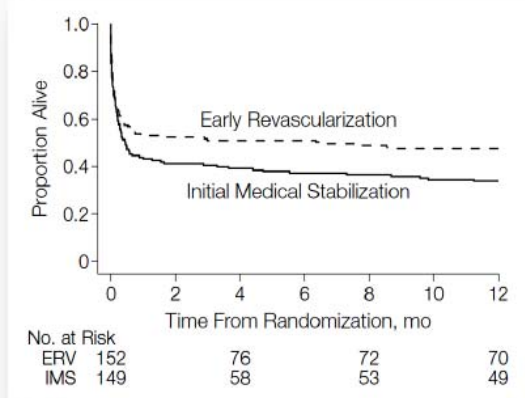
Bona evolució clínica. Extubació, retirada inotrops i BCPIAo a les 24h. FE 45%. Trasllat als 5 dies.



EARLY REVASCULARIZATION IN ACUTE MYOCARDIAL INFARCTION
COMPLICATED BY CARDIOGENIC SHOCK

JUDITH S. HOCHMAN, M.D., LYNN A. SLEEPER, Sc.D., JOHN G. WEBB, M.D., TIMOTHY A. SANBORN, M.D.,
HARVEY D. WHITE, D.Sc., J. DAVID TALLEY, M.D., CHRISTOPHER E. BULLER, M.D., ALICE K. JACOBS, M.D.,
JAMES N. SLATER, M.D., JACQUES COL, M.D., SONJA M. MCKINLAY, Ph.D., AND THIERRY H. LEJEMTEL, M.D.,
FOR THE SHOCK INVESTIGATORS*

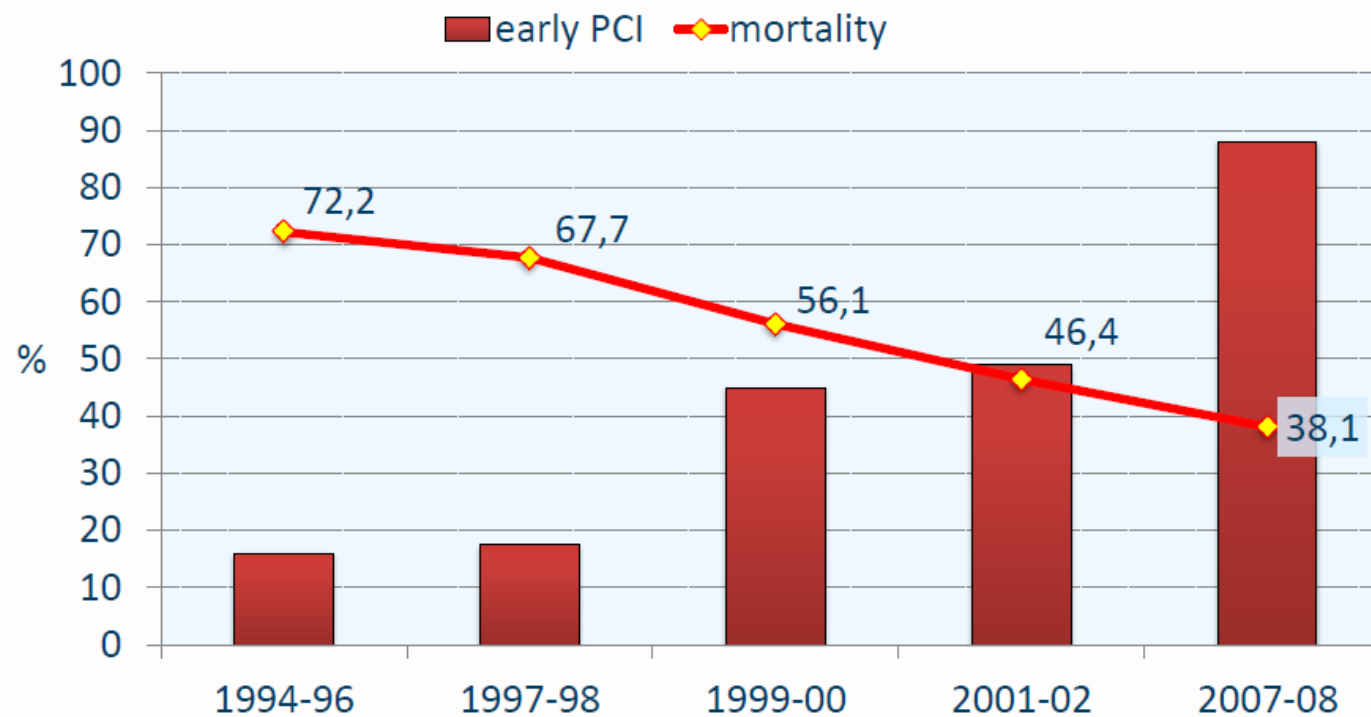
• **SHOCK TRIAL**



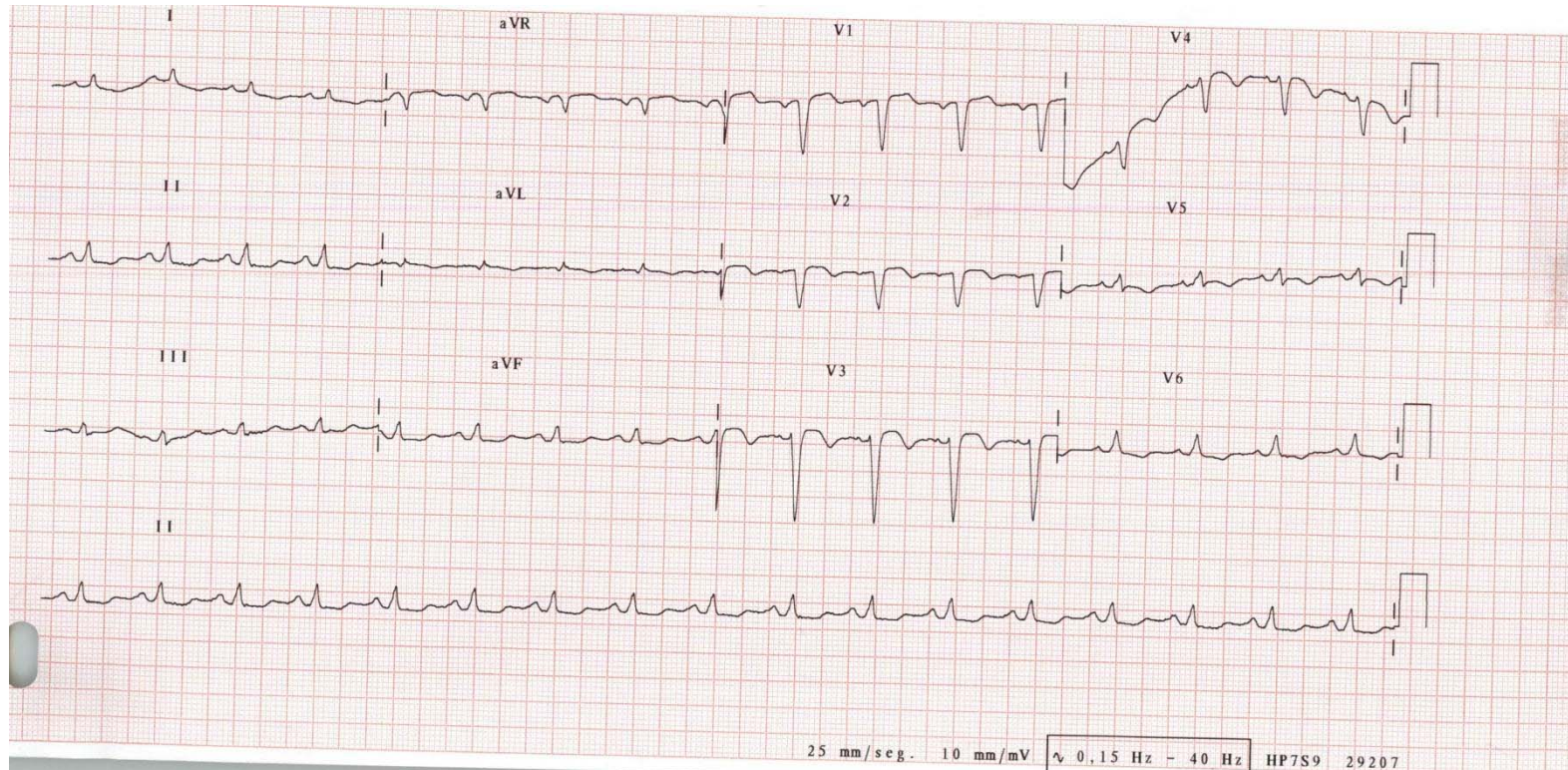
- 13% absolute increase in 1 year survival in patients assigned to early revascularization
- number needed to treat of <8 patients to save 1 life

Decreasing in-hospital mortality with increasing rates of early PCI in patients with cardiogenic shock

