

Coronaires à ouvrir...

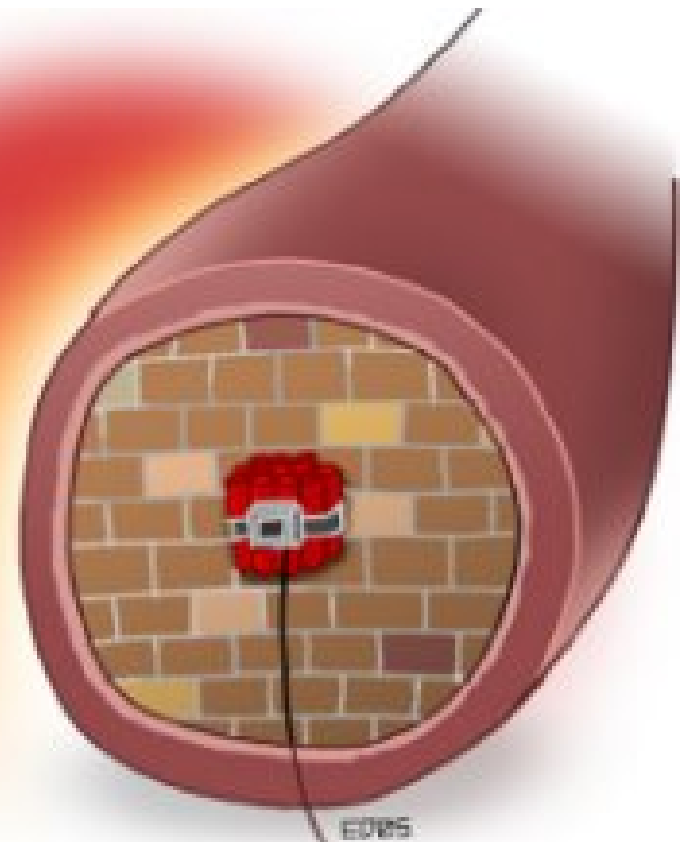
Flash 13 février 2007



Dr Pierre-Frédéric Keller
Service de cardiologie
Service de soins intensifs



Coronaires à
ouvrir
à tout prix ?



EDMS

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Coronary Intervention for Persistent Occlusion after Myocardial Infarction

Judith S. Hochman, M.D., Gervasio A. Lamas, M.D., Christopher E. Buller, M.D., Vladimir Dzavik, M.D., Harmony R. Reynolds, M.D., Staci J. Abramsky, M.P.H., Sandra Forman, M.A., Witold Ruzyllo, M.D., Aldo P. Maggioni, M.D., Harvey White, M.D., Zygmunt Sadowski, M.D., Antonio C. Carvalho, M.D., Jamie M. Rankin, M.D., Jean P. Renkin, M.D., P. Gabriel Steg, M.D., Alice M. Mascette, M.D., George Sopko, M.D., Matthias E. Pfisterer, M.D., Jonathan Leor, M.D., Viliam Fridrich, M.D., Daniel B. Mark, M.D., M.P.H., and Genell L. Knatterud, Ph.D., for the Occluded Artery Trial Investigators*

Hypothesis

A strategy of late PCI to open the occluded infarct artery reduces the first occurrence of a composite of death, reinfarction or NYHA class IV heart failure by 25% compared to optimal medical therapy alone



Background

Early reperfusion therapy improves LV function and survival in STEMI

- ~ 1/3 of patients no reperfusion
- Management of these patients is unclear
- Strong bias in favor of PCI

Late open artery hypothesis suggests late PCI would:

- Attenuate remodeling
- Increase electrical stability
- Provide collaterals

But potential for harm:

- Procedure related complications
- Distal embolization causing myocardial necrosis
- Potential for reocclusion coupled with...
- Loss of rapidly recruitable collateral flow

OAT Eligibility

Confirmed Index MI

+

Total IRA
Occlusion

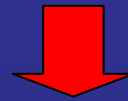
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High risk



Confirmed by 2 out of 3

1. Ischemic symptoms \geq 30 minutes
2. Elevated cardiac markers
3. EKG criteria: STEMI or NSTEMI, Q or Non Q wave MI



**TIMI flow
0 or 1 in IRA
3-28 days
Post MI**



**EF $<$ 50%
and / or
Proximal Occlusion
of a major epicardial
vessel supplying
 \geq 25% LV**

Major Exclusion Criteria

- Significant left main or 3 vessel CAD
- Hemodynamic or electrical instability
- Rest or low threshold angina
- NYHA III-IV HF or shock

Primary End Point

Composite of :

- **Death**
- **Hospitalization for NYHA Class IV HF**
- **MI after randomization** defined as 2 of 3 criteria:
 - > 30 minutes of symptoms
 - EKG changes
 - Cardiac marker elevation
 - CK ≥ 2 X the upper limit of normal (ULN)
 - CKMB > ULN
 - Troponin I or T ≥ 2 X ULN (not used ≤ 10 d of MI)
 - Post PCI: CK or CKMB ≥ 3 X ULN
 - Post CABG: CK or CKMB ≥ 5 X ULN

End point events were adjudicated by an independent Morbidity and Mortality Classification Committee that was blinded to treatment assignment.

