LA PROTECTION MYOCARDIQUE AU COURS DU SCA EST-ELLE UTILE ?

- OUI J-P MONASSIER (Mulhouse)
- NON G. GROLLIER (Caen)


VAIS - JE
GAGNER ?
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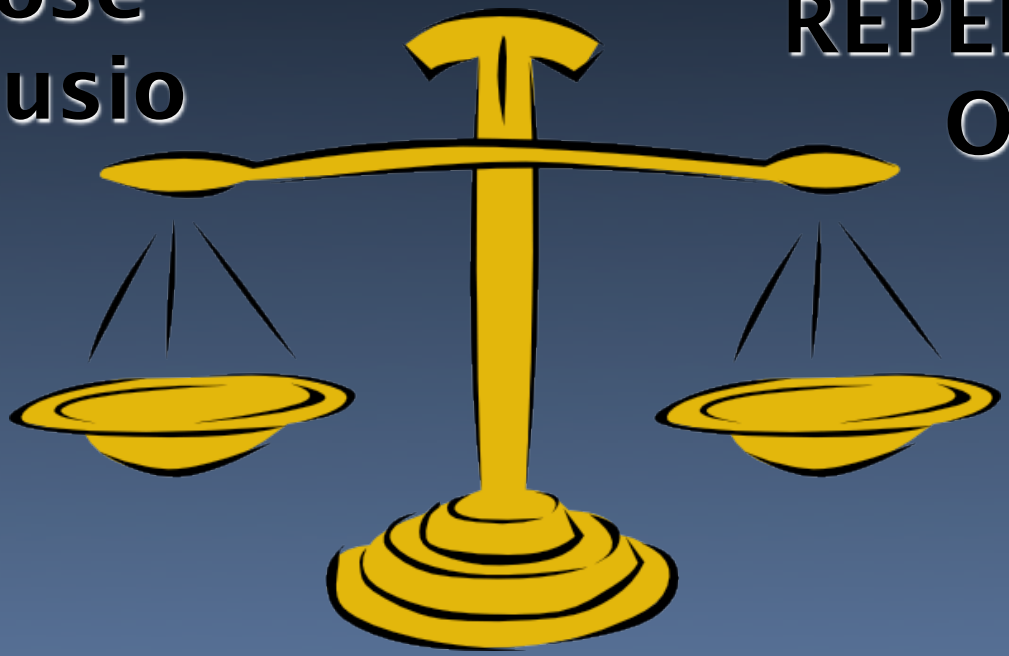
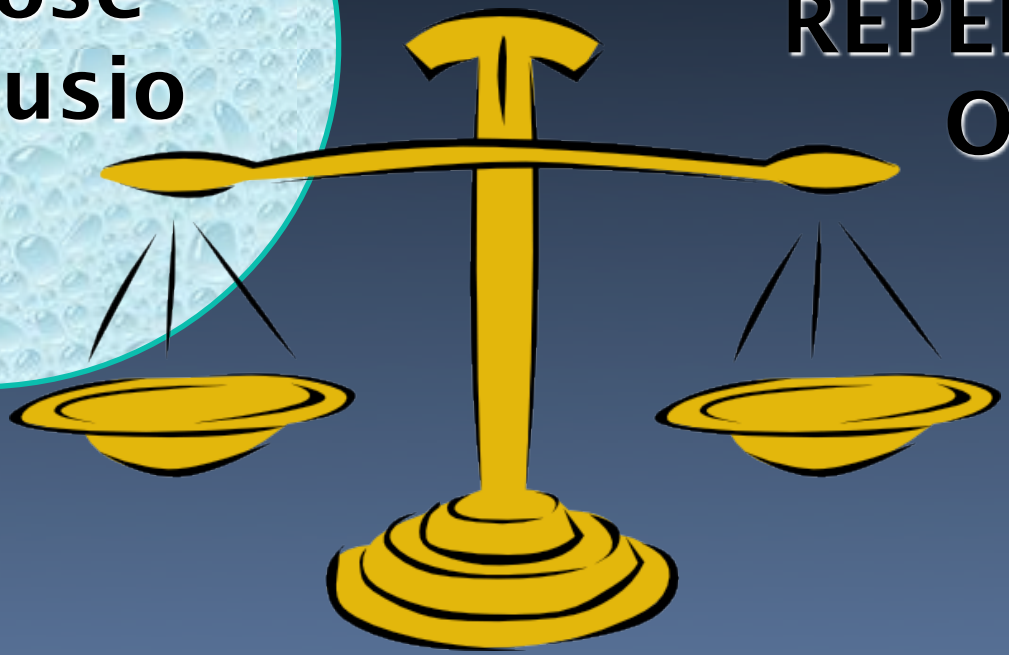
Nécrose d'occlusion



Nécrose de REPERFUSION

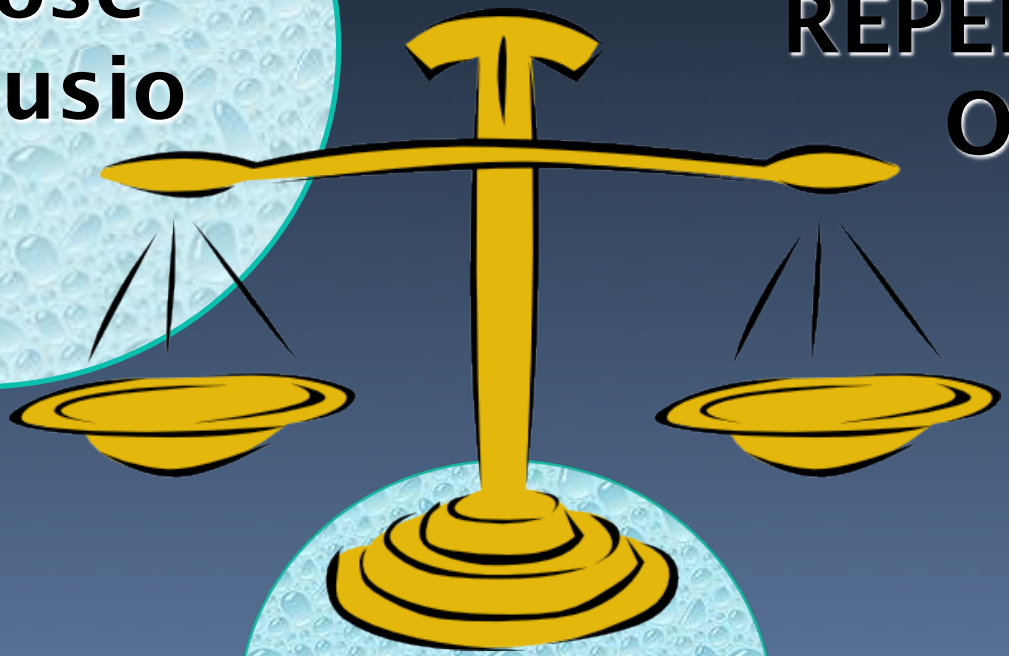
Nécrose d'occlusion



Nécrose de REPERFUSION

Nécrose d'occlusion

Nécrose de REPERFUSION



Sidération ?

L'OCCLUSION CORONAIRE EST MORTELLE

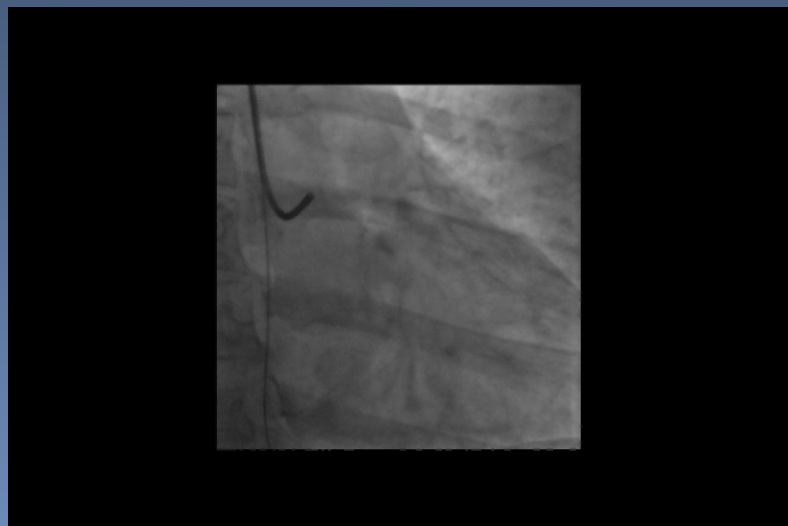
L'OCCLUSION CORONAIRE EST MORTELLE

A court et moyen terme

A court et moyen terme

Femme 43 ans

- Poids 85 Kg
- Taille 165 cm

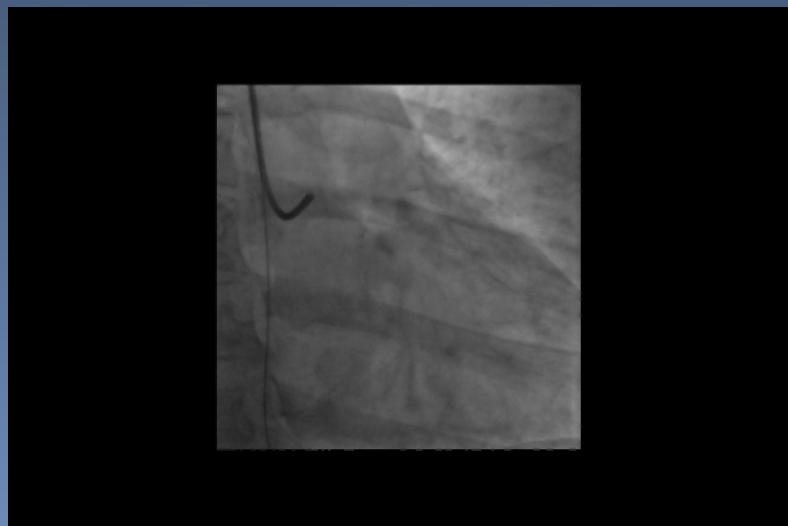


A court et moyen terme

Femme 43 ans

- Poids 85 Kg
- Taille 165 cm

Douleur H+6 le 19 Avril 2012



A court et moyen terme

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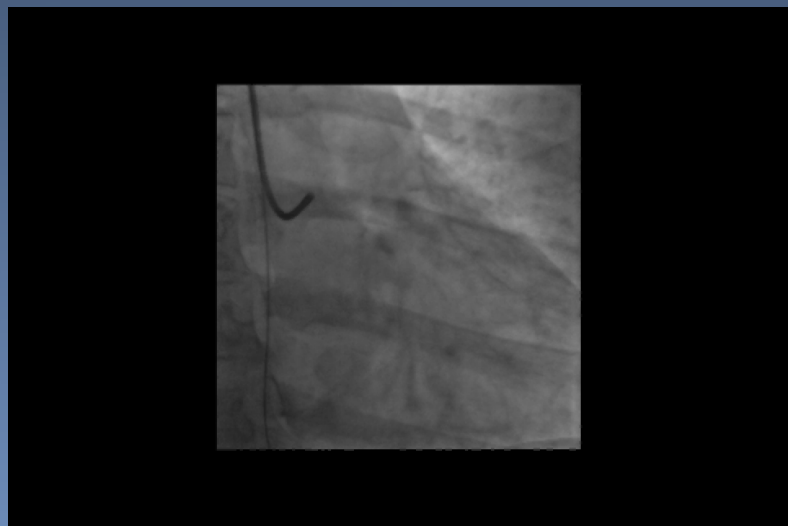
- Taille 165 cm