STEMI registry Germany

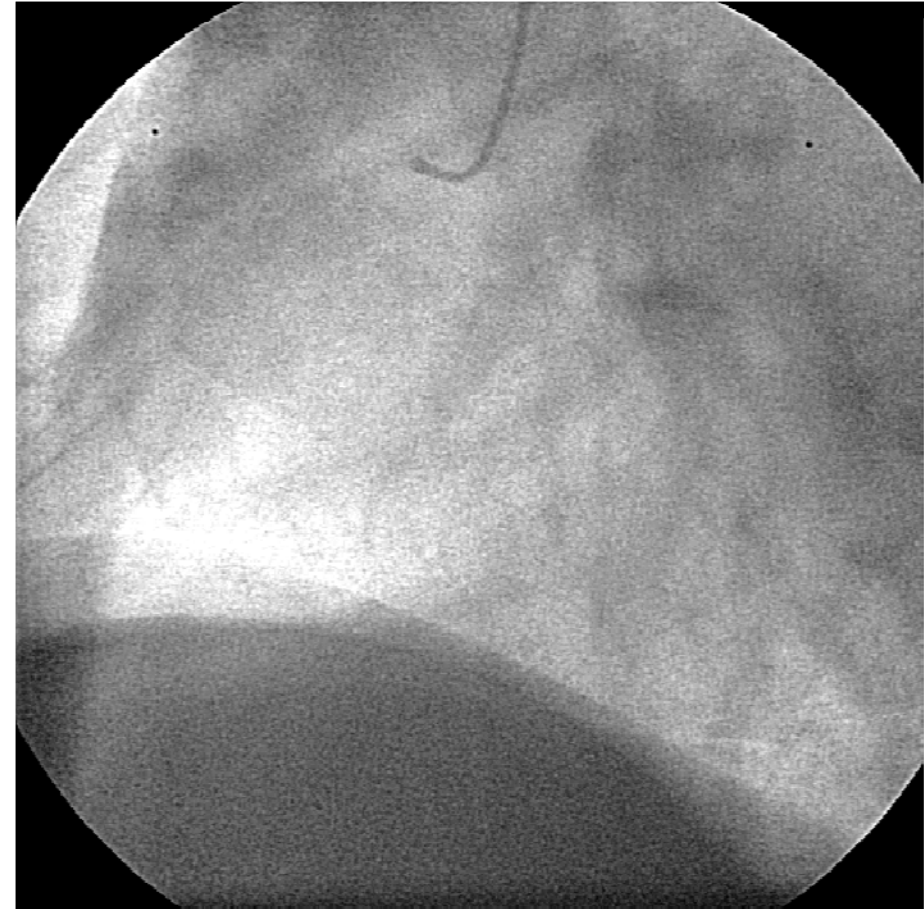
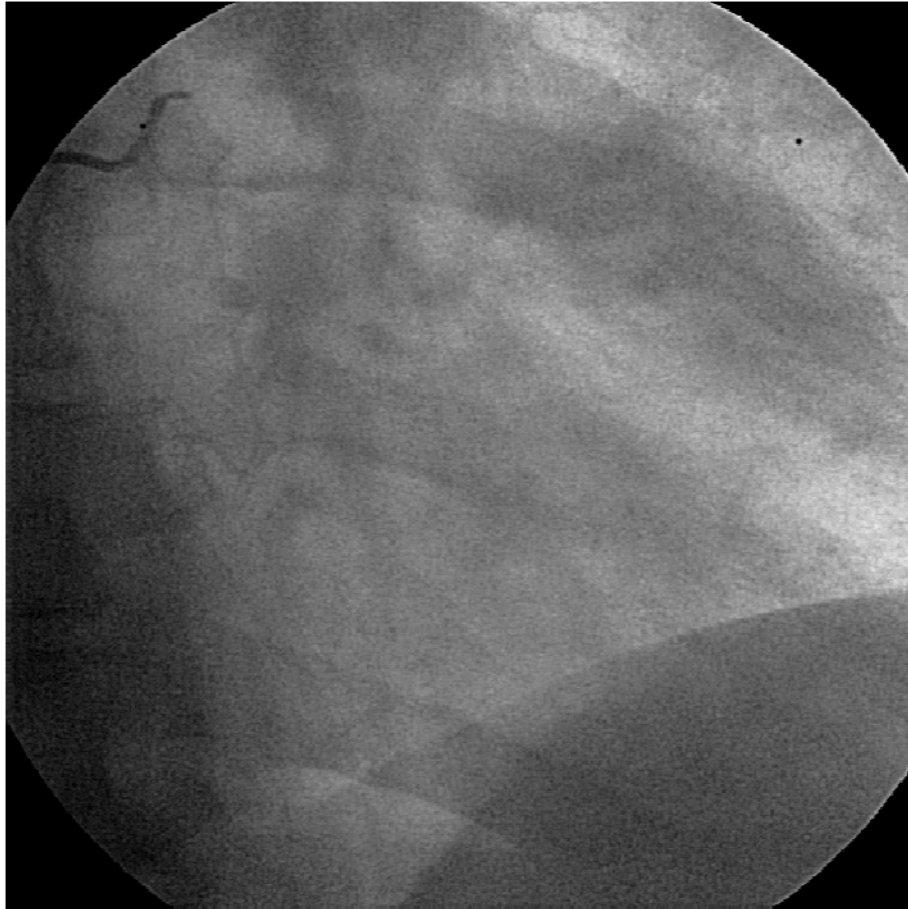


Cas 2: Dubtes diagnòstics

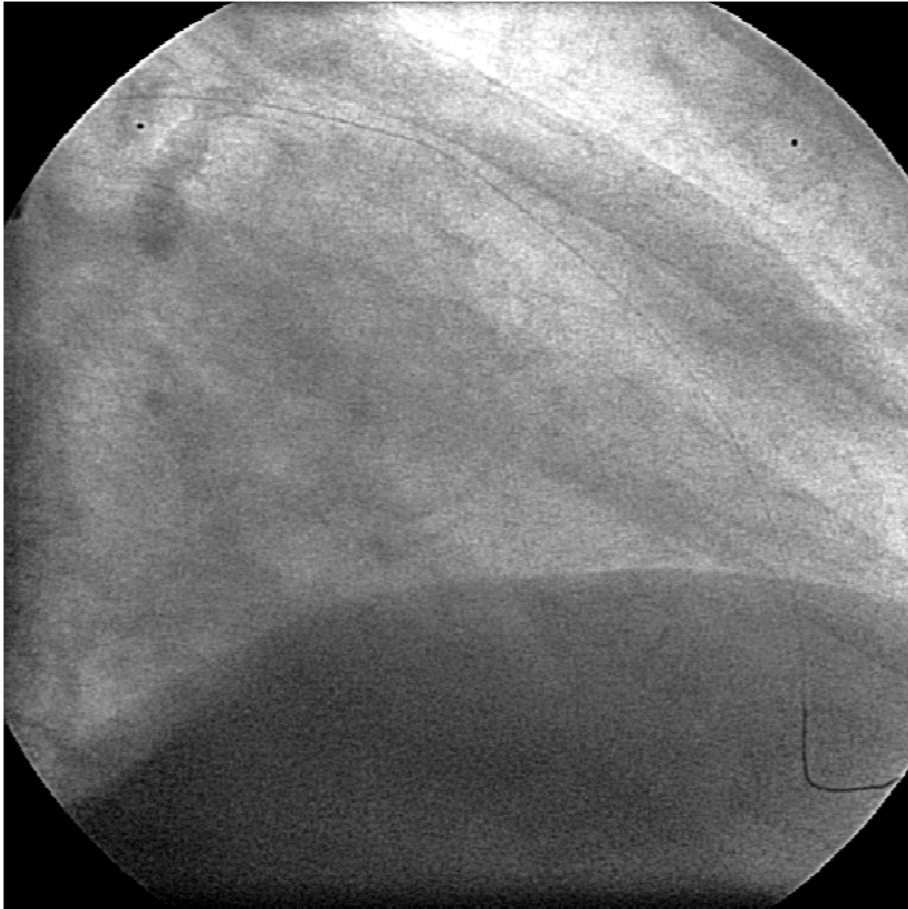


Home 65 a. IAM anterior establert. Dolors toràcics diaris de dos setmanes d'evolució, el més intens 3 dies abans. Codi IAM.