Secondary End Points

- Site determined primary end point
- Individual components of primary end point
 - Centrally adjudicated
 - Site determined
- Prespecified additional end point was site reporting of marker re-elevation within 48 hrs of randomization and 24 hrs of PCI
- Other clinical events and functional status

**2166 Pts randomized
3-28 days post MI
Years 2000-2005**

**PCI + optimal medical
Therapy (PCI) 1082**

**99% PCI attempted
86.6 % successful
87.3% stent
1% crossover to MED**

**83% Open artery rate
at 1 year
(TOSCA 2 substudy)
89% of initial PCI success**

**Follow up 1062 days (mean)
0.7% lost to follow up**

**Optimal medical therapy
(MED) 1084**

**Crossover to PCI
2.5% within 30 days
5.8% after 30 days
8.3% total**

**25% Open artery rate
at 1 year
(TOSCA 2 substudy)**

**Follow up 1057 days (mean)
1.1% lost to follow up**

PCI Group

- **Glycoprotein IIb/IIIa inhibitors 72%**
- **DES 8.1% of stented patients**
- **Thienopyridine initiated before PCI**
 - Given for 2-4 weeks for stented patients
 - Changed to 1 year recommendation beginning 2002 (both groups)
- **Major procedure related complications were rare:**
 - Death 0.2%
 - Centrally adjudicated MI 0.6%
- **Non IRA PCI permitted in both groups and was performed in 7% of PCI and 6% of MED groups**

Baseline Characteristics

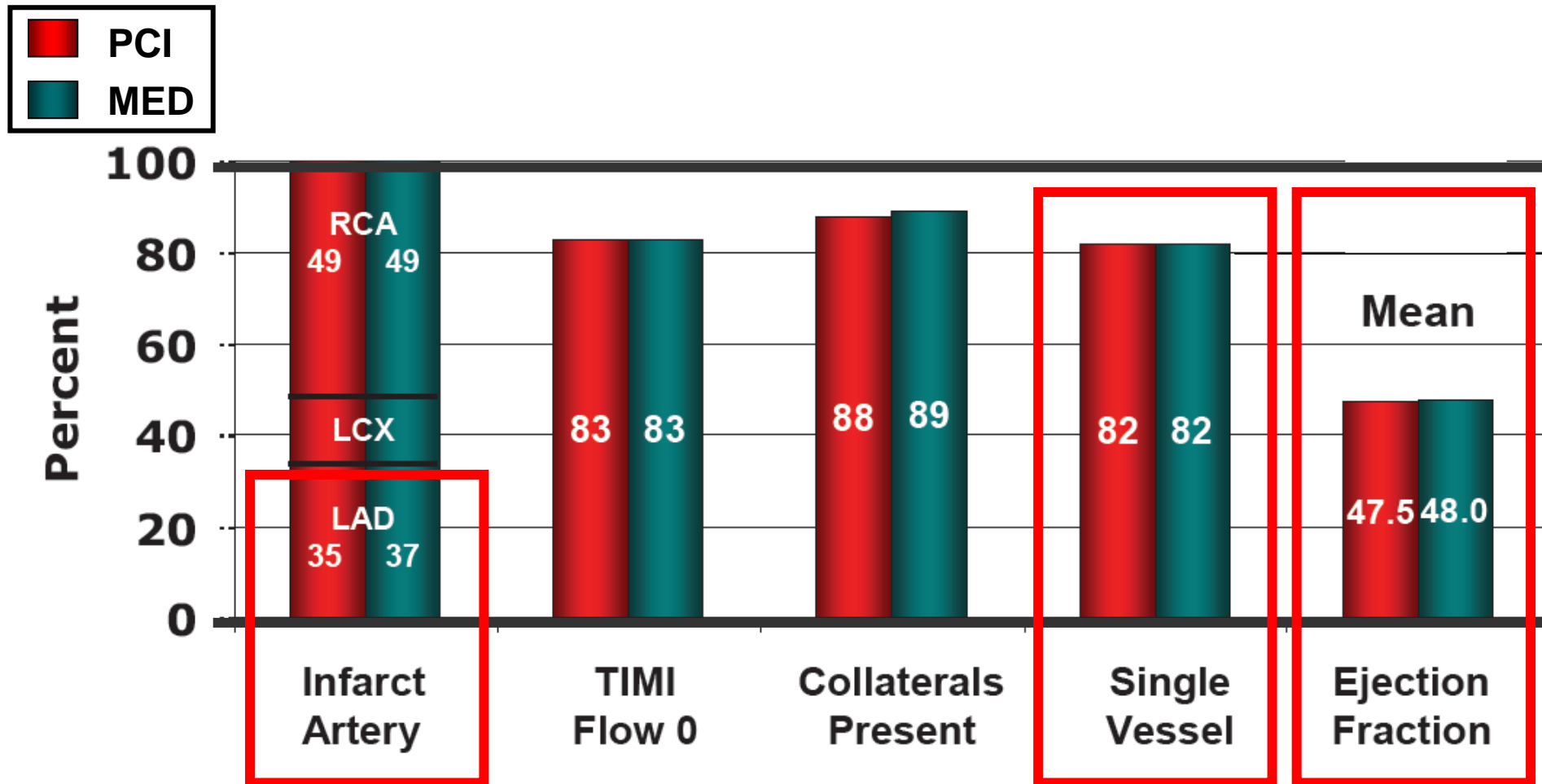
	PCI (N=1082) %	MED (N=1084) %
Age mean \pm SD, years	58.6 \pm 10.8	58.7 \pm 11.1
History of: Angina	21.8	23.2
MI	11.7	10.8
Diabetes*	18.5	22.7
NYHA Class I at time of randomization	83.2	83.3
EKG ST elevation or Q-wave or R-wave loss	86.8	86.0
Thrombolytic therapy for index MI	20.8	18.0
Days from MI to randomization Median (25,75%)	8 (5,16)	8 (5,17)