Douleur H+6 le 19 Avril 2012

Aux urgences Fibrillation Ventriculaire



A court et moyen terme

Femme 43 ans

- Poids 85 Kg
- Taille 165 cm

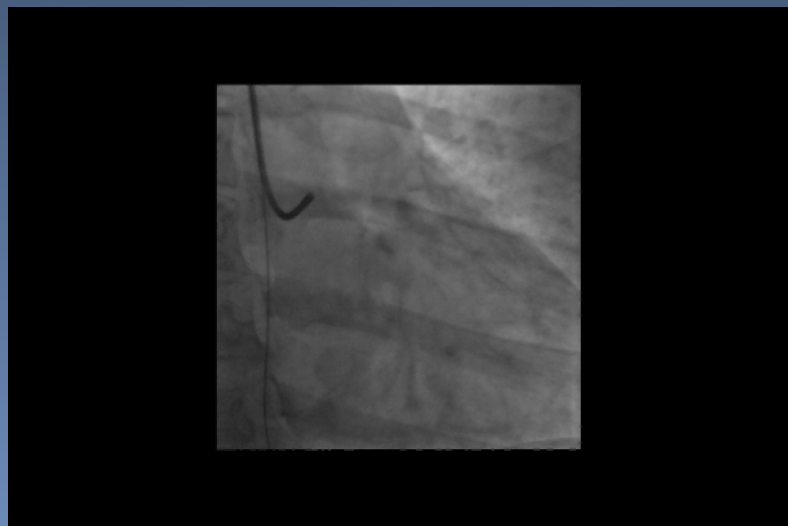
Douleur H+6 le 19 Avril 2012

Aux urgences Fibrillation Ventriculaire

Resuscitation Cardio-Pulmonaire (Low-flow = 6 min)

Ventilation mécanique

Drogues vasoactives



A court et moyen terme

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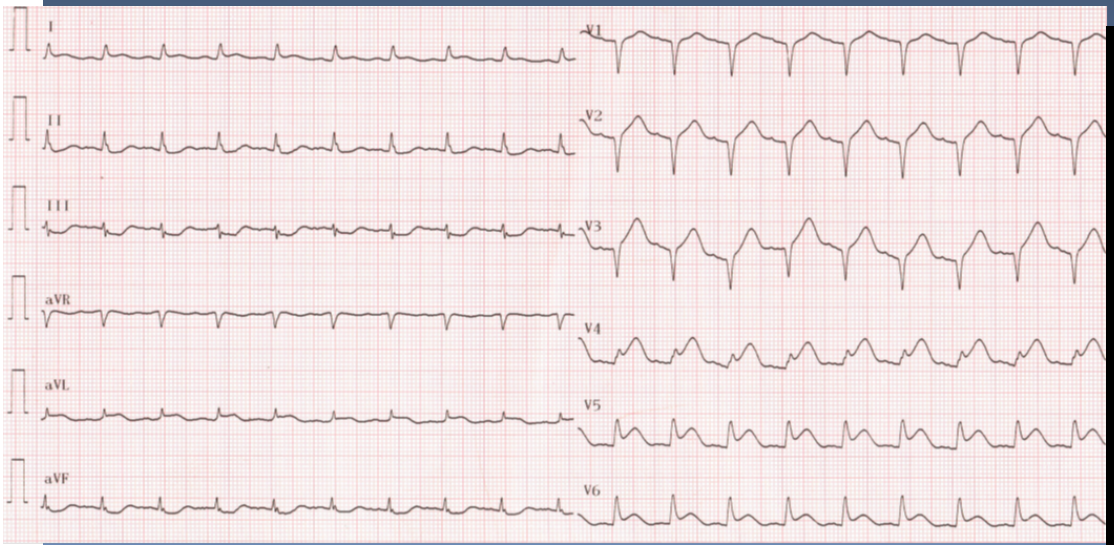
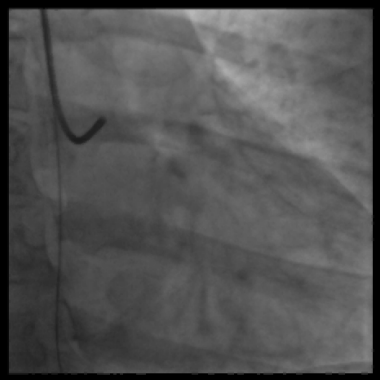
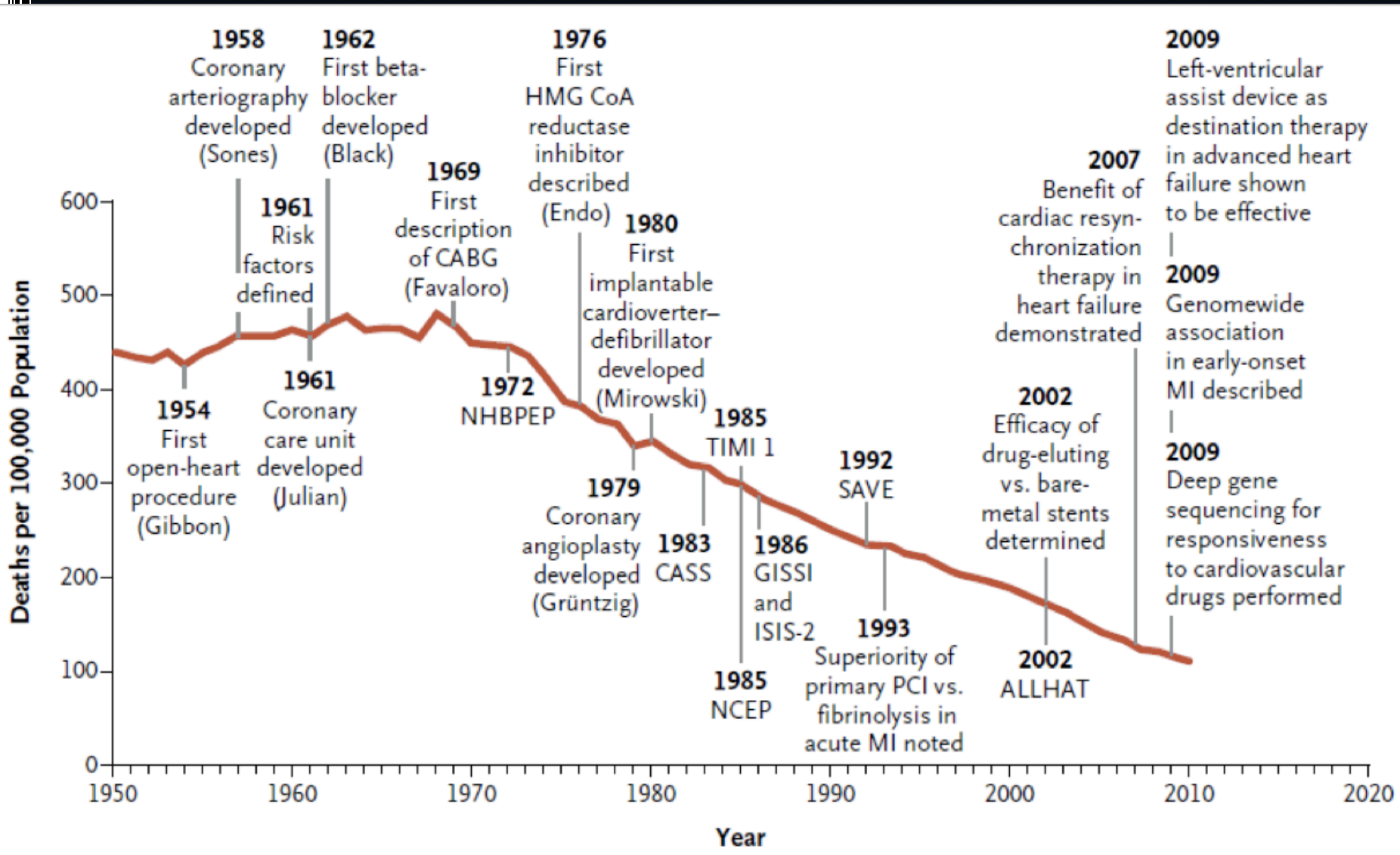
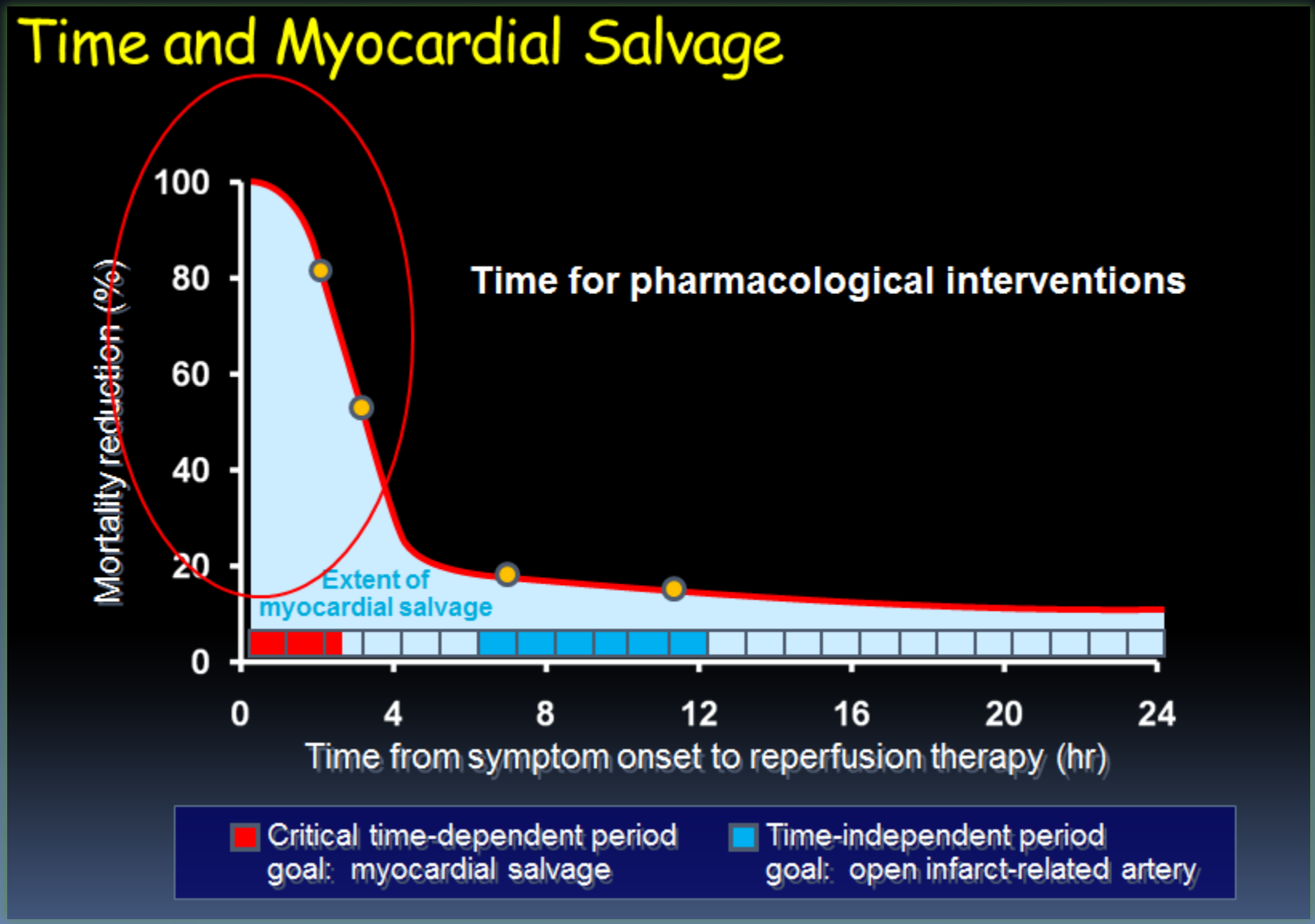