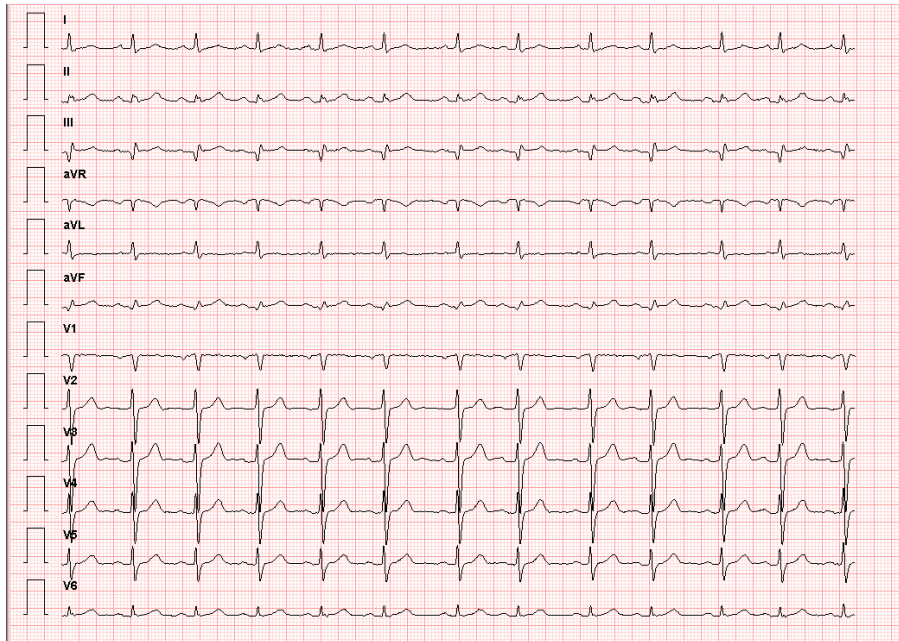
Cas 2



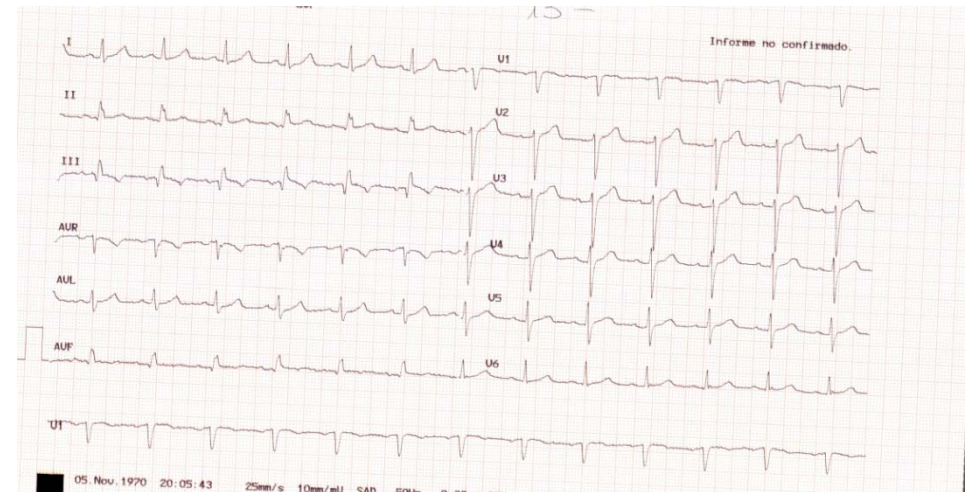
Cas 2



ECG con dolor

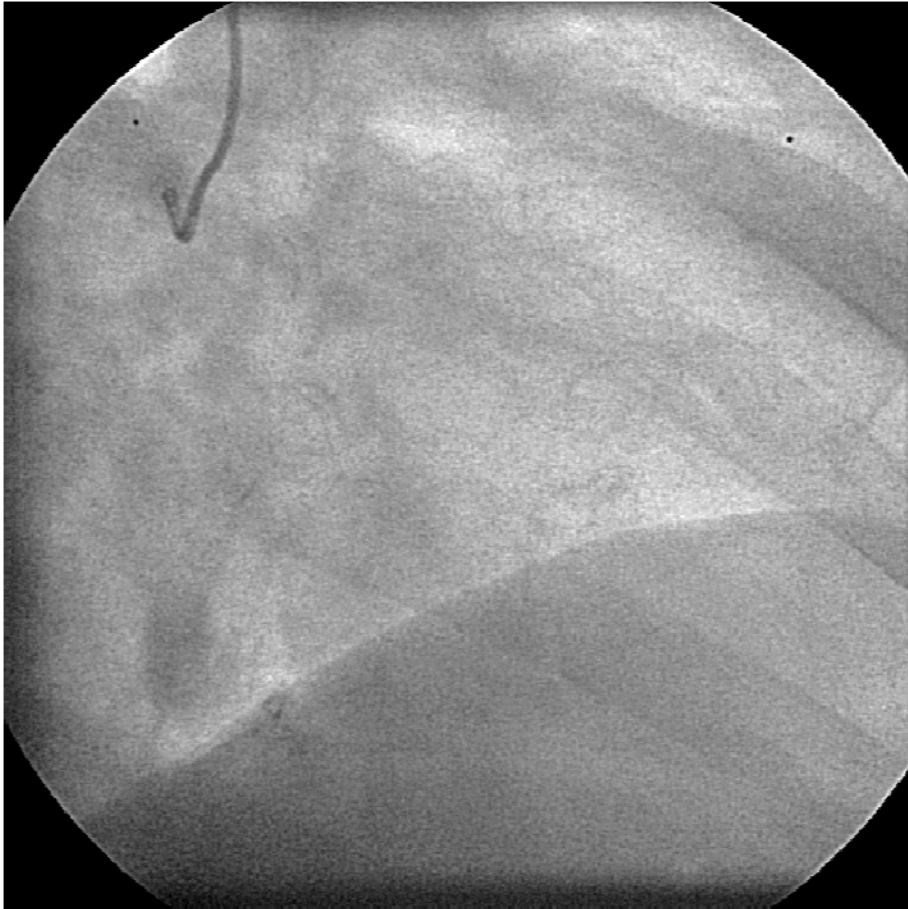


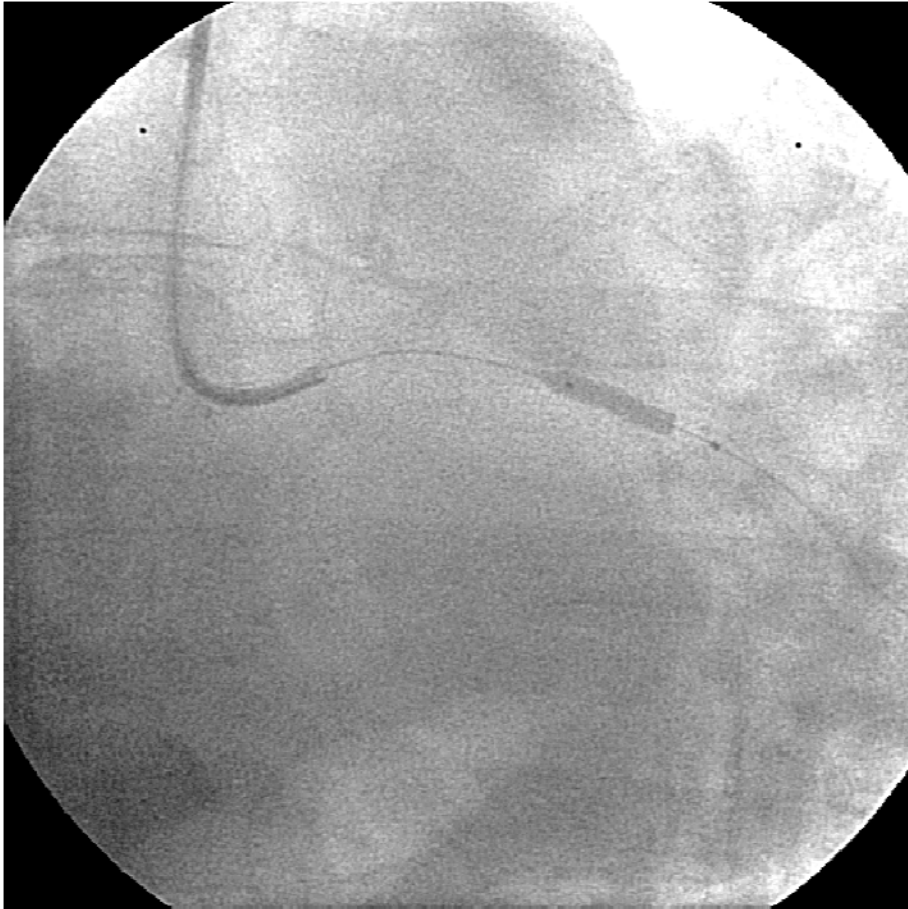
ECG antiguo



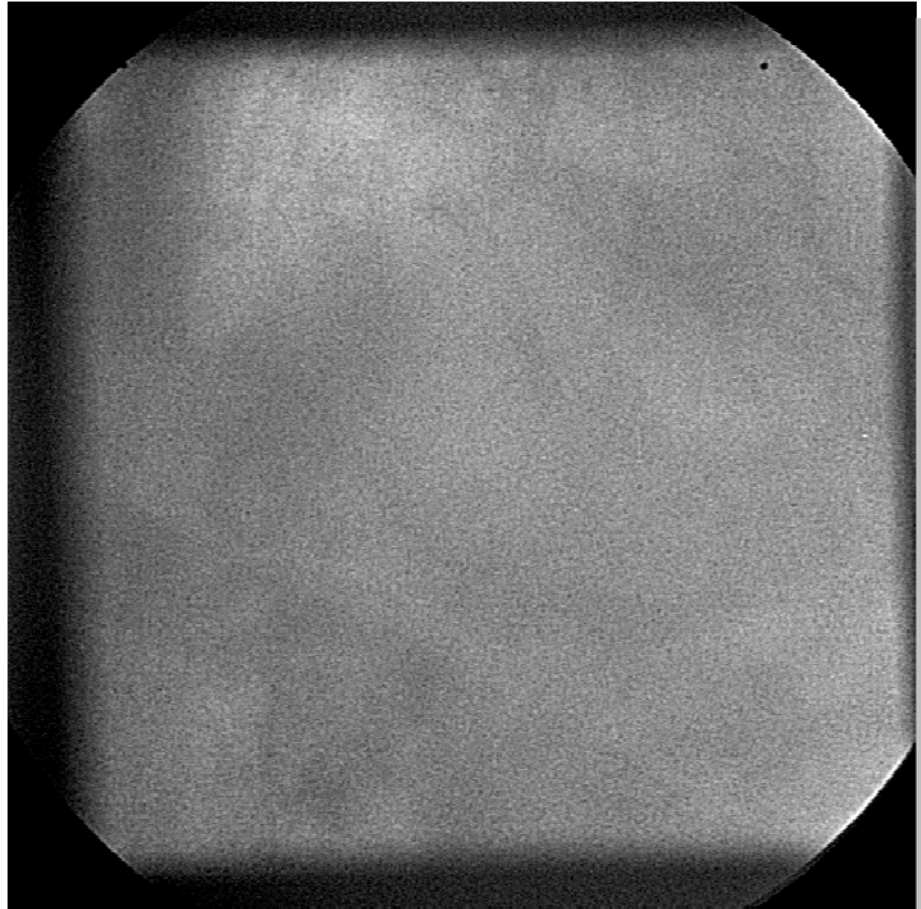
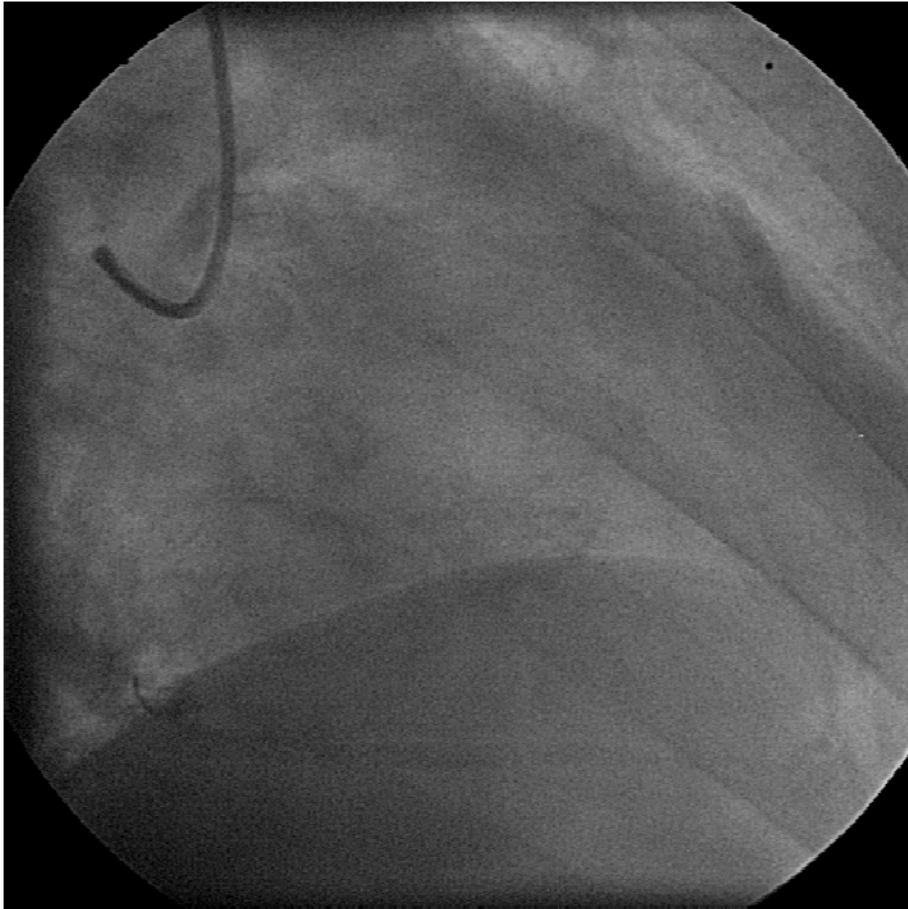
Home 76 a. IAM inferior. Codi IAM.

Cas 3





IAM inferior. CTO de CD i lesió crítica de DA.