* P=0.02

Baseline SPECT viability data:

Moderately preserved infarct zone viability in 69% of 124 pts

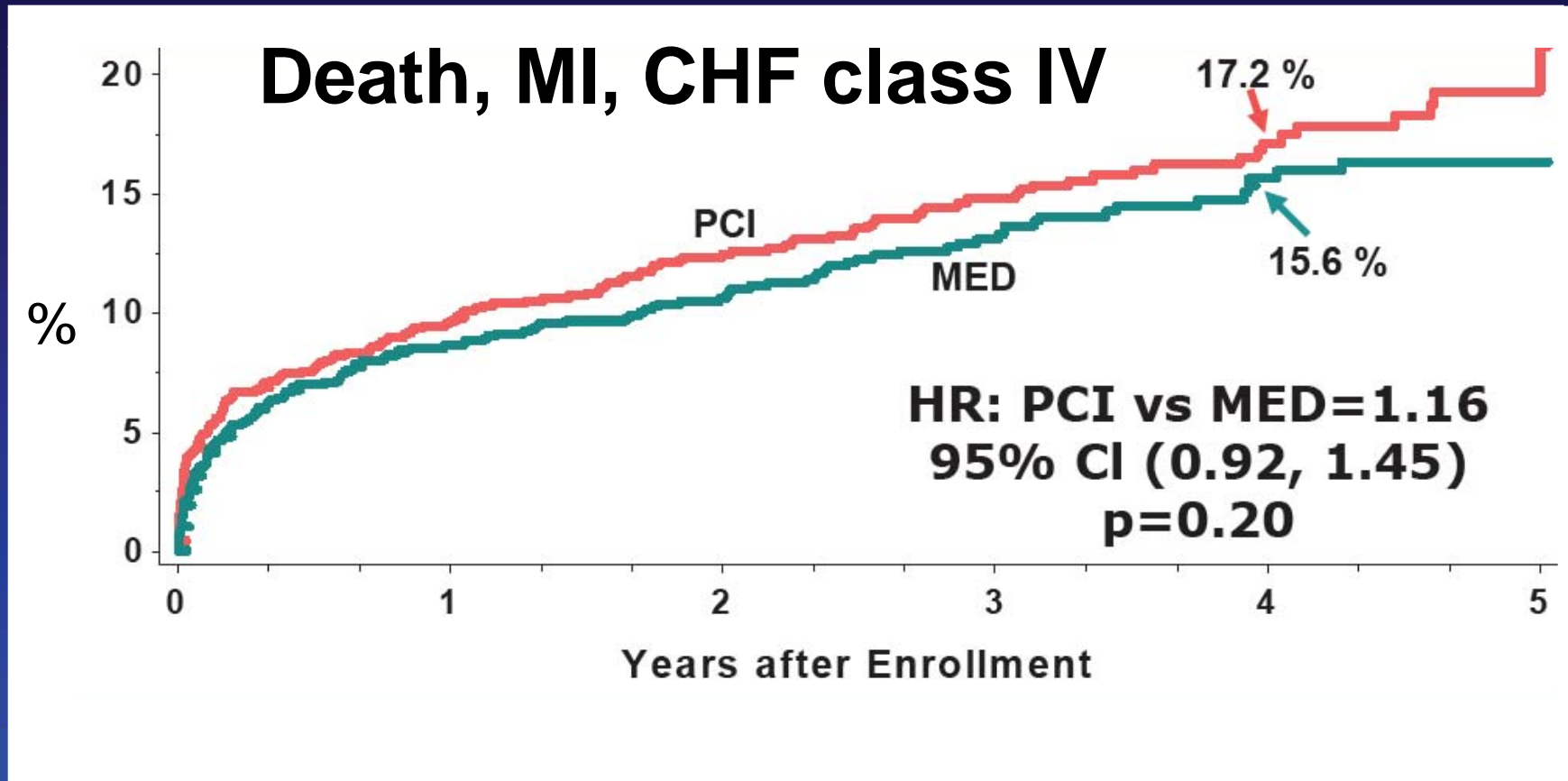
Angiographic Characteristics



Medications at Discharge

	PCI (N=1071) %	MED (N=1078) %	P- value
➔ Aspirin	96.8	94.2	0.003
➔ Beta-blocker	86.4	89.1	0.05
➔ ACE or ARB	80.3	80.3	0.98
➔ ACE or ARB; EF < 40%	91.3	92.7	0.59