Un peu


1954
First open-heart procedure (Gibbon)
1958
Coronary arteriography developed (Sones)
1961
Risk factors defined
1961
Coronary care unit developed (Julian)
1962
First beta-blocker developed (Black)
1969
First description of CABG (Favaloro)
1972
NHBPEP
1976
First HMG CoA reductase inhibitor described (Endo)
1979
Coronary angioplasty developed (Grüntzig)
1980
First implantable cardioverter–defibrillator developed (Mirowski)
1983
CASS
1985
TIMI 1
1985
NCEP
1986
GISSI and ISIS-2
1992
SAVE
1993
Superiority of primary PCI vs. fibrinolysis in acute MI noted
2002
Efficacy of drug-eluting vs. bare-metal stents determined
2002
ALLHAT
2007
Benefit of cardiac resynchronization therapy in heart failure demonstrated
2009
Left-ventricular assist device as destination therapy in advanced heart failure shown to be effective
2009
Genomewide association in early-onset MI described
2009
Deep gene sequencing for responsiveness to cardiovascular drugs performed
Deaths per 100,000 Population
0
100
200
300
400
500
600
1950
1960
1970
1980
1990
2000
2010
2020
Year


Time and Myocardial Salvage
Mortality reduction (%)
100
80
60
40
20
0
Time for pharmacological interventions
Extent of myocardial salvage
0
4
8
12
16
20
24
Time from symptom onset to reperfusion therapy (hr)
Critical time-dependent period goal: myocardial salvage
Time-independent period goal: open infarct-related artery

Circulation
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Thrombolysis in Myocardial Infarction (TIMI) Trial, Phase I: A comparison between intravenous tissue plasminogen activator and intravenous streptokinase. Clinical findings through hospital discharge

JH Chesebro, G Knatterud, R Roberts, J Borer, LS Cohen, J Dalen, HT Dodge, CK Francis, D Hillis and P Ludbrook

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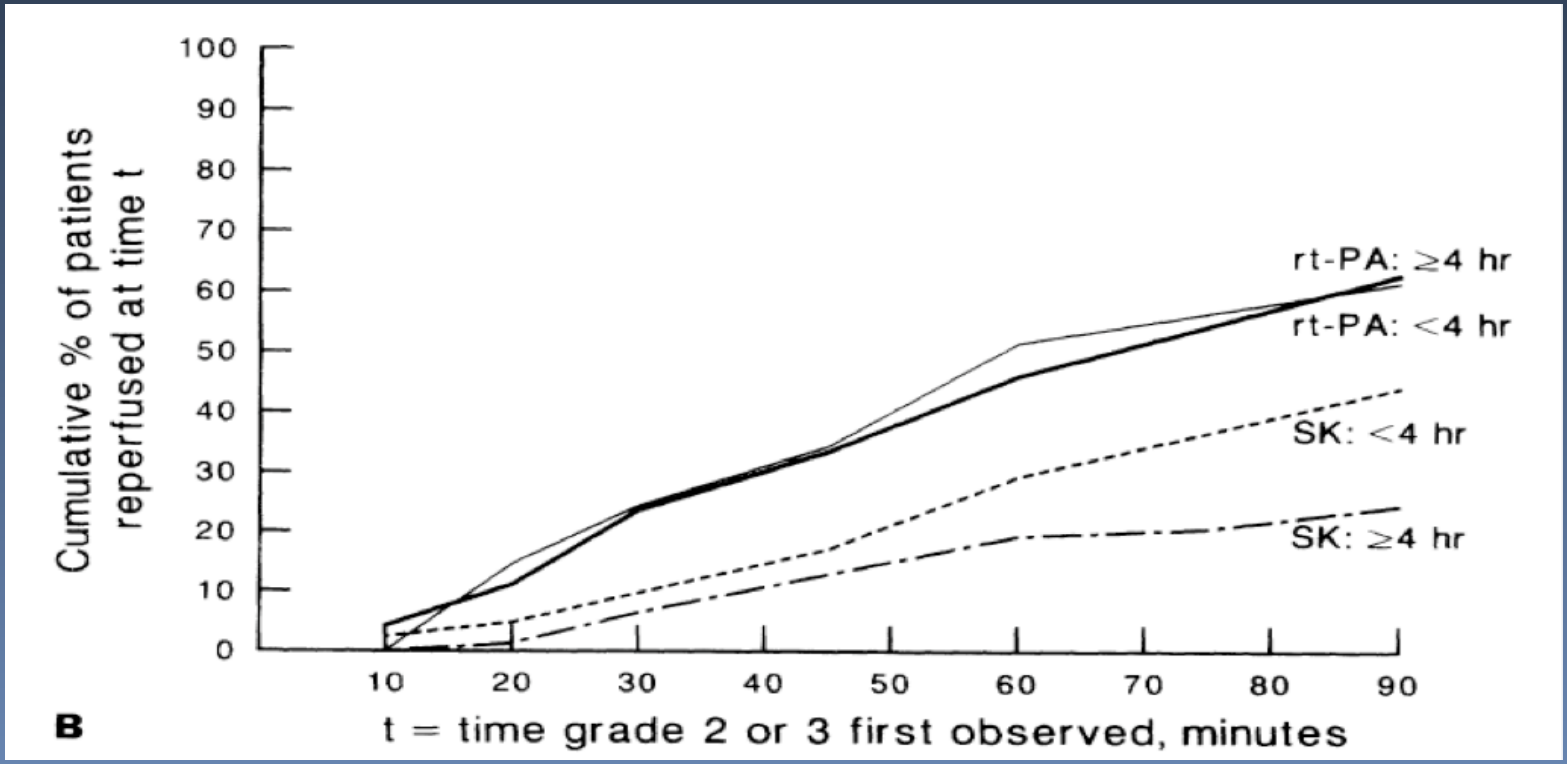
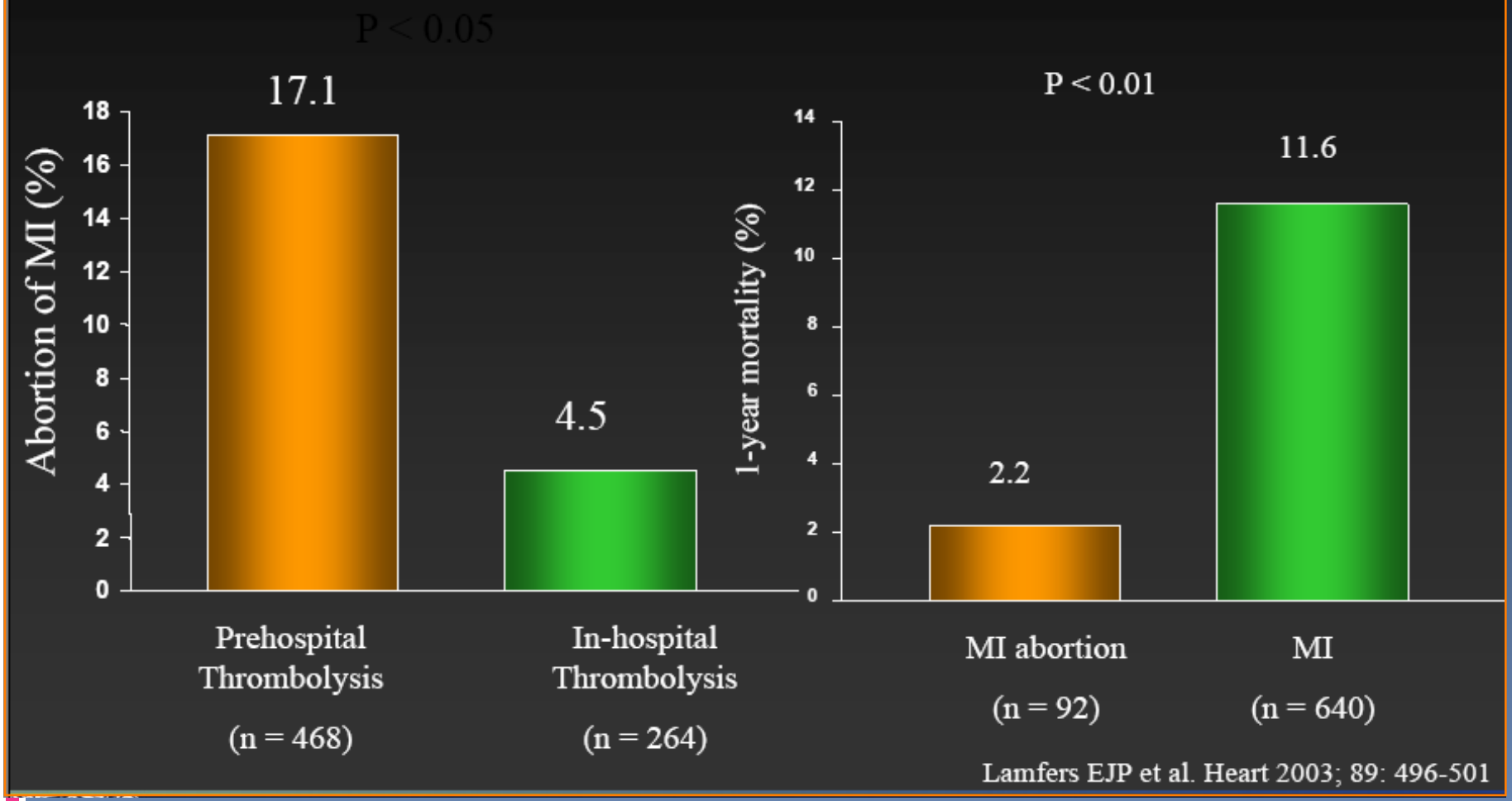


Prehospital Thrombolysis and Abortion of MI



Lamfers EJP et al. Heart 2003; 89: 496-501

Confronting the Issues of Patient Safety and Investigator Conflict of Interest in an International Clinical Trial of Myocardial Reperfusion

ERIC J. TOPOL, MD, FACC, PAUL ARMSTRONG, MD, FACC,
FRANS VAN DE WERF, MD, FACC, NEAL KLEIMAN, MD, FACC, KERRY LEE, PHD,
DOUGLAS MORRIS, MD, FACC, MAARTEN SIMOONS, MD, FACC,
GABRIEL BARBASH, MD, FACC, HARVEY WHITE, MD, FACC,
ROBERT M. CALIFF, MD, FACC, ON BEHALF OF THE GLOBAL UTILIZATION OF STREPTOKINASE AND TISSUE PLASMINOGEN ACTIVATOR FOR OCCLUDED CORONARY ARTERIES (GUSTO) STEERING COMMITTEE*

Abstract

The Global Utilization of Streptokinase and Tissue Plasminogen Activator for Occluded Coronary Arteries (GUSTO) trial is a large scale international trial of new myocardial reperfusion strategies. The primary hypothesis is that early and sustained coronary artery recanalization will be associated with a significant reduction in mortality. The four regimens that are being tested are 1) streptokinase with subcutaneous heparin; 2) streptokinase with intravenous heparin; 3) accelerated recombinant tissue-type plasminogen activator (rt-PA) with intravenous heparin; and 4) combination streptokinase, rt-PA and intravenous heparin. The planned recruitment of 41,600 patients in 1,500 sites from 15 countries is expected to be completed by December 1992 and will enable detection of a 15% reduction or 1% absolute difference in mortality compared with that associated with standard therapy (streptokinase and subcutaneous heparin). In designing the trial, two important issues were directly addressed. First, a strategy was developed to provide assurance of patient safety during large scale investigational use of an aggressive thrombolytic regimen. This includes fascimile transmission of a one-page safety summary form to the Data Coordinating Center within 24 h of death or discharge, acceptance of the concept of "net clinical benefit" and close surveillance of the trial's progress by the independent Data and Safety Monitoring Committee. Second, to avoid potential conflict of interest beyond elimination of any position of financial equity, the Steering Committee unanimously voted to prohibit any honoraria for speaking engagements, payment for consultancy or travel or reimbursement of any kind from any of the five corporate sponsors until 1 year after publication of the results. Incorporation of these approaches may facilitate the design of future large scale randomized trials in cardiovascular medicine.