ICP DA en 2^o temps precoç (intrahospitalari, als 5 d)

IAM i Multivàs

- **IAM i Multivàs: Augmenta mortalitat i events.**
- **Explicacions:**
 - **Funció de les regions no infartades. Estudi TAMI: Multivàs menor FE que M1V a igual extensió de l'infart. Hiperdinamia en M1V, Hipoquinèsia o disquinèsia en multivàs.**
 - **Major extensió d'arteriosclerosi coronària. Mès risc de SCA, events i revascularització.**
 - **Combinació de miocardi estabornit i hibernat.**
 - **Fluxe lent en vasos no culpables. Vasoespasme, resposta inflamatòria sistèmica. NTG per evitar tractar LNS.**

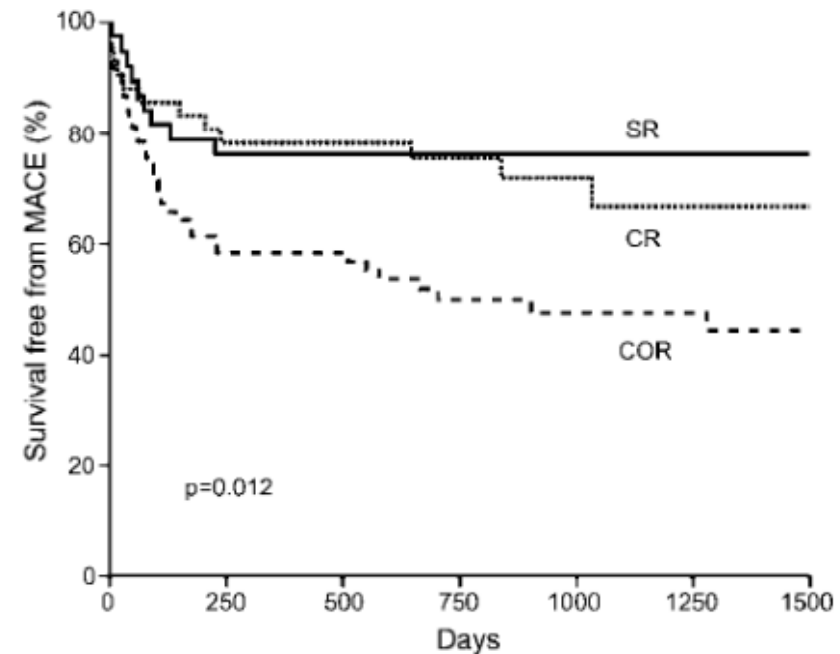
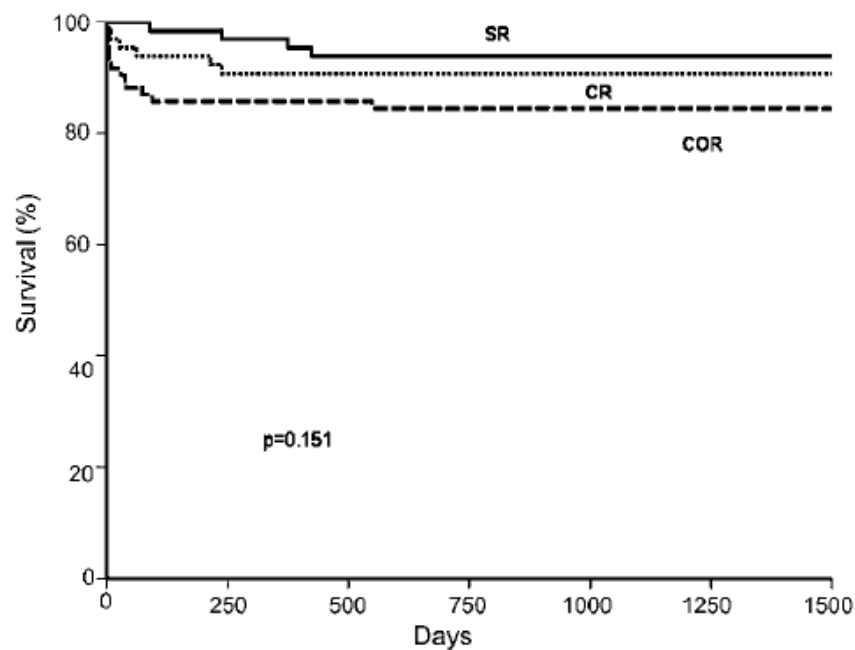
IAM i Multivàs

- **Revascularització completa:**
 - Millorar l'anterior.
 - Disminuir riscos combinats.
 - Tractar múltiples placas inestables.
 - Disminuir MACE.
 - Augmentar la FE.
 - Disminuir costos.
 - Nous stents i fàrmacs antiplaquetars.
- **En contra:** Radiació, contrast, complicacions, stent trombosis.

A randomised trial of target-vessel versus multi-vessel revascularisation in ST-elevation myocardial infarction: major adverse cardiac events during long-term follow-up

Luigi Politi, Fabio Sgura, Rosario Rossi, Daniel Monopoli, Elisa Guerri, Chiara Leuzzi, Francesca Bursi, Giuseppe Massimo Sangiorgi, Maria Grazia Modena

COR= Revascularització només de la lesió culpable
SR= Revascularització en 2 temps.
CV= Revascularització completa en el mateix procediment.



Culprit-Lesion-Only Versus Multivessel Revascularization Using Drug-Eluting Stents in Patients With ST-Segment Elevation Myocardial Infarction: A Korean Acute Myocardial Infarction Registry-Based Analysis

Hyun Su Jo, MD¹, Jong Seon Park, MD¹, Jang Won Sohn, MD¹, Joon Cheol Yoon, MD¹, Chang Woo Sohn, MD¹, Sang Hee Lee, MD¹, Geu Ru Hong, MD¹, Dong Gu Shin, MD¹, Young Jo Kim, MD¹, Myung Ho Jeong, MD², Shung Chull Chae, MD³, Seung Ho Hur, MD⁴, Taek Jong Hong, MD⁵, In Whan Seong, MD⁶, Jei Keon Chae, MD⁷, Jay Young Rhew, MD⁸, In Ho Chae, MD⁹, Myeong Chan Cho, MD¹⁰, Jang Ho Bae, MD¹¹, Seung Woon Rha, MD¹², Chong Jin Kim, MD¹³, Dong Hoon Choi, MD¹⁴, Yang Soo Jang, MD¹⁴, Jung Han Yoon, MD¹⁵, Wook Sung Chung, MD¹⁶, Ki Bae Seung, MD¹⁶, and Seung Jung Park, MD¹⁷

Variables	COR group (n=827)	MVR group (n=267)	p
Age (years)	63±13	62±12	0.152
Men, n (%)	598 (72.3)	206 (77.2)	0.068
Hypertension, n (%)	400 (49.7)	124 (48.9)	0.388
Systolic BP (mm Hg)	128±40	128±26	0.929
Diabetes mellitus, n (%)	218 (26.8)	75 (29.2)	0.250
Hyperlipidemia, n (%)	57 (8.1)	11 (4.5)	0.062
Family history of CAD, n (%)	52 (7.1)	30 (12.1)	0.016
Prior history of CAD, n (%)	86 (10.4)	23 (8.6)	0.481
Killip class	1.4±0.8	1.4±0.8	0.566
Door-to-balloon time (minutes)	73±23	71±21	0.098
CK-MB level (mg/dL)	239.9±492.7	201.8±192.8	0.469
Serum creatinine level (mg/dL)	1.2±1.2	1.1±1.0	0.577
Left ventricular EF (%)	50.1±11.6	53±10.6	0.004
Three-vessel disease, n (%)	330 (39.9)	110 (41.2)	0.380
Medications at discharge			
Aspirin	766 (99.0)	261 (99.2)	0.514
Clopidogrel	762 (98.4)	256 (97.3)	0.183
Statin	654 (84.5)	230 (87.5)	0.142
ACEI	529 (68.3)	190 (72.2)	0.134
Nitrate	348 (45.0)	141 (53.6)	0.009
Beta-blocker	585 (75.6)	202 (76.8)	0.378
In-hospital mortality	43 (5.2)	1 (0.4)	<0.001

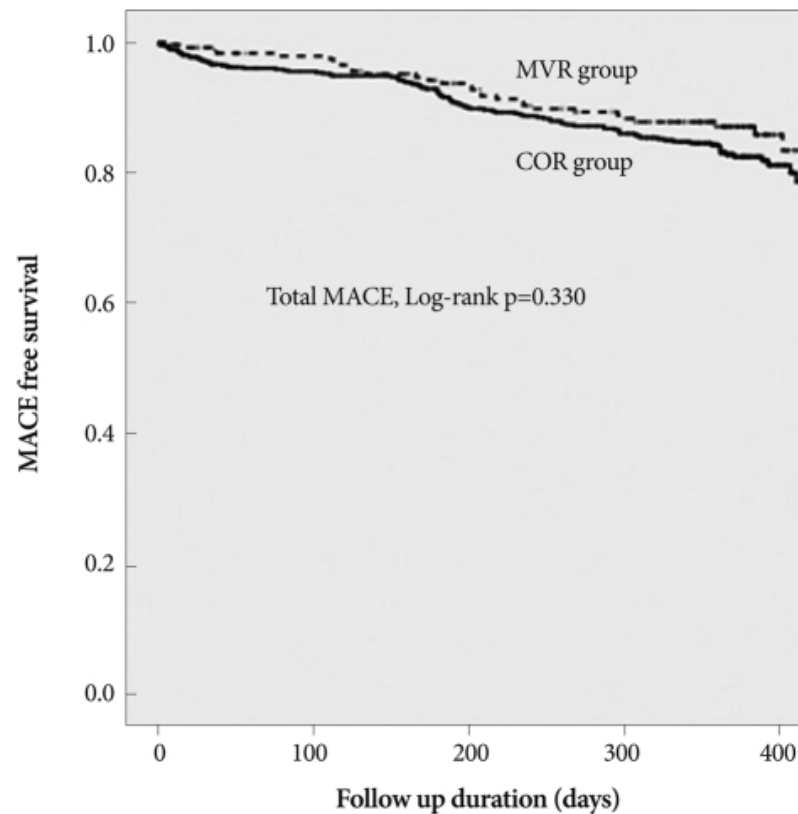
Culprit-Lesion-Only Versus Multivessel Revascularization Using Drug-Eluting Stents in Patients With ST-Segment Elevation Myocardial Infarction: A Korean Acute Myocardial Infarction Registry-Based Analysis

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Variables	CR subgroup (n=182)	IR subgroup (n=779)	p
Total MACE (%)	16 (9.5)	117 (15.0)	0.039
Death (%)	2 (1.2)	18 (2.3)	0.321
Cardiac	2 (1.2)	9 (1.2)	0.995
Noncardiac	0 (0)	9 (1.2)	0.157
MI (%)	1 (0.6)	5 (0.6)	0.798
STEMI	0 (0)	3 (0.4)	0.414
NSTEMI	1 (0.6)	2 (0.3)	0.485
Revascularization events (%)	13 (7.7)	94 (12.1)	0.068
TVR	10 (6.0)	24 (3.1)	0.156
Nontarget vessel PCI	3 (1.8)	67 (8.6)	0.002
CABG	0 (0)	3 (0.4)	0.407