➔ Lipid Lowering Agent	80.1	82.0	0.26
➔ Thienopyridine (Clopidogrel/Ticlopidine)	90.9	29.4	<0.001
➔ Thienopyridine after successful PCI/stent	99.0	N/A	
➔ Aspirin or Thienopyridine or Warfarin	99.7	99.1	0.09

Primary Endpoint

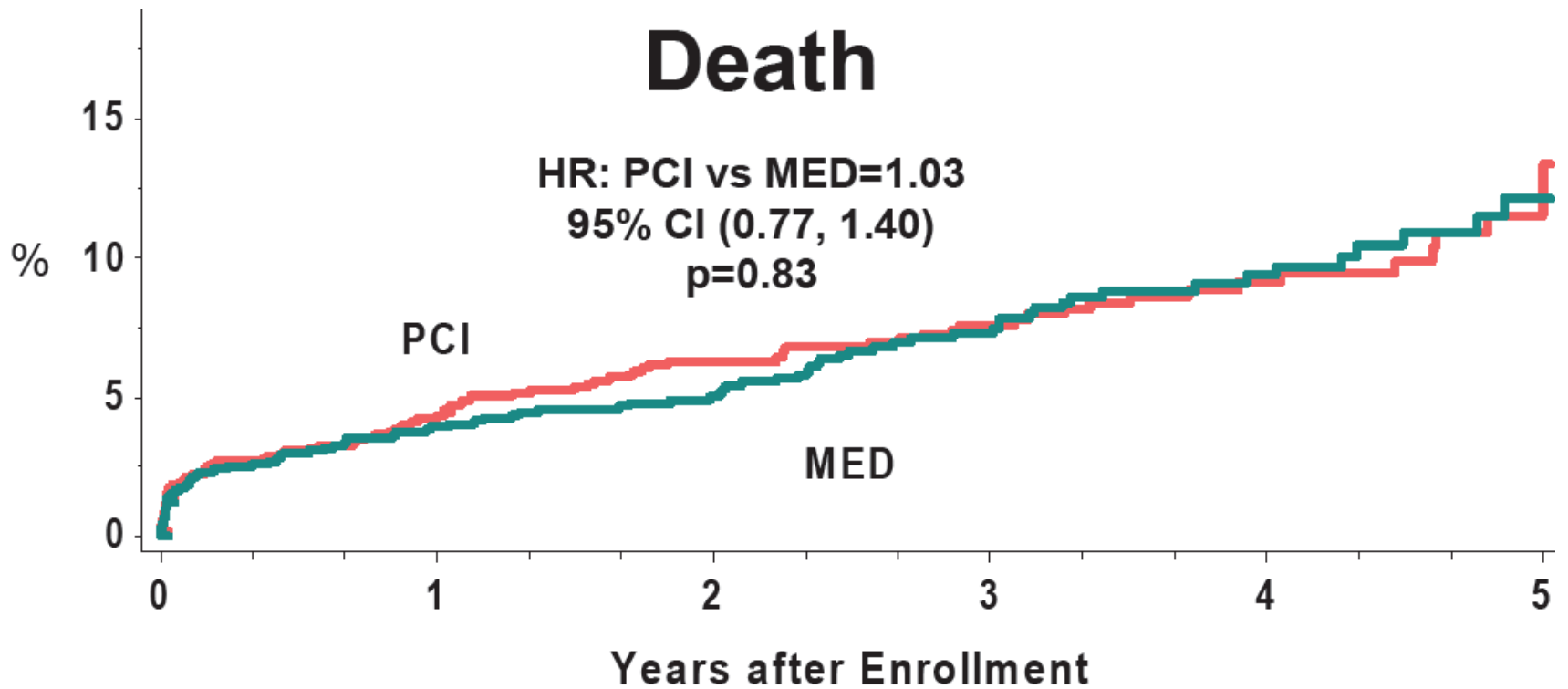


Covariate adjusted and “as-treated” analyses demonstrated similar results.