Confronting the Issues of Patient Safety and Investigator Conflict of Interest in an Interna

ERIC J. TOPOL, MD, FACC,
FRANS VAN DE WERF, MD,
DOUGLAS MORRIS, MD, FA
GABRIEL BARBASH, MD, F
ROBERT M. CALIFF, MD, F
AND TISSUE PLASMINOGEN ACT
STEERING COMMITTEE*

Abstract

The Global Ut
Arteries (GUS
primary hypot
significant red
subcutaneous
plasminogen a
intravenous he
expected to be
absolute differ
subcutaneous
strategy was c
an aggressive
form to the Da
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Monitoring Co
financial equit
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corporate spo
facilitate the d

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ecombinant tissue-type
okinase, rt-PA and
n 15 countries is
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nt Data and Safety
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se approaches may
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Confronting the Issues of Patient Safety and Investigator Conflict of Interest in an Interna

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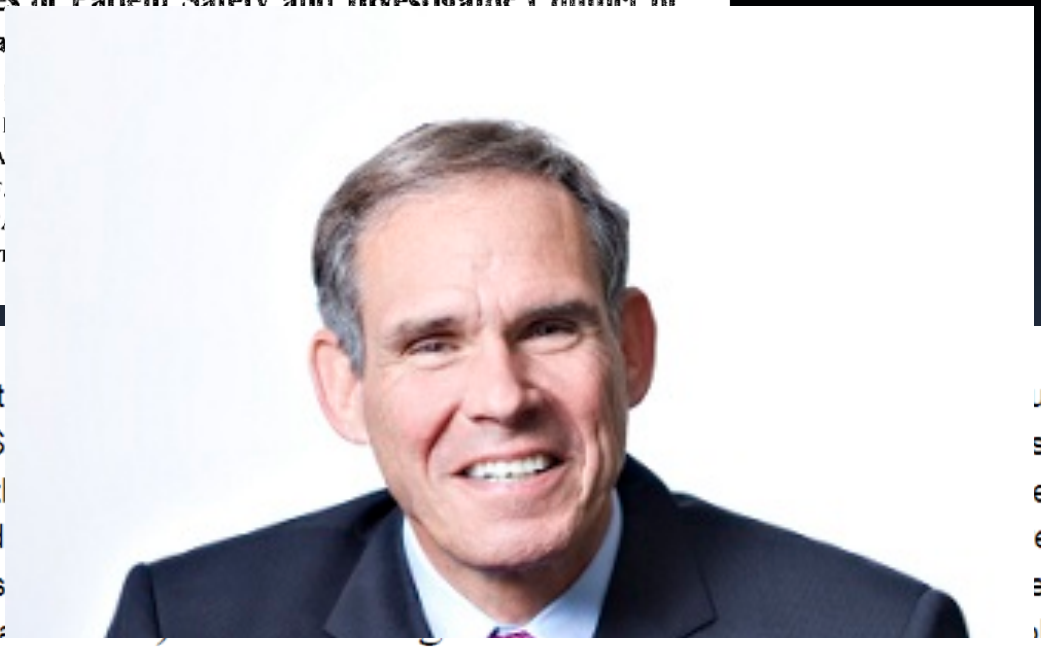
AND TISSUE PLASMINOGEN ACT
STEERING COMMITTEE*



Abstract

The Global Ut ...uded Coronary Arteries (GUS ...sion strategies. The primary hypot ...e associated with a significant red ...eptokinase with subcutaneous ...ecombinant tissue-type plasminogen ...kinase, rt-PA and

reperfusion strategies. The primary hypothesis is that early and sustained coronary artery recanalization will be associated with a significant reduction in mortality. The four regimens

absolute differ ...oy (streptokinase and subcutaneous ...ddressed. First, a strategy was ...nvestigational use of an aggressive ...-page safety summary form to the Da ...e of the concept of "net clinical be ...nt Data and Safety Monitoring Co ...ation of any position of financial equit ...ria for speaking engagements ...n any of the five corporate spo ...se approaches may facilitate the d ...ine.

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Impact of Prehospital Thrombolysis for Acute Myocardial Infarction on 1-Year Outcome : Results From the French Nationwide USIC 2000 Registry

Nicolas Danchin, Didier Blanchard, Philippe Gabriel Steg, Patrick Sauval, Guy Hanania, Patrick Goldstein, Jean-Pierre Cambou, Pascal Guéret, Laurent Vaur, Youcef Boutalbi, Nathalie Genès and Jean-Marc Lablanche

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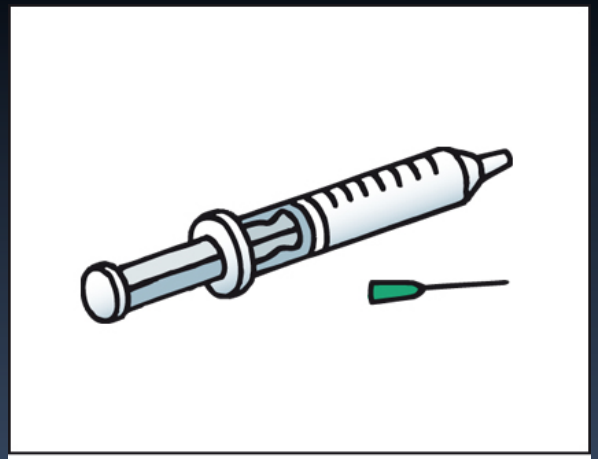
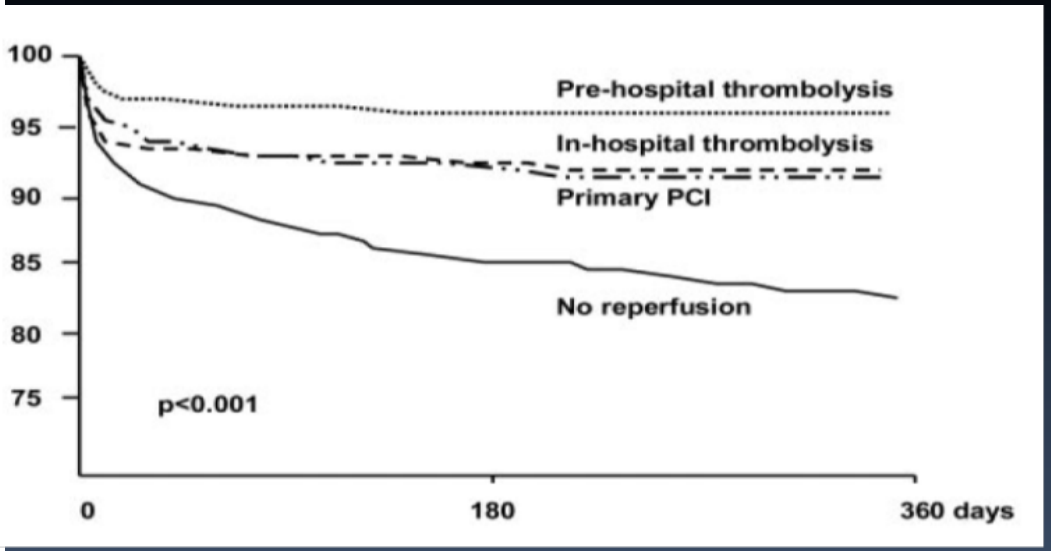
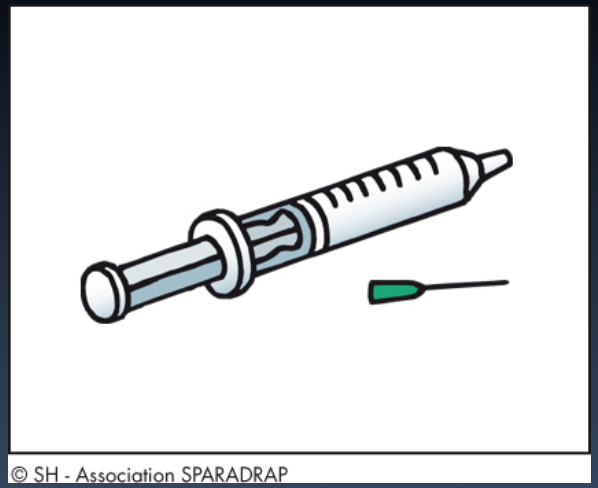
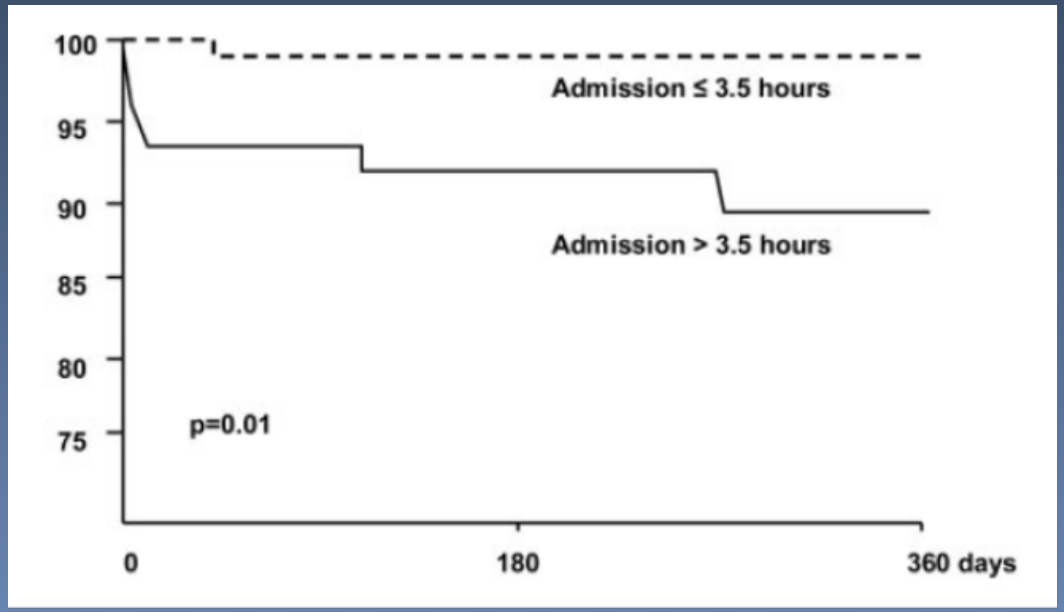



100
95
90
85
80
75
Pre-hospital thrombolysis
In-hospital thrombolysis
Primary PCI
No reperfusion
p<0.001
0
180
360 days


© SH - Association SPARADRAP


100
95
90
85
80
75
Admission ≤ 3.5 hours
Admission > 3.5 hours
p=0.01
0
180
360 days

Kansas City, MO (updated) – Dr Geoffrey Hartzler, one of the pioneers of interventional cardiology, passed away on March 10, 2012 following a battle with cancer. He was 65 years old.

- An interventional cardiologist who began practice in 1974 and who performed the first coronary angioplasty at the Mayo Clinic in 1979, Hartzler was doing successful percutaneous transluminal coronary angioplasty (PTCA) just two years after Dr Andreas Gruentzig performed the first procedure on a patient in Switzerland. Hartzler joined the Mid America Heart Institute in Kansas City, MO in 1980, where he started the angioplasty program, one of the busiest programs in the country, and worked there until he retired in 1995 at 49 years of age due to chronic back pain.

Kansas City, MO (updated) – Dr Geoffrey Hartzler, one of the pioneers of interventional cardiology, passed away on March 10, 2012 following a battle with cancer. He was 65 years old.