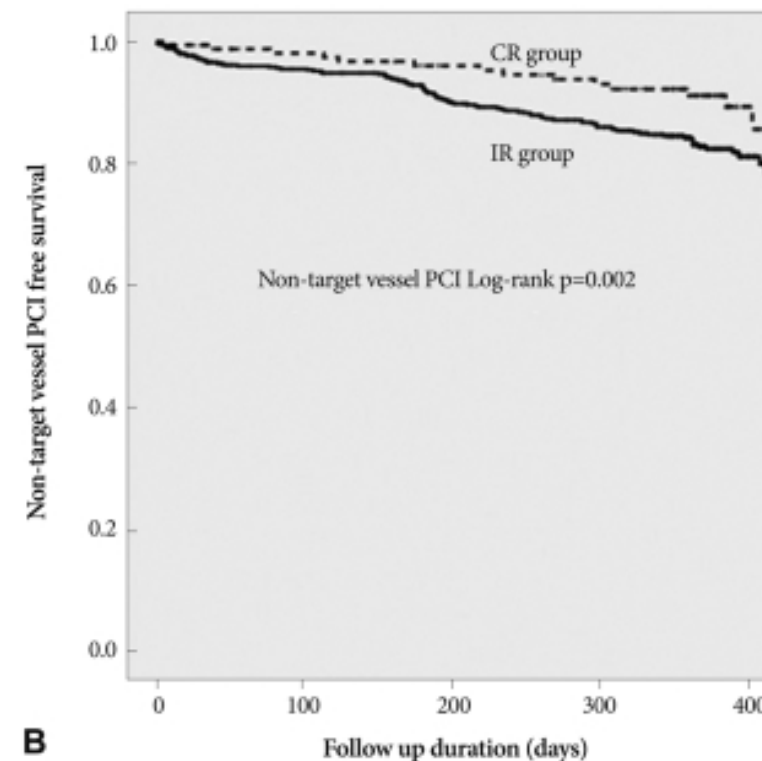
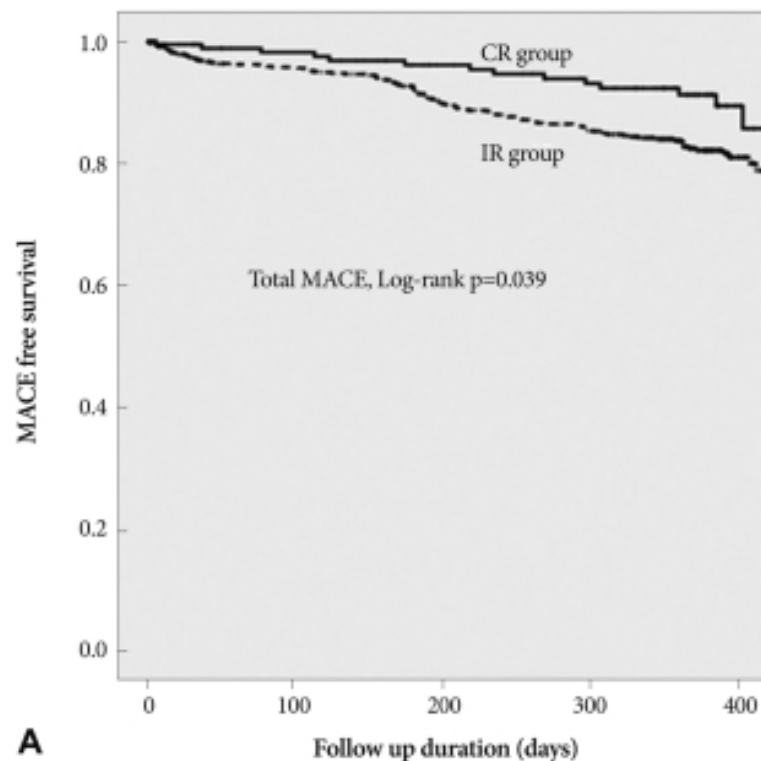
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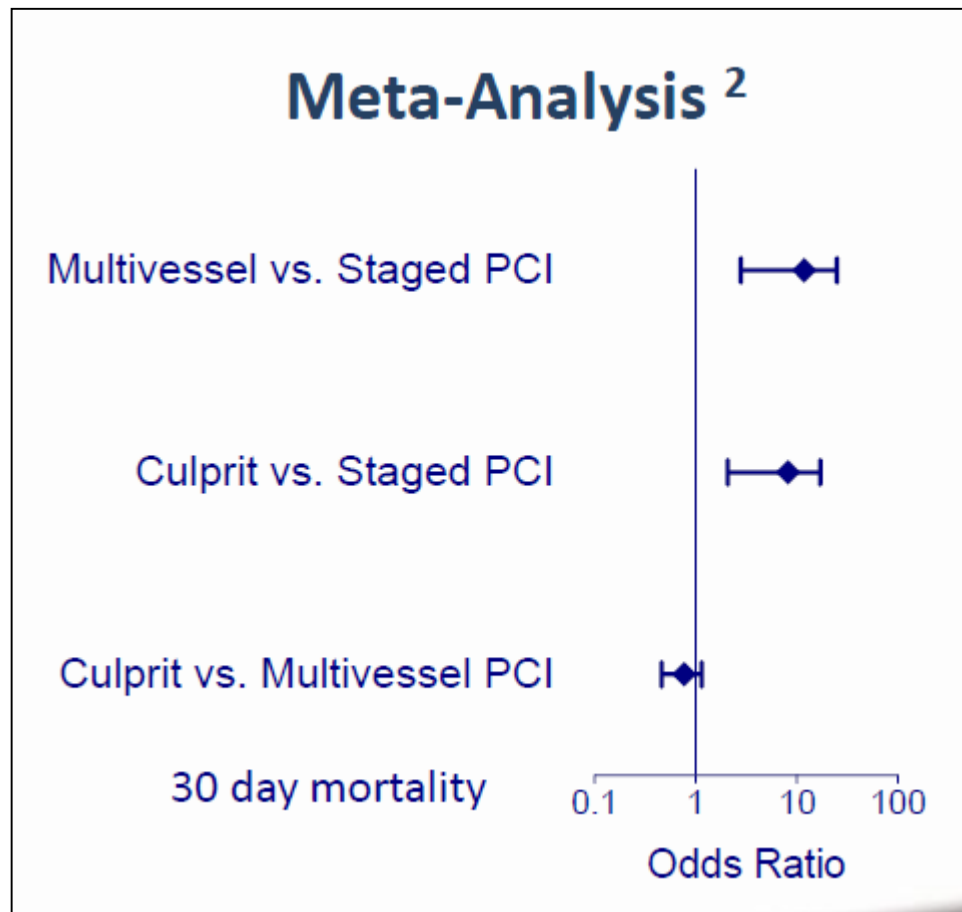
Hyun Su Jo, MD¹, Jong Seon Park, MD¹, Jang Won Sohn, MD¹, Joon Cheol Yoon, MD¹, Chang Woo Sohn, MD¹, Sang Hee Lee, MD¹, Geu Ru Hong, MD¹, Dong Gu Shin, MD¹, Young Jo Kim, MD¹, Myung Ho Jeong, MD², Shung Chull Chae, MD³, Seung Ho Hur, MD⁴, Taek Jong Hong, MD⁵, In Whan Seong, MD⁶, Jei Keon Chae, MD⁷, Jay Young Rhew, MD⁸, In Ho Chae, MD⁹, Myeong Chan Cho, MD¹⁰, Jang Ho Bae, MD¹¹, Seung Woon Rha, MD¹², Chong Jin Kim, MD¹³, Dong Hoon Choi, MD¹⁴, Yang Soo Jang, MD¹⁴, Jung Han Yoon, MD¹⁵, Wook Sung Chung, MD¹⁶, Ki Bae Seung, MD¹⁶, and Seung Jung Park, MD¹⁷



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Meta-Analysis of Multivessel Coronary Artery Revascularization Versus Culprit-Only Revascularization in Patients With ST- Segment Elevation Myocardial Infarction and Multivessel Disease

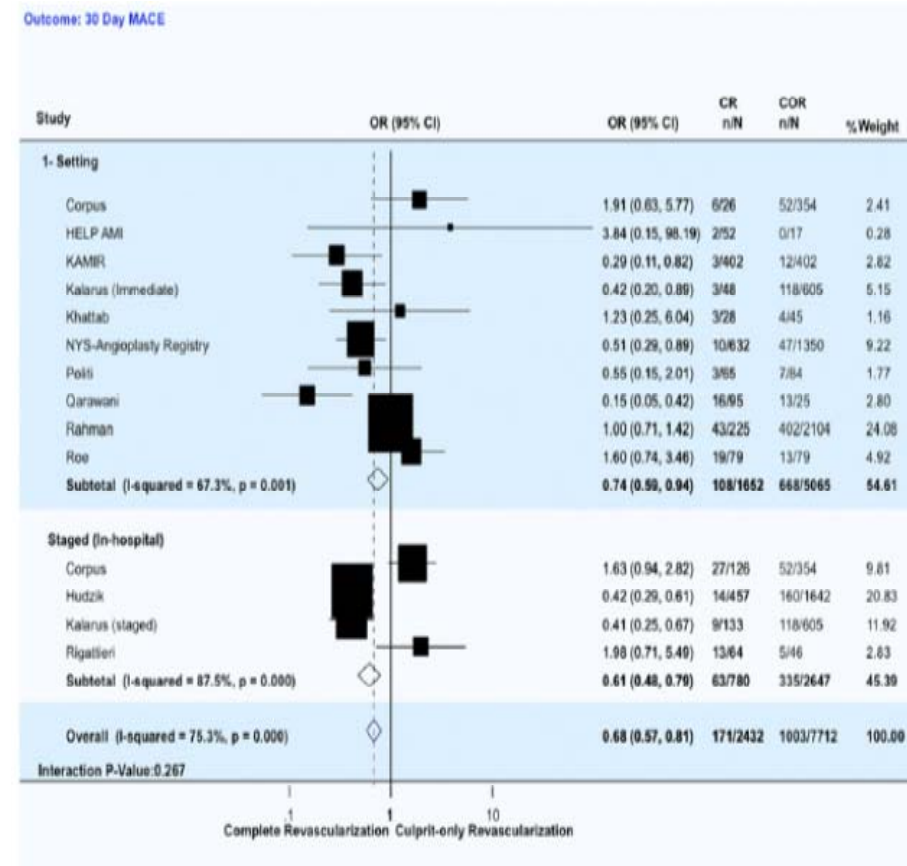
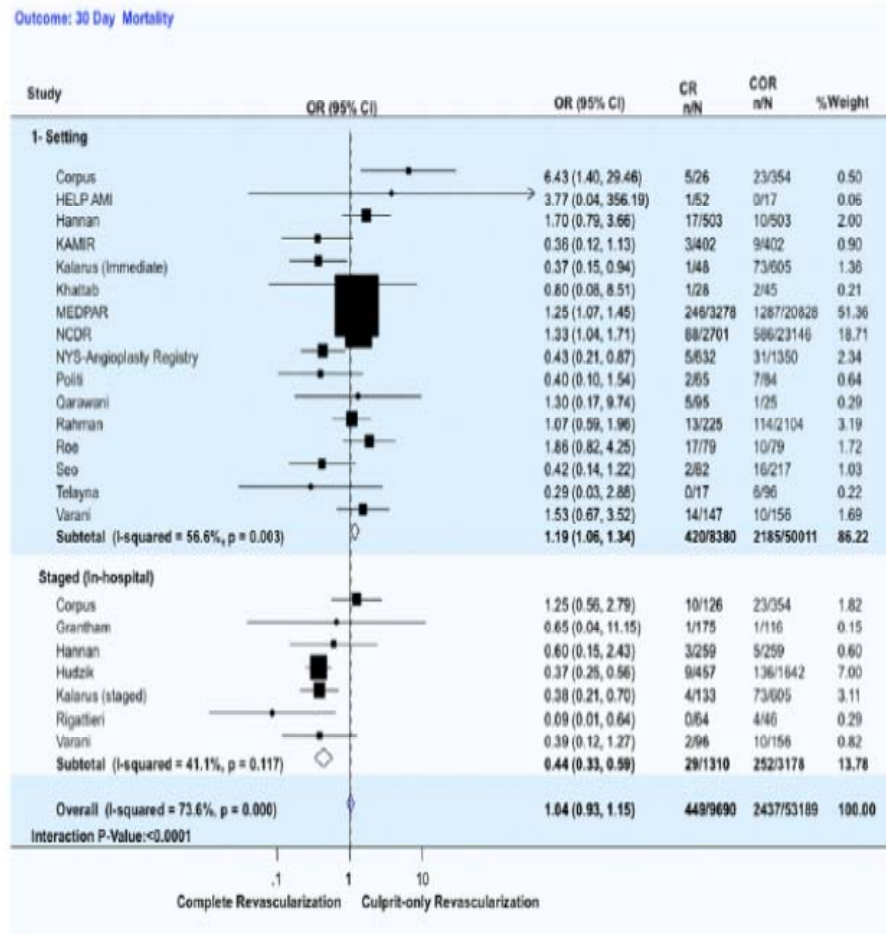
Sripal Bangalore, MD^{a,*}, Sunil Kumar, MD^b, Kanhaiya L. Poddar, MBBS^c,
Sureshkumar Ramasamy, MD^c, Seung-Woon Rha, MD^c, and David P. Faxon, MD^d