Components of Primary Endpoint

Death



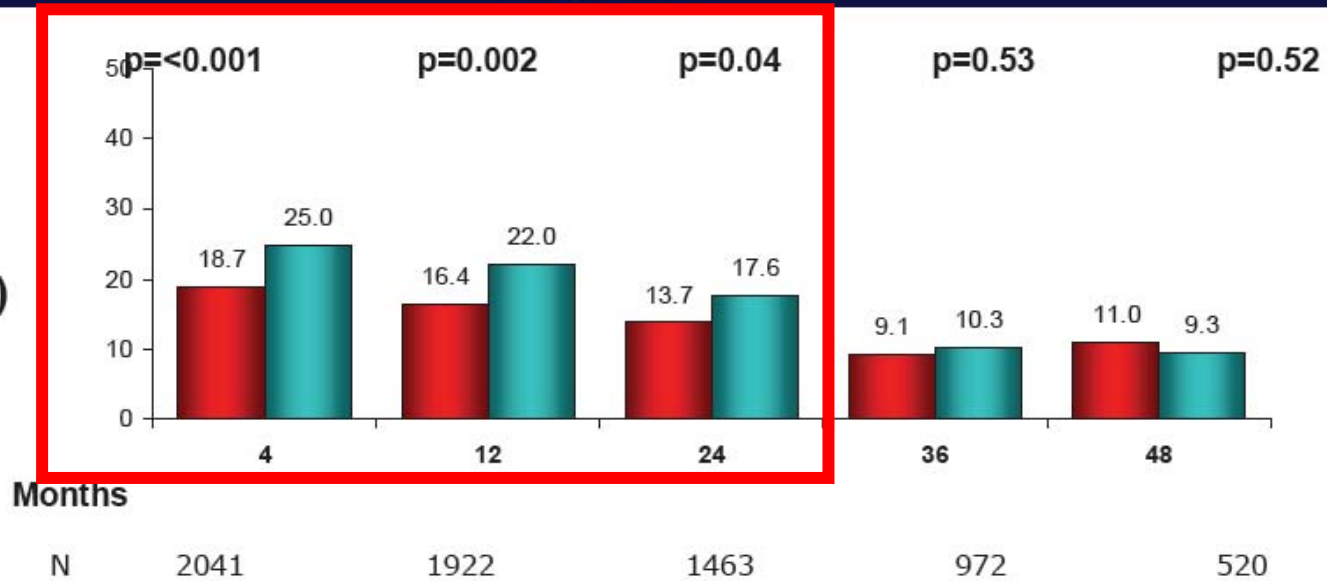
Outcomes

	4-yr cumulative event estimate		P-value	HR
<u>SITE REPORTED</u>	PCI	MED		
➔ Fatal and nonfatal MI	10.1	8.1	0.05	1.37
➔ Procedure related (n)	17	7		
➔ Spontaneous (n)	72	59		
➔ Nonfatal MI	9.4	7.2	0.04	1.43
➔ Revascularization excl. protocol assigned PCI	18.4	22.0	0.03	0.81
➔ Marker re-elevation w/in 48hrs of randomization	101/1012 (10.0)	30/918 (3.3)	<0.001	----