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974 and who performed the first
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doing successful percutaneous
coronary angioplasty (PTCA) just
ter Dr Andreas Gruentzig performed
edure on a patient in Switzerland.
ed the Mid America Heart Institute
ty, MO in 1980, where he started
sty program, one of the busiest
the country, and worked there until
1995 at 49 years of age due to
chronic back pain.

first coronary angioplasty

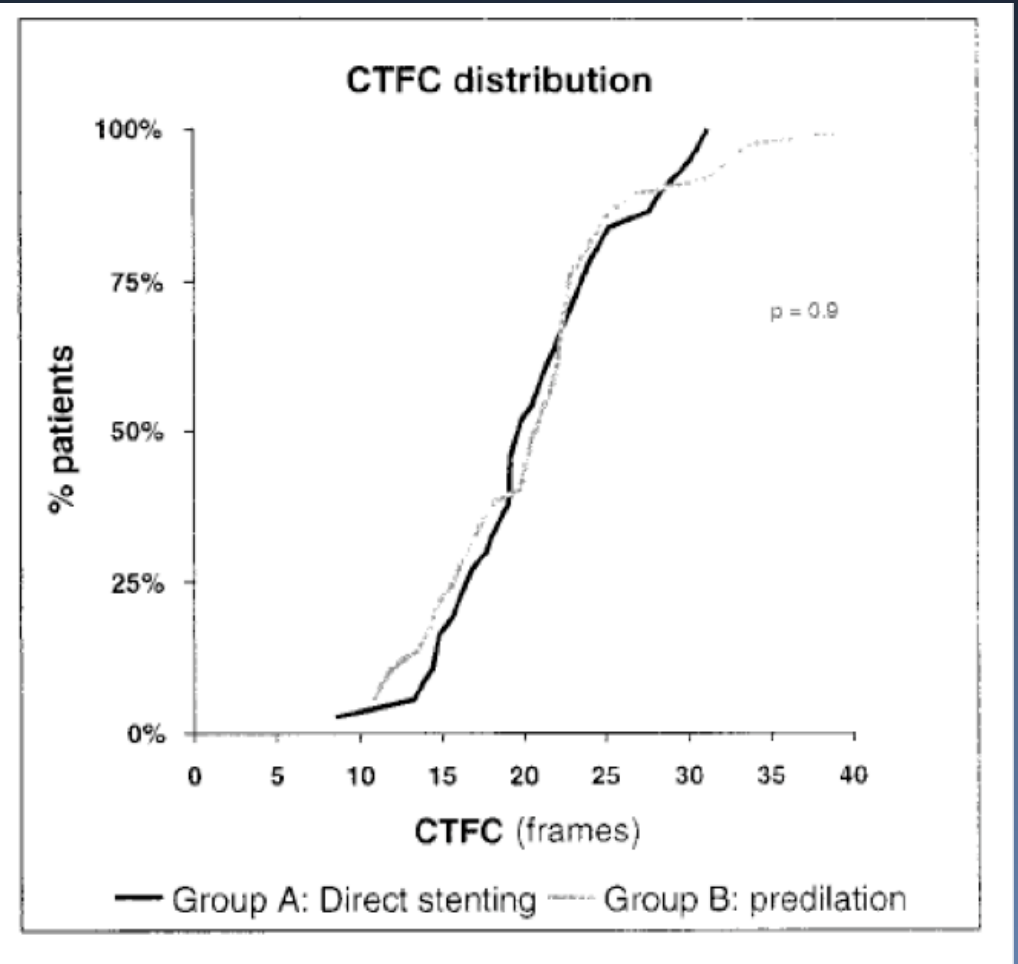
Balloon Vs Stent

30 day events	Bare metal stents	Balloon angioplasty	RR [95% CI]	RR [95% CI]	P Value
Mortality	2.9%	3.0%		0.97 [0.74, 1.27]	0.83
Reinfarction	2.0%	2.2%		0.92 [0.66, 1.27]	0.61
TVR	3.1%	5.1%		0.60 [0.47, 0.77]	0.0001
6-12 month events					
Mortality	5.1%	5.2%		0.98 [0.79, 1.10]	0.82
Reinfarction	3.7%	3.9%		0.94 [0.74, 1.20]	0.61
TVR	11.3%	18.4%		0.62 [0.55, 0.69]	<0.0001

De Luca G, Int J Cardio 2007

Could direct stenting reduce no-reflow in acute coronary syndromes? A randomized pilot study

Rémi Sabatier, MD, Martial Hamon, MD, Quan Ming Zhao, MD, Francesco Burzotta, MD, Emmanuel Lecluse, MD, Benoit Valette, MD, and Gilles Grollier, MD *Caen, France*

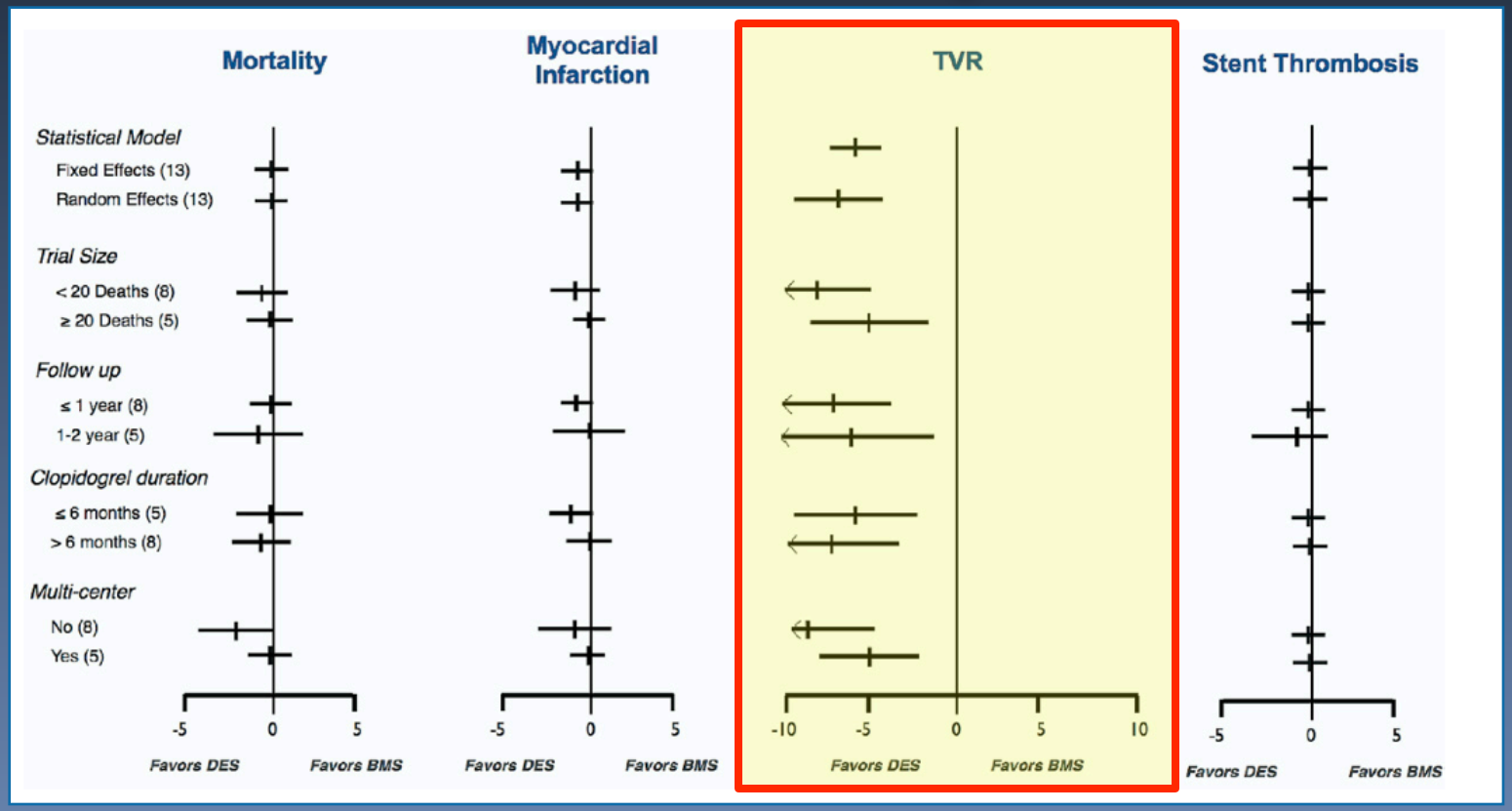


DES in STEMI

Use of Drug-Eluting Stents in Acute Myocardial Infarction

A Systematic Review and Meta-Analysis

13 Randomized Trilas, 18 Registries, 2000-2008



Brar S., J Am Coll Cardiol 2009

European Heart Journal (2012) **33**, 977–987
doi:10.1093/eurheartj/ehs036

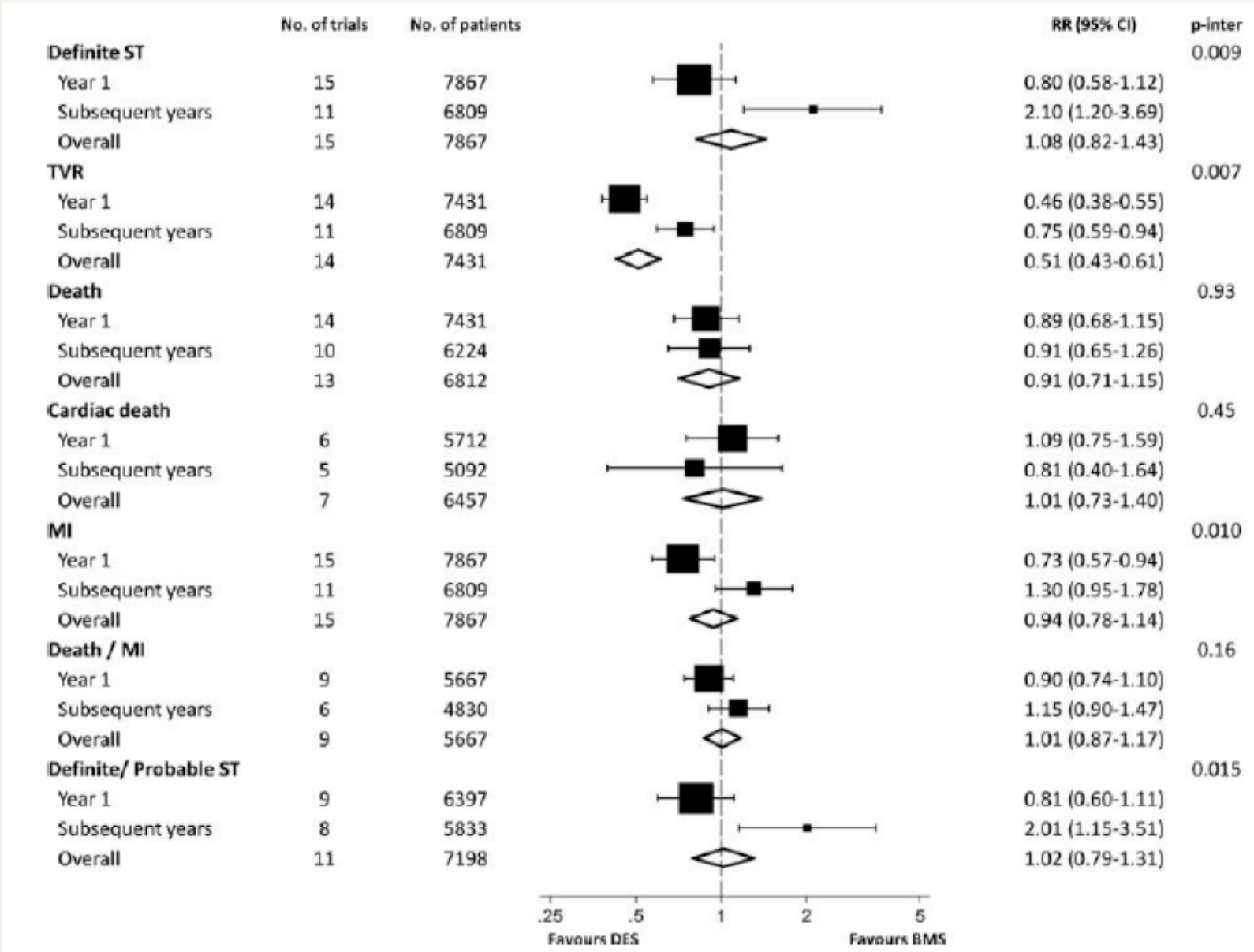
FASTTRACK CLINICAL

Comparison of drug-eluting stents with bare metal stents in patients with ST-segment elevation myocardial infarction