Table 1
Baseline characteristics of included studies

Study	Year	Subjects	Age (years)	Men	Cardiogenic Shock	Killip Class 3/4	Diabetes	Follow-up (months)	Multivessel Revascularization Setting	
									1 Setting	Staged
Corpus et al ¹¹	2004	506	63	69%	3.4%	—	17%	12	+	+
Grantham ¹²	2006	291	61	73%	0%	4.8%	22%	6	0	+
Hannan et al ¹³	2010	1524	—	80%	0%	—	22%	42	+	+
HELP-AMI ⁷	2004	69	64	87%	0%	18.8%	19%	12	+	0
Hudzik ¹⁴	2009	2099	64	57%	12%	11.8%	26%	36	0	+
Kalarus et al ¹⁵	2007	786	61	71%	10%	10.0%	33%	30	+	+
KAMIR ¹⁹	2009	804	63	75%	0%	6.0%	28%	8	+	0
Khattab et al ¹⁶	2008	73	66	77%	4%	—	12%	12	+	0
MEDPAR ²⁷	2010	24,106	—	60%	—	—	—	0	+	0
NCDR ^{25*}	2009	25,847	61	72%	0%	—	24%	0	+	0
NYS Angioplasty Registry ^{26†}	2006	1982	61	74%	0%	7.5%	19%	0	+	0
Politi et al ^{8‡}	2010	149	65	77%	0%	—	19%	30	+	0
Qarawani et al ¹⁷	2007	120	66	65%	0%	22.5%	13%	12	+	0
Rahman et al ¹⁸	2010	2077	—	—	—	—	—	12	+	0
Rigattieri et al ²⁰	2008	110	66	75%	0	—	23%	13	0	+
Roe et al ²¹	2001	158	63	71%	28%	33.2%	33%	6	+	0
Seo et al ²²	2009	299	—	—	—	—	—	48	+	0
Telayna ²³	2002	113	60	85%	0	8.8%	19%	6	+	0
Varani et al ²⁴	2008	399	69	71%	—	10.6%	16%	21	+	+

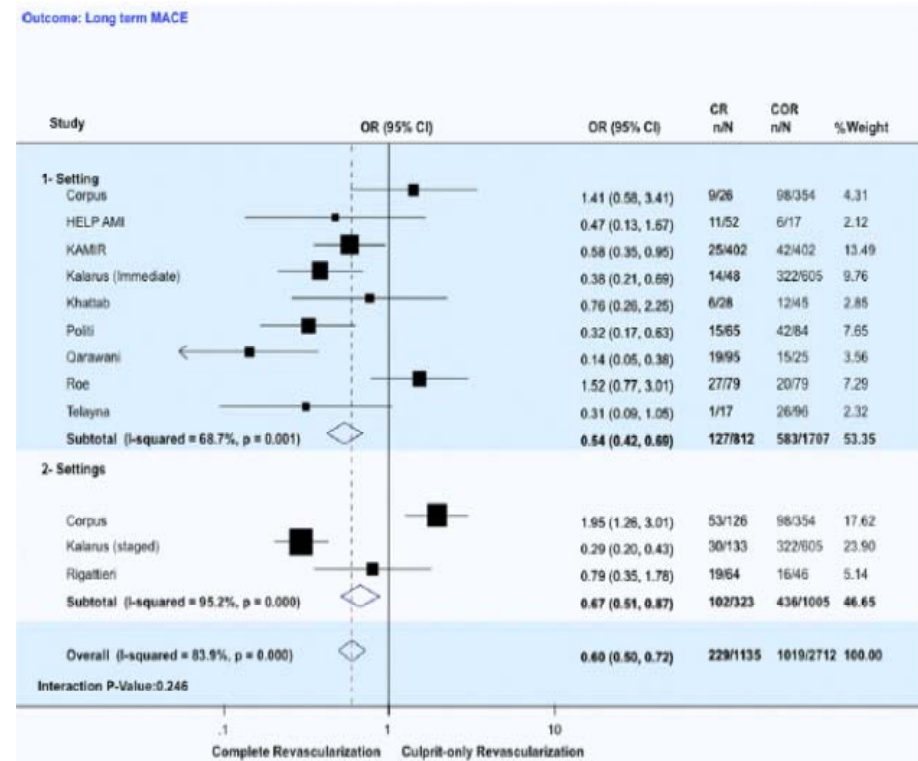
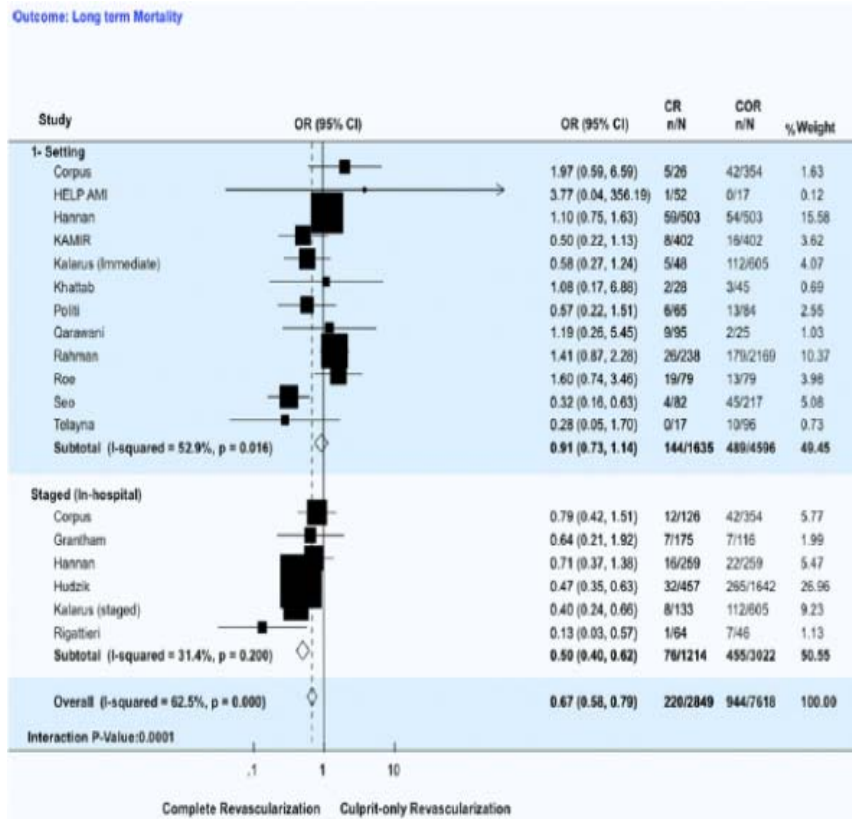
Meta-Analysis of Multivessel Coronary Artery Revascularization Versus Culprit-Only Revascularization in Patients With ST-Segment Elevation Myocardial Infarction and Multivessel Disease