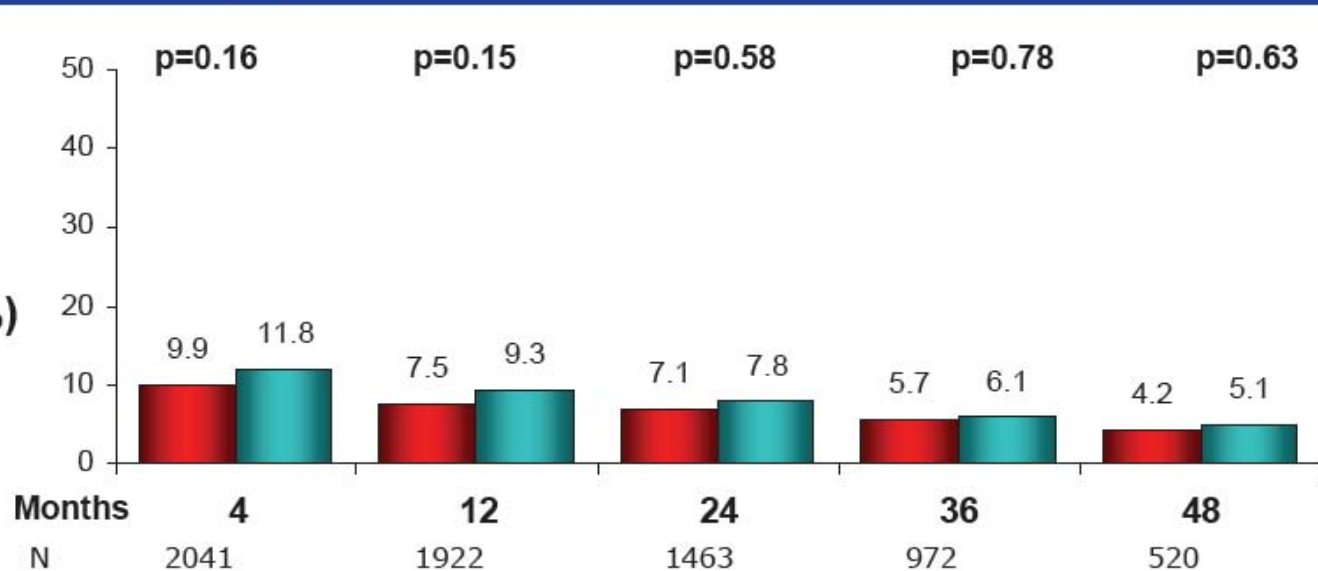
Angina

Angina
(any class, %)



Symptomatic Heart Failure

HF
(any class, %)



PCI
MED

Discussion

PCI did not reduce clinical events

- Trend toward excess reinfarction with PCI, not driven by periprocedural MI
- Consistent results
 - As treated
 - Site reported and adjudicated end points
 - All subgroups –LAD, low EF

Despite:

- Excellent 1 year patency after PCI
- Modest attenuation of LV remodeling
- Retained viability (69%)

OAT: Conclusions

- **PCI did not reduce the occurrence of death, reinfarction, or heart failure**
- **There was a trend toward excess reinfarction during the four-year follow-up in stable patients with occlusion of the infarct-related artery three to 28 days after MI**

OAT: Conclusions

These results support routine use of aggressive secondary prevention without revascularization as the preferred therapy for OATeligible patients

Commentaires

Primary PCI in STEMI

30 trials of STEMI

MORTALITY

44% RRR mortality PCI vs control

L'angioplastie primaire est extrêmement efficace dans les STEMI

Objectif: diminuer les délais de prise en charge et mieux informer la population

PCI versus Control

Odds Ratio with 95% Confidence interval (Log scale)