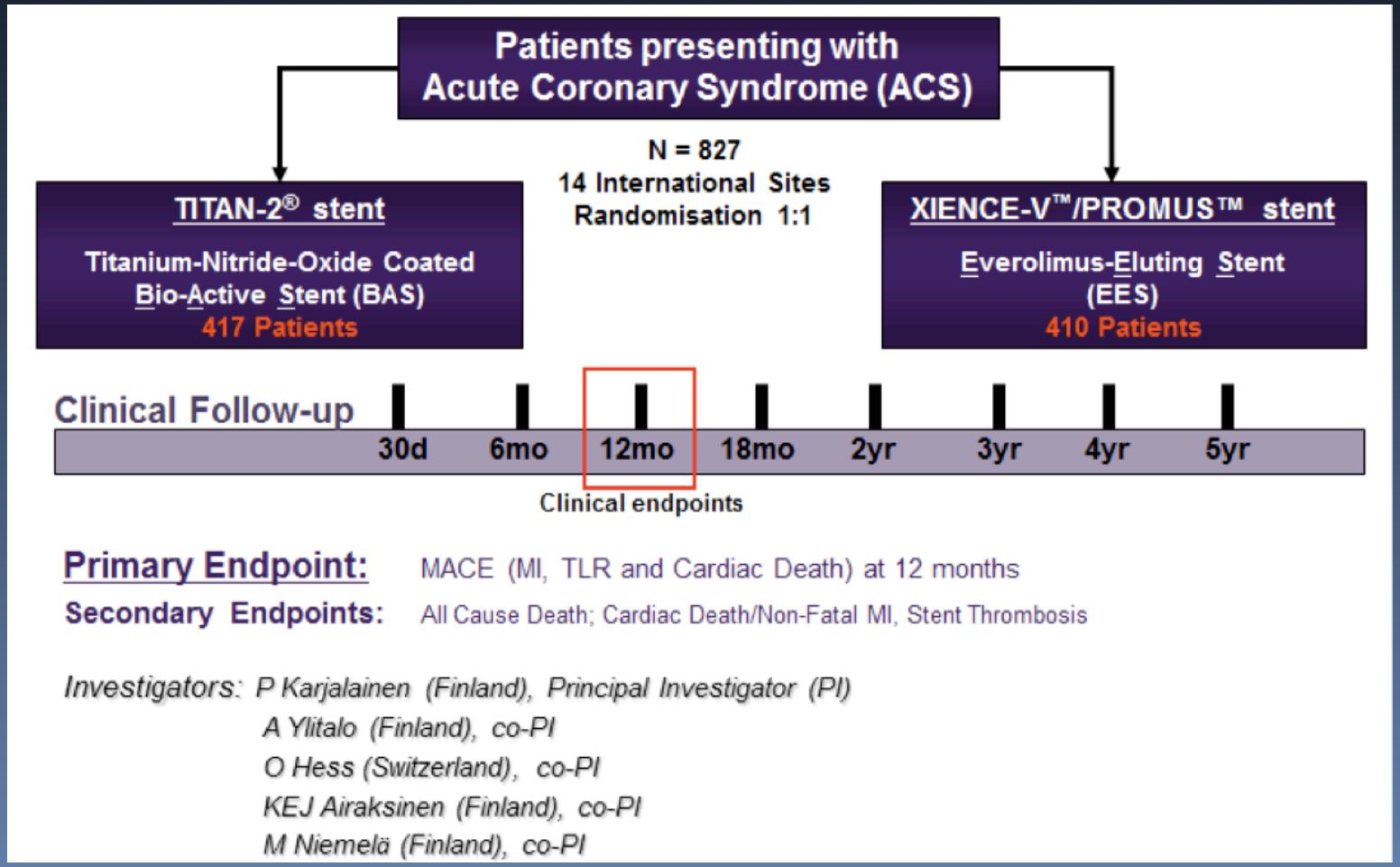
Bindu Kalesan[1,2,3†], Thomas Pilgrim[1†], Katja Heinimann[3], Lorenz Räber[1,4], Giulio G. Stefanini[1], Marco Valgimigli[5], Bruno R. da Costa[3], François Mach[6], Thomas F. Lüscher[7], Bernhard Meier[1,2], Stephan Windecker[1,2], and Peter Jüni[2,3*]

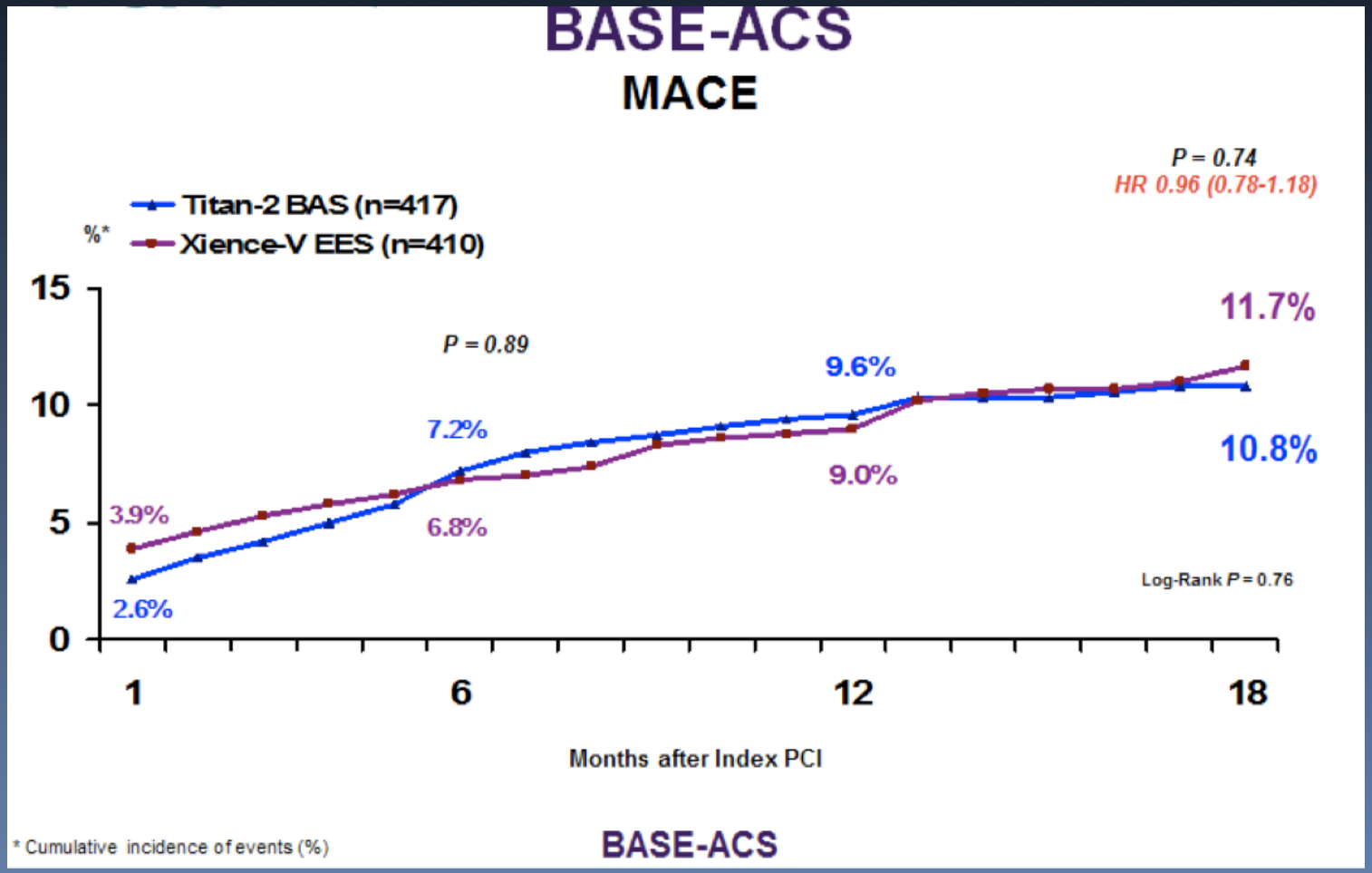
[1]Department of Cardiology, Bern University Hospital, Bern, Switzerland; [2]Clinical Trials Unit, University of Bern, Bern, Switzerland; [3]Institute of Social and Preventive Medicine, University of Bern, Switzerland; [4]Department of Cardiology, Thoraxcenter, Erasmus Medical Center, Rotterdam, The Netherlands; [5]Department of Cardiology, University Hospital of Ferrara, Italy; [6]Department of Cardiology, University Hospital of Geneva, Switzerland; and [7]Department of Cardiology, University Hospital of Zurich, Switzerland

Received 6 December 2011; revised 10 January 2012; accepted 1 February 2012; online publish-ahead-of-print 23 February 2012


No. of trials
No. of patients
RR (95% CI)
p-inter
Definite ST
0.009
Year 1 15 7867 0.80 (0.58-1.12)
Subsequent years 11 6809 2.10 (1.20-3.69)
Overall 15 7867 1.08 (0.82-1.43)
TVR
0.007
Year 1 14 7431 0.46 (0.38-0.55)
Subsequent years 11 6809 0.75 (0.59-0.94)
Overall 14 7431 0.51 (0.43-0.61)
Death
0.93
Year 1 14 7431 0.89 (0.68-1.15)
Subsequent years 10 6224 0.91 (0.65-1.26)
Overall 13 6812 0.91 (0.71-1.15)
Cardiac death
0.45
Year 1 6 5712 1.09 (0.75-1.59)
Subsequent years 5 5092 0.81 (0.40-1.64)
Overall 7 6457 1.01 (0.73-1.40)
MI
0.010
Year 1 15 7867 0.73 (0.57-0.94)
Subsequent years 11 6809 1.30 (0.95-1.78)
Overall 15 7867 0.94 (0.78-1.14)
Death / MI
0.16
Year 1 9 5667 0.90 (0.74-1.10)
Subsequent years 6 4830 1.15 (0.90-1.47)
Overall 9 5667 1.01 (0.87-1.17)
Definite/ Probable ST
0.015
Year 1 9 6397 0.81 (0.60-1.11)
Subsequent years 8 5833 2.01 (1.15-3.51)
Overall 11 7198 1.02 (0.79-1.31)
.25
.5
1
2
5
Favours DES
Favours BMS

TITAN vs XIENCE-V/PROMUS




BASE-ACS
MACE
P = 0.74
HR 0.96 (0.78-1.18)
Titan-2 BAS (n=417)
Xience-V EES (n=410)
%*
15
10
5
0
P = 0.89
11.7%
9.6%
7.2%
10.8%
9.0%
3.9%
6.8%
2.6%
Log-Rank P = 0.76
1
6
12
18
Months after Index PCI
* Cumulative incidence of events (%)
BASE-ACS