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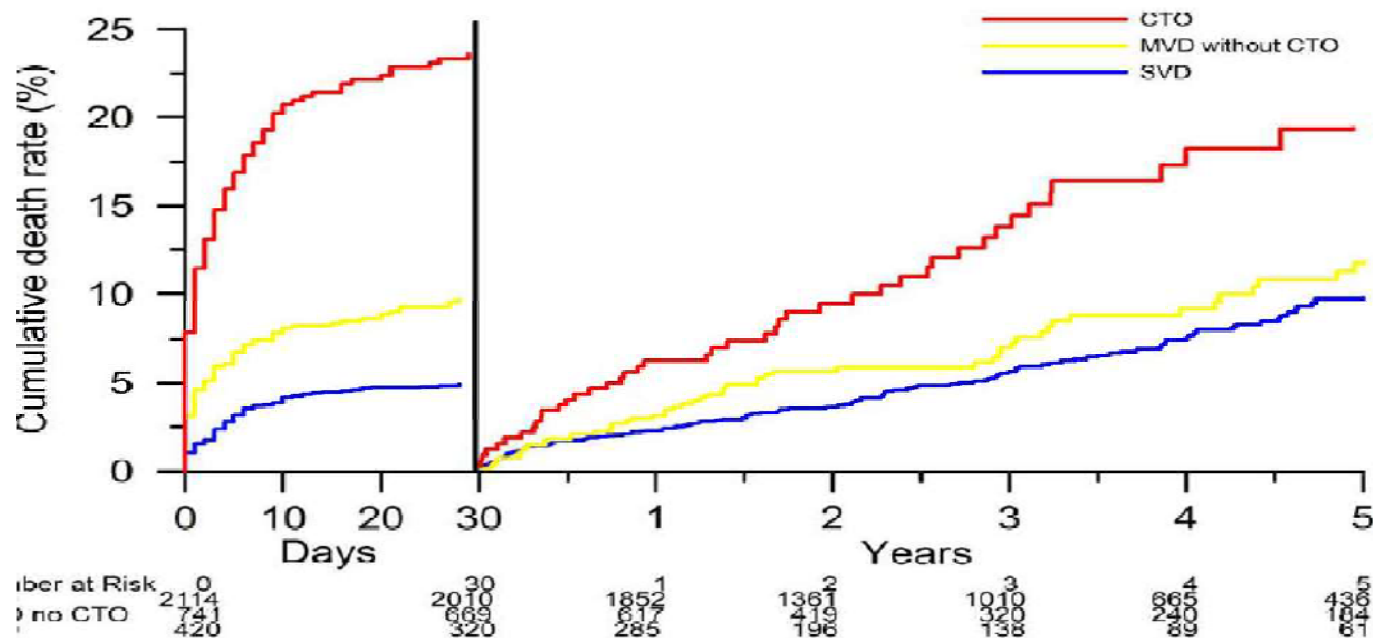
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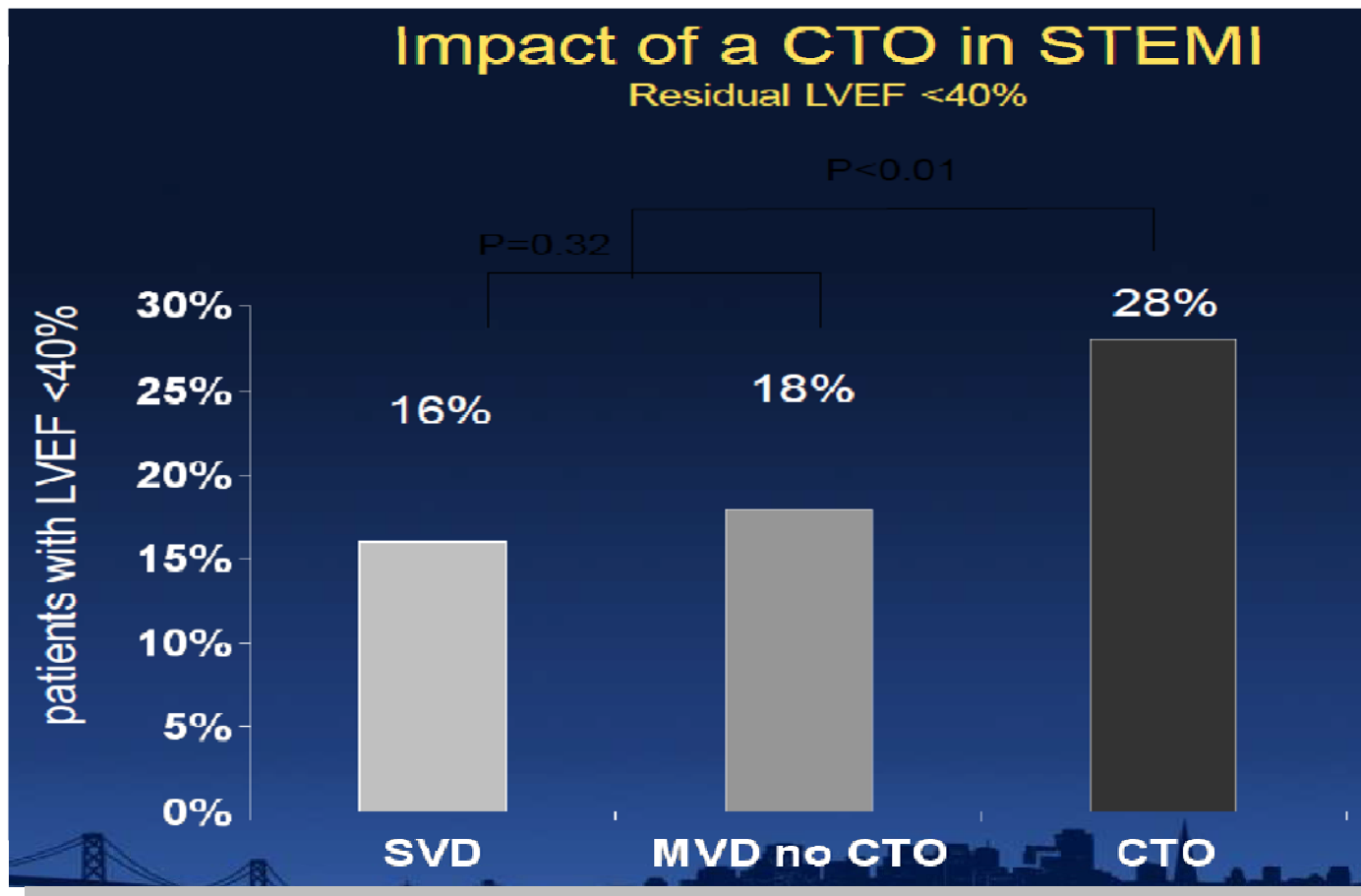
The results of the present study showed that for early outcomes, there was no difference between groups for outcomes of mortality, MI, stroke, and target vessel revascularization, with a 44% decrease in repeat PCI and a 32% decrease in MACEs with multivessel revascularization. Similarly, for long-term outcomes, there was no difference for outcomes of MI, target vessel revascularization, and stent thrombosis, with a 33% decrease in mortality, a 43% decrease in repeat PCI, a 53% decrease in coronary artery bypass grafting, and a 40% decrease in MACEs with multivessel revascularization compared to CULPRIT.