Massel D. Am J Med 2005; 118; 113

LVEF predicts one-year mortality after STEMI

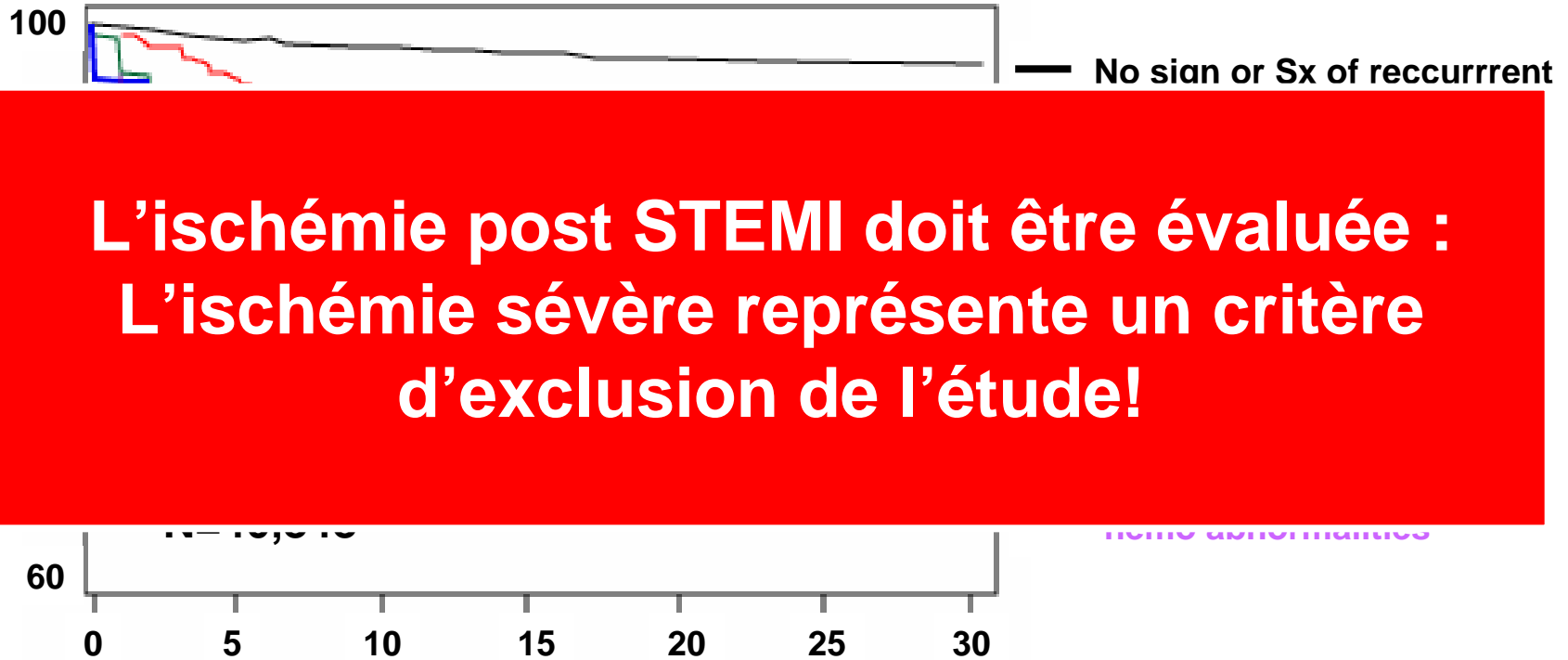


**Fraction d'éjection peu abaissée (48%),
insuffisants cardiaques III et IV exclus,
insuffisants rénaux exclus :**
**Les patients de l'étude ne présentent pas un
risque très élevé!**

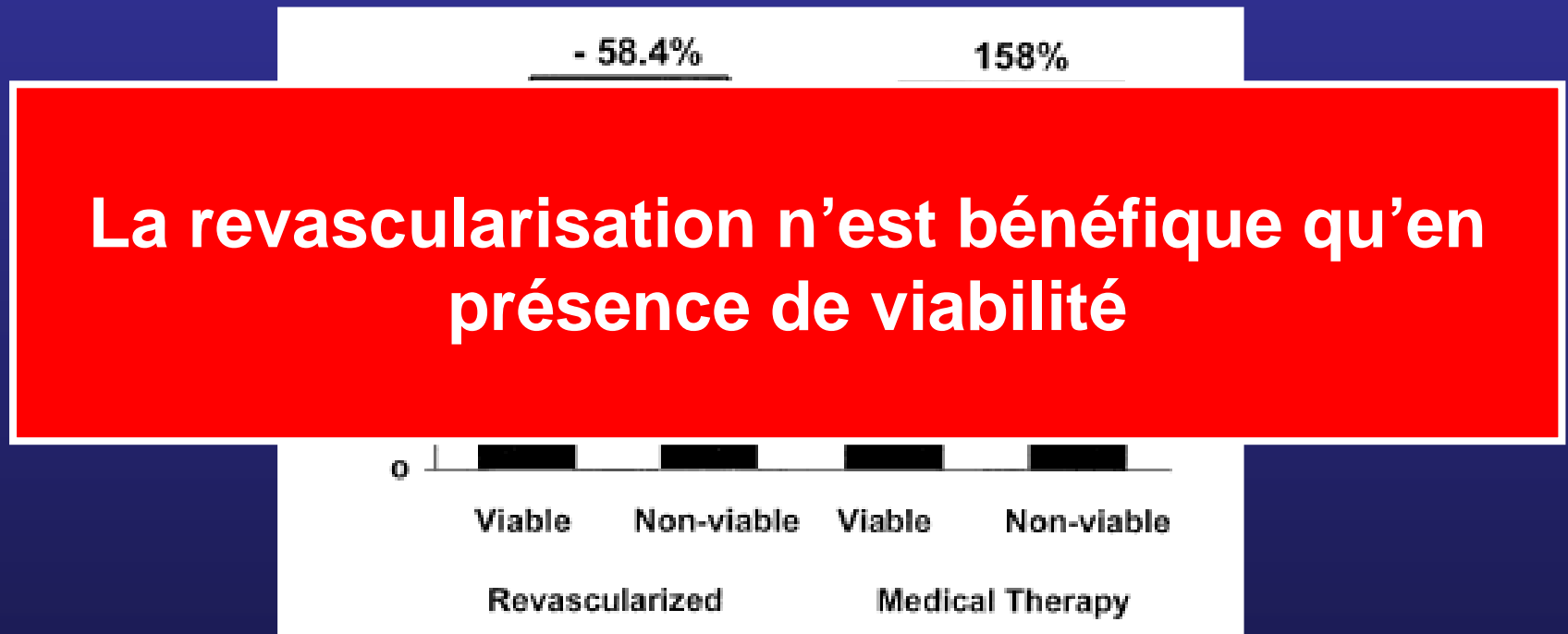
LVEF (%)

Postinfarction angina with ST segment changes predicts re-infarction

Freedom from re-infarction (%)



Treatment modality and mortality according to viability



Meta-analysis of 24 viability studies.
N=3088.
LVEF 32.9 (25-51%)

Population étudiée

Taux d'inclusion faible par centre dans l'étude:
6 patients / centre aux USA, entre 10 et 17 en
Europe sur 5 ans :

Qui étaient les patients de l'étude OAT ?

- Ceux qui étaient plutôt pressentis pour un traitement conservateur ?
- Est-ce que les patients qui étaient pressentis pour un traitement de revascularisation étaient d'emblée non inclus ?

Stents utilisés :

- 8.1% DES

Dans les occlusions chroniques avant l'utilisation des DES :

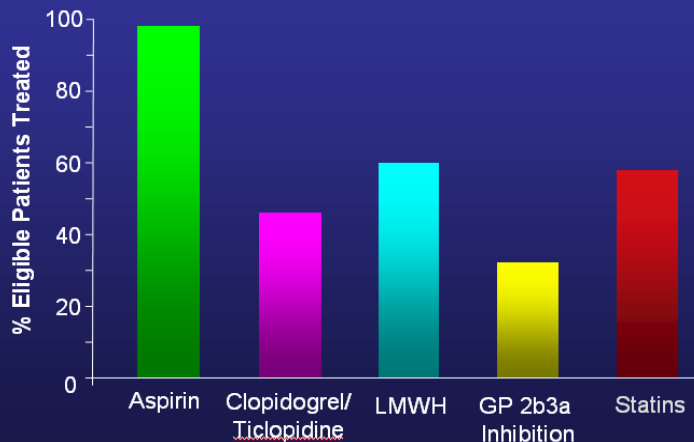
- 8 % réocclusion vs 1.8 % dans les PCI de sténoses non-occlusives.
- 30 et 50% de resténose.

Depuis l'utilisation des DES plus de 60% de réduction des taux de réocclusion et de resténose.

Etude prospective vs la vraie vie

- En faveur du traitement conservateur
 - Les diabétiques multitronculaires non inclus.
 - Tous les facteurs de risque traités agressivement dans le cadre de l'étude.
- Le traitement médical dans les études prospectives est très efficace par une application des directives et une observance thérapeutique optimale.

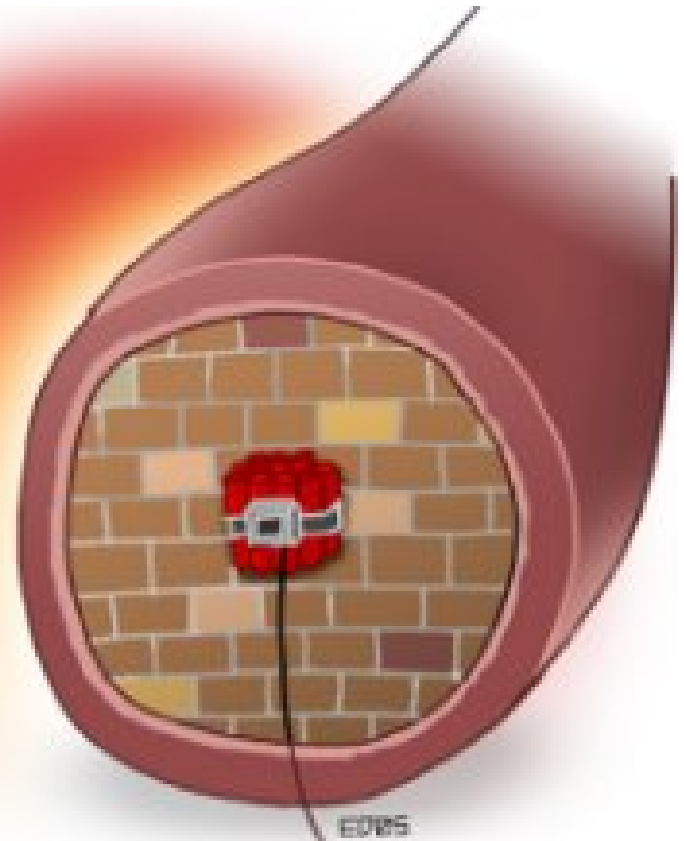
GRACE: NSTEMI Treatment Strategies
Worldwide Results from July to
December 2001



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chez les patients
à risque élevé !



EDWS

Merci