Une nouvelle secte est née…la secte des aspirators

Une nouvelle secte est née…la secte des aspirators

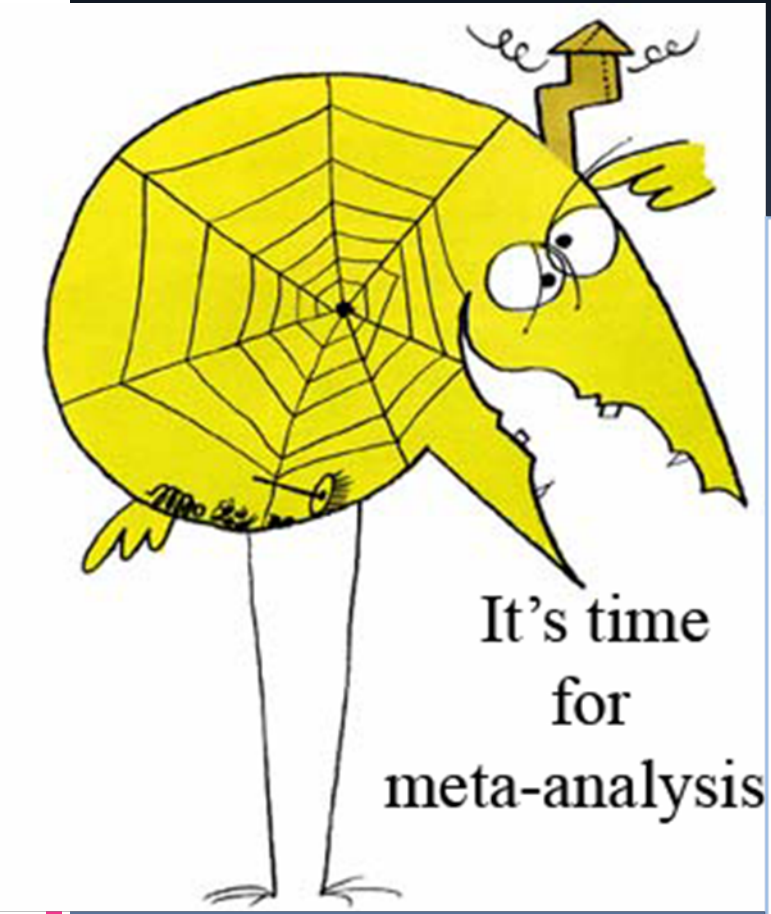
TAPA

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 FEBRUARY 7, 2008 VOL. 358 NO. 6

Thrombus Aspiration during Primary Percutaneous Coronary Intervention

Tone Svilaas, M.D., Pieter J. Vlaar, M.Sc., Iwan C. van der Horst, M.D., Ph.D., Gilles F.H. Diercks, M.D., Ph.D., Bart J.G.L. de Smet, M.D., Ph.D., Ad F.M. van den Heuvel, M.D., Ph.D., Rutger L. Anthonio, M.D., Ph.D., Gillian A. Jessurun, M.D., Ph.D., Eng-Shiong Tan, M.D., Albert J.H. Suurmeijer, M.D., Ph.D., and Felix Zijlstra, M.D., Ph.D.



European Heart Journal (2008) **29**, 3002–3010
doi:10.1093/eurheartj/ehn389

CLINICAL RESEARCH
Interventional cardiology

Adjunctive manual thrombectomy improves myocardial perfusion and mortality in patients undergoing primary percutaneous coronary intervention for ST-elevation myocardial infarction: a meta-analysis of randomized trials

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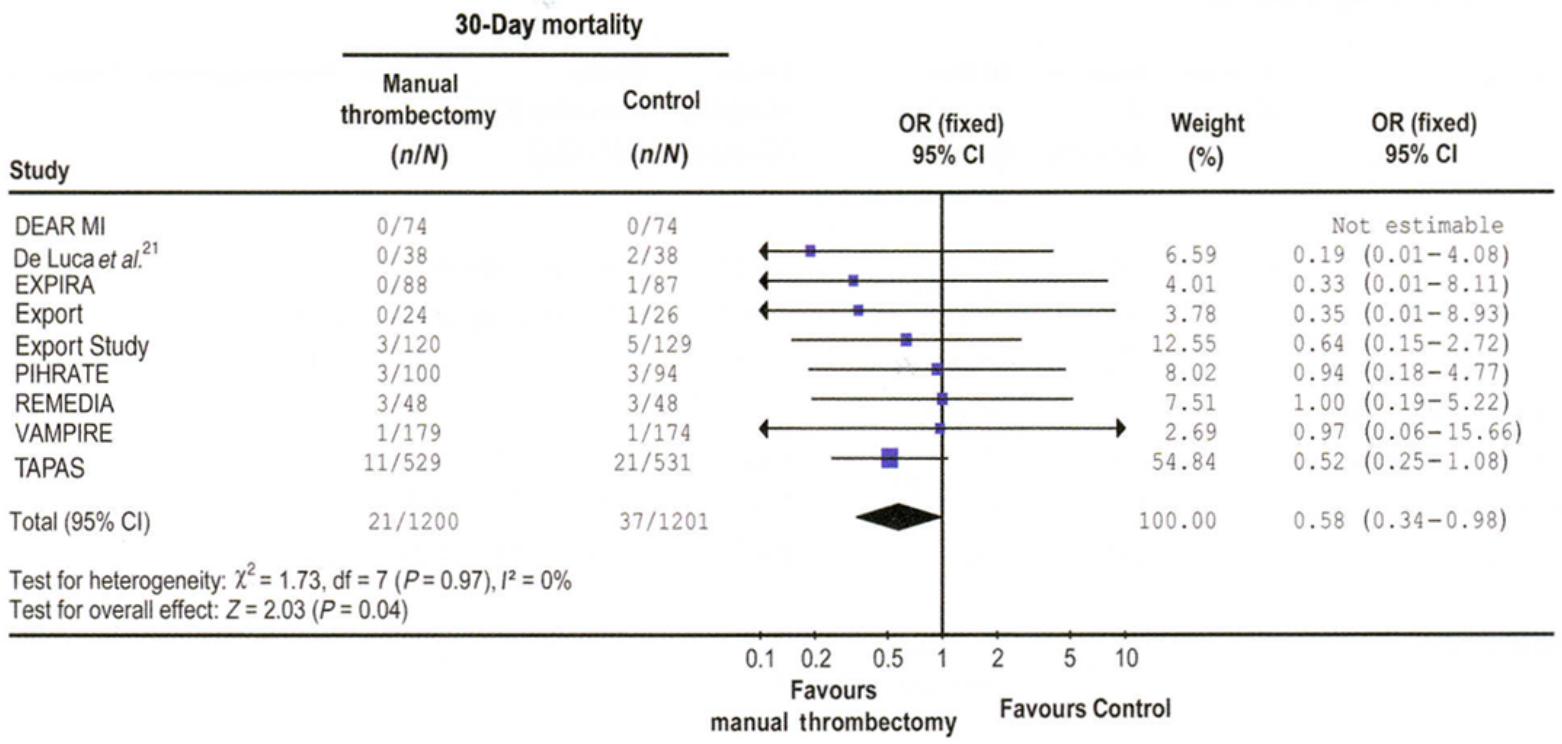

Figure 2 Adjunctive manual thrombectomy devices and 30-day mortality, with odds ratios (OR) and 95% confidence intervals (CI). The size of the data markers (squares) is approximately proportional to the statistical weight of each trial.

CONTROVERSE

Contents lists available at SciVerse ScienceDirect

Cardiovascular Revascularization Medicine

The impact of intracoronary thrombus aspiration on STEMI outcomes☆,☆☆,★,★★

Sa'ar Minha[a], Ran Kornowski[b], Hana Vaknin-Assa[b], Danny Dvir[b], Eldad Rechavia[b], Igal Teplitsky[b], David Brosh[b], Tamir Bental[b], Nurit Shor[b], Alexander Battler[b], Eli Lev[b], Abid Assali[b,*]

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ABSTRACT

Background: Manual coronary thrombus aspiration was associated with improved outcomes of ST-elevation myocardial infarction (STEMI) patients. We aimed to evaluate the outcome of aspiration in a "real-world" setting of primary percutaneous coronary intervention (PPCI).

Methods and materials: We analyzed the outcome of STEMI patients who underwent PPCI (initial Thrombolysis in Myocardial Infarction flow grade 0/1), comparing patients who underwent aspiration (ASP) to those who had standard (STD) therapy. Various subgroups outcomes were further analyzed. Clinical end points included mortality and major adverse cardiovascular events (MACE) at 30 days and at 1 year.

Results: One thousand thirty-five consecutive patients were included: 189 (18.26%) with ASP and 846 (81.74%) with STD. ASP patients were younger (58±12 vs. 61±13, $P<.05$) and had higher incidence of direct stenting compared to STD patients (34% vs. 16.7%, $P<.05$). No significant differences were noted in the outcome of ASP vs. STD at 30 days (mortality rate 4.2% vs. 4.5%, $P=.9$; MACE 6.9% vs. 9.8%, $P=.2$) and at 1 year (mortality rate 8.0% vs. 8.3%, $P=.9$; MACE 20.0% vs. 22.3%, $P=.5$). A significant advantage in favor of ASP was evident in patients with proximal culprit lesions, anterior infarcts, and right ventricular involvement.

Conclusions: Although this was largely a negative study, when STEMI involved a large jeopardized myocardium, aspiration was associated with sustained improved clinical outcomes.

Direct Stenting after Thrombus Removal before Primary Angioplasty in Acute Myocardial Infarction

PEDRO SILVA-ORREGO, M.D.,[1] RICCARDO BIGI, M.D., PH.D.,[2] PAOLA COLOMBO, M.D., PH.D.,[1] FEDERICO DE MARCO, M.D.,[1] JACOPO ANDREA OREGLIA, M.D.,[1] SILVIO KLUGMANN, M.D.,[1] and DARIO GREGORI, M.A., PH.D.[3]

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Table 2. Procedural Data and Angiographic Results

	DS Group (n = 69)	noDS Group (n = 76)	P Value
Thrombus removal	51 (74%)	22 (29%)	<0.001
Stent length (mm)	18 (14–23)	20 (15–25)	<0.005
Reference vessel diameter (mm)	3.2 (3–3.5)	3 (2.9–3.5)	<0.05
Minimal lumen diameter post-PPCI (mm)	3.2 (3–3.5)	3 (2.9–3.5)	<0.01
Residual stenosis >50% post-PPCI	0 (0%)	1 (1.3%)	0.958
TIMI flow grade 3 post-PPCI	61 (89%)	54 (70%)	<0.01
Corrected TIMI frame count post-PPCI	16.2 (11–21)	18.8 (14–25)	<0.05
Procedural time (min)	28 (23–60)	60 (26–66)	<0.05
Myocardial blush grade post-PPCI			
N/A	5 (7%)	6 (8%)	0.935
0/1	0 (0%)	3 (4%)	0.275
2	9 (14%)	33 (45%)	<0.001
3	55 (86%)	35 (49%)	<0.001
Distal embolization	2 (3%)	15 (19%)	<0.01
No reflow	1 (1%)	11 (14%)	<0.01

PPCI = primary percutaneous coronary intervention; TIMI = thrombolysis in myocardial infarction.

Table 3. Electrocardiographic Analysis

	DS Group (n = 69)	noDS Group (n = 76)	P Value
ST-segment score pre-PPCI (mm)	10 (7–16)	10.2 (6.5–17)	0.921
ST-segment score post-PPCI (mm)	3 (0–5)	3.5 (1–6.6)	0.234
ST-segment score resolution >70%	46 (67%)	38 (51%)	0.080
ST-segment score resolution >50%	58 (84%)	56 (73%)	0.172
Max ST-segment elevation pre-PPCI (mm)	4 (3–6)	4 (2–5)	0.467
Max ST-segment elevation post-PPCI (mm)	1 (0–2)	1 (0.5–2)	0.355
Max ST-segment resolution >70%	40 (58%)	36 (48%)	0.303
Max ST-segment resolution >50%	51 (74%)	42 (54%)	< 0.05

PPCI = primary percutaneous coronary intervention.

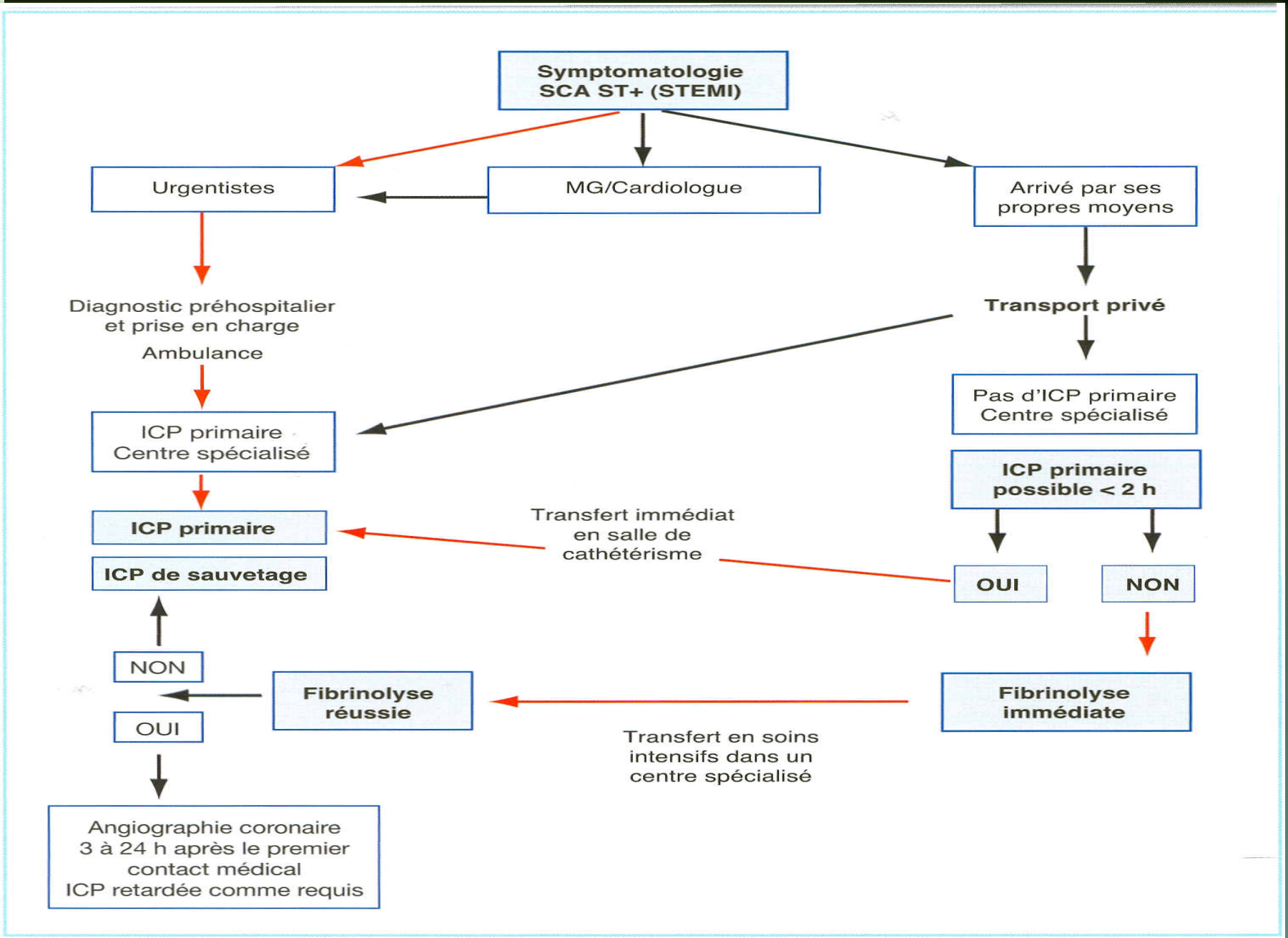
Predictors of No-Reflow

Table 1 Predictors of Pathogenetic Components of No-Reflow and Therapeutic Implications

Pathogenetic Mechanism of No-Reflow	Predictor	Therapeutic Implications
Distal embolization	Thrombus burden (40)	Thrombus aspiration ★
Ischemia ★	Ischemia duration (42,43)	Reduction of coronary time
	Ischemia extent (44,45)	Reduction of oxygen consumption
Reperfusion	Neutrophil count (46)	Specific antineutrophil drugs
	ET-1 levels (51)	ET-1r antagonists
	TXA2 levels (49)	TXA2r antagonists
	Mean platelet volume or reactivity (47,48)	Antiplatelet drugs
Individual susceptibility	Diabetes (37)	Correction of hyperglycemia
	Acute hyperglycemia (57)	Correction of hyperglycemia
	Hypercholesterolemia (38)	Statin therapy
	Lack of pre-conditioning (58)	Nicorandil

ET = endothelin; TXA2 = thromboxane A2.

J Am Coll Cardiol 2009;54:281–92



ICP : intervention coronarienne percutanée ; SCA : Syndrome coronarien aigu ; MG : Médecin généraliste.
Les flèches rouges indiquent le parcours patient préférable.

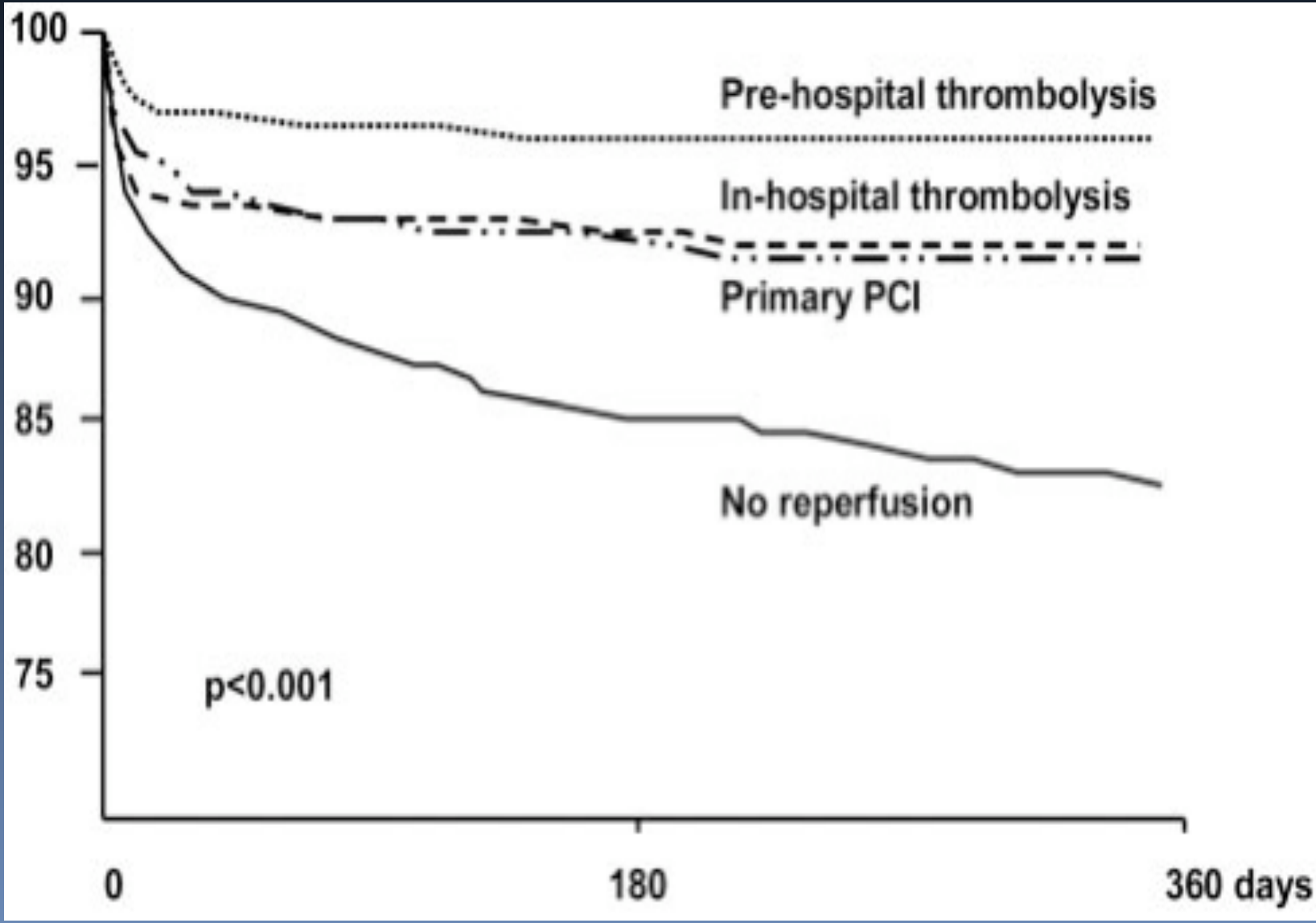
Mortalité hospitalière (USIC 2000)

Variable	Prehospital Lysis, %	In-Hospital Lysis, %	Primary PCI, %	No Reperfusion, %
Maximum Killip class during first 5 d				
I	142 (79)†	270 (75)	325 (75)	580 (62)
II/III	33 (18)	72 (20)	75 (17)	276 (29)
IV	5 (3)	20 (5.5)	34 (8)	83 (9)
Killip class deterioration ≥2 classes	4 (2)*	22 (6)	14 (3)	58 (6)
Reinfarction	5 (3)	6 (2)	5 (1)	22 (2)
Ventricular fibrillation	7 (4)	17 (5)	22 (5)	24 (3)
Atrial fibrillation	10 (6)	22 (6)	31 (7)	95 (10)
Second- or third-degree AV block	9 (5)	13 (4)	25 (6)	54 (6)
Left ventricular ejection fraction ≤35%	13 (8)†	28 (8.5)	51 (13)	145 (18)
Stroke	2 (1.1)	5 (1.4)	1 (0.2)	11 (1.2)
In-hospital mortality	6 (3.3)‡	29 (8.0)	29 (6.7)	115 (12.2)
Discharge medications				
Antiplatelet agents	167 (96)	325 (97)	395 (97.5)	766 (92.5)
β-Blockers	146 (84)†	276 (82)	338 (83.5)	569 (69)
ACE inhibitors	100 (57.5)	173 (51.5)	220 (54)	419 (51)
Statins	133 (76)†	230 (68.5)	289 (71)	471 (57)

*$P<0.05$, †$P<0.01$ vs no reperfusion therapy.
‡$P<0.05$ vs hospital thrombolysis.

Danchin N. et al. Circulation. 2004;110:1909–1915

Mortalité à moyen terme

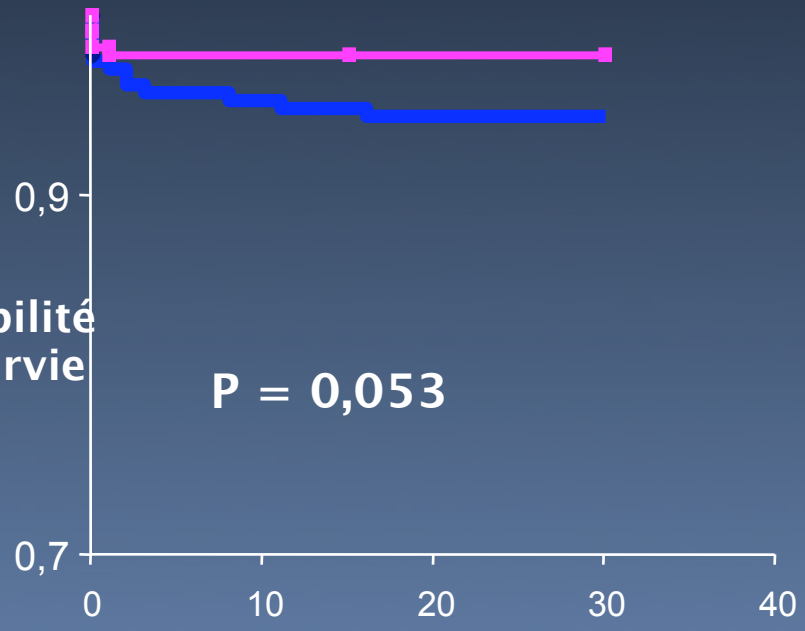


Effect of Time to Treatment on Reperfusion Rates After Thrombolytic Therapy