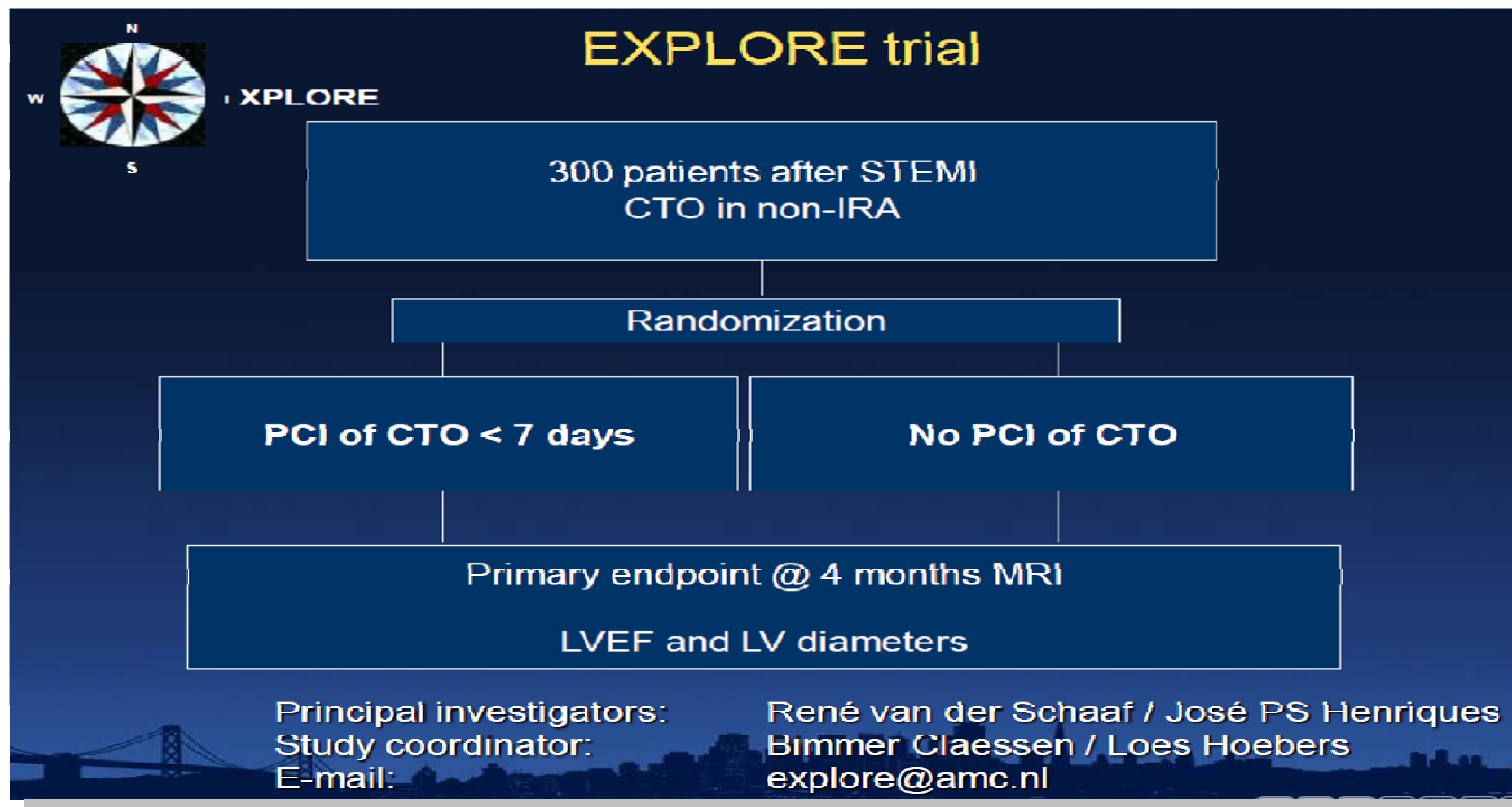
Impact of a CTO in STEMI

Mortality in 3277 patients

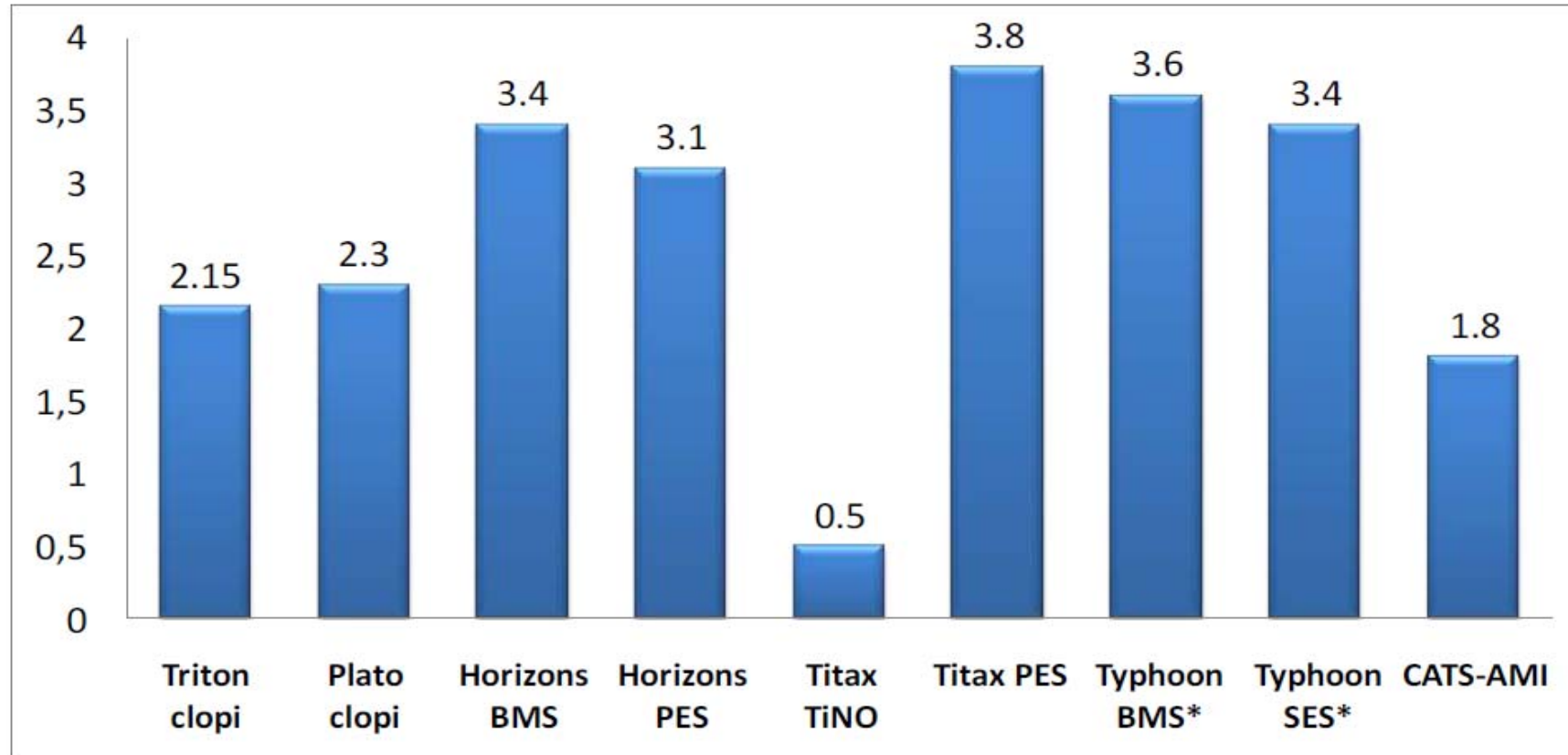
Landmark survival analysis: Cumulative risk of Death during the first 30 days after primary PCI and thereafter for patients with SVD, MVD and a CTO





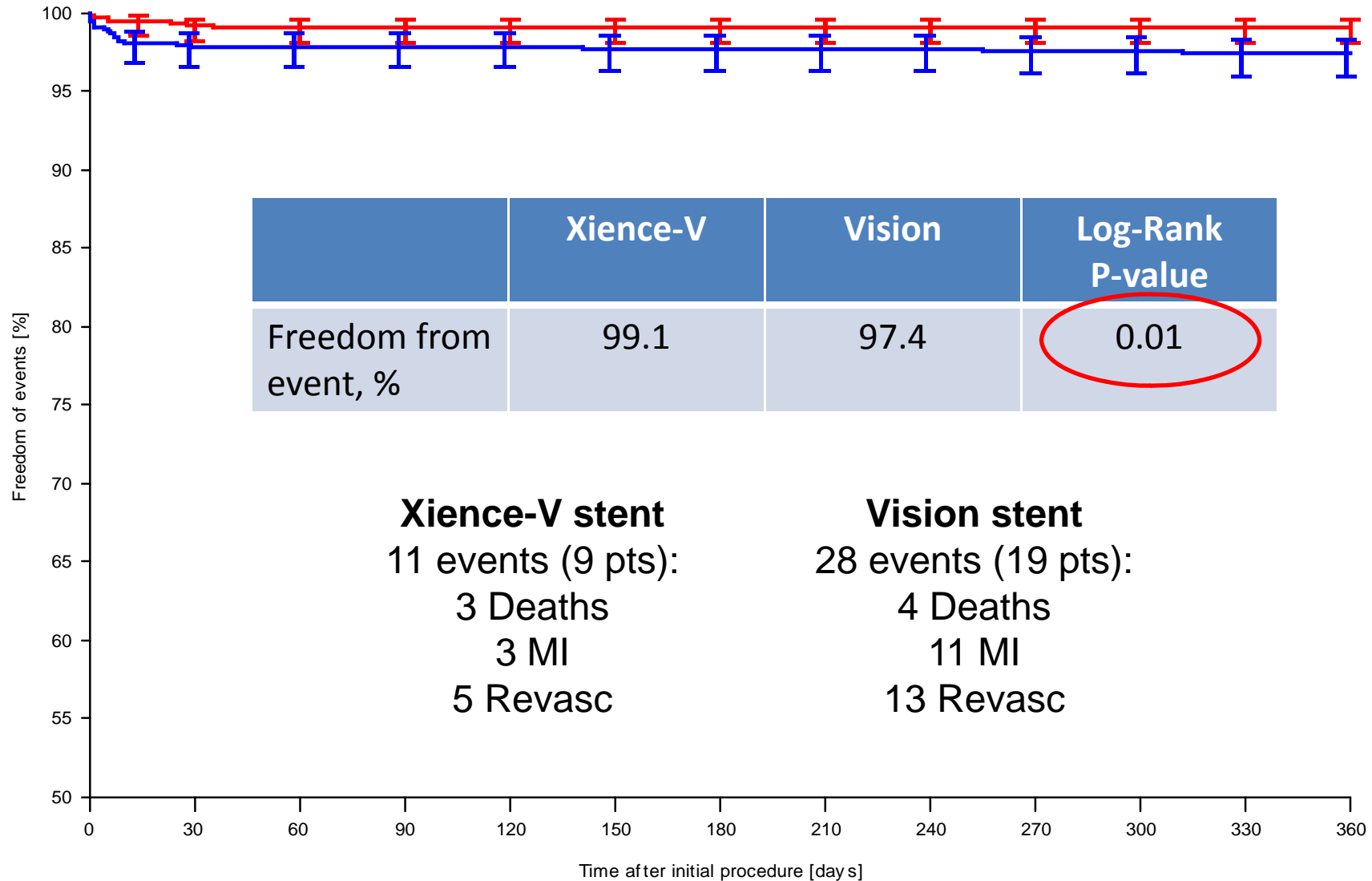


1-year definite or probable stent thrombosis in AMIs PCI studies

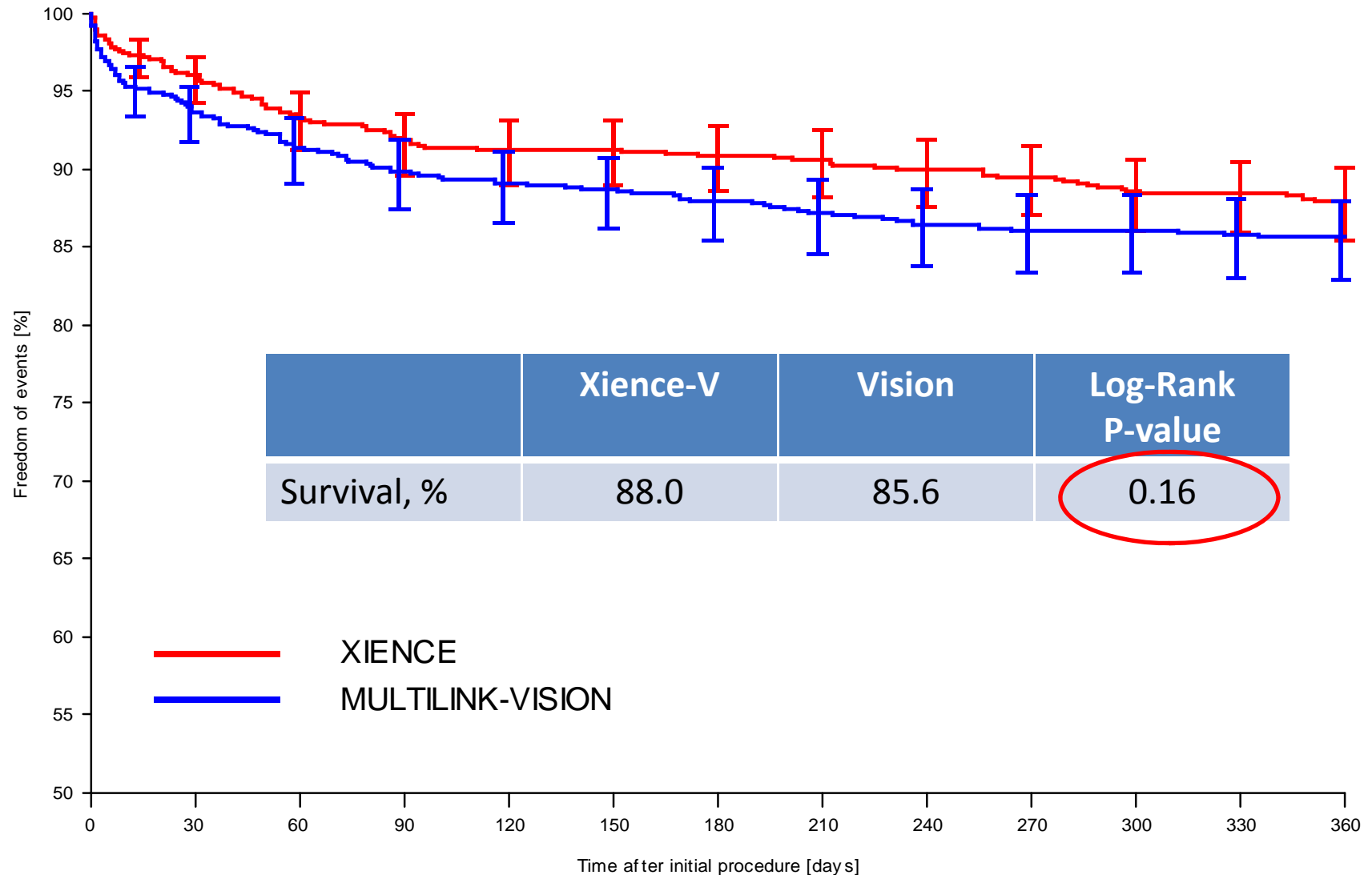


*ST by protocol definition

Secondary Endpoints: Definite/Probable Stent Thrombosis



Primary Endpoint: Composite of all-cause death, any MI or any revascularization



Conclusions:

- **La revascularització completa (quirúrgica o percutània) és millor que la revascularització incompleta.**
- **En pacients amb IAM i shock cardiogènic s'ha d'aconseguir la revascularització el més completa possible (tècnicament simple).**
- **En pacients amb IAM i més d'una lesió sospitosa (dubtes diagnòstics), està justificat la revascularització de les lesions sospitoses.**

Conclusions:

- **En l'actualitat amb els stents farmacoactius de segona i tercera generació i els nous tractaments antiplaquetars, en pacients amb Infart agut de miocardi i estabilitat hemodinàmica la revascularització completa en el mateix procediment sembla una estratègia segura i eficaç.**
- **En qualsevol cas, la revascularització completa en segon temps (precoç-intrahospitalària o al mes) es presenta com l'estratègia d'elecció.**

Sessió de la Societat
Catalana de Cardiologia
16 d'abril 2012. Barcelona

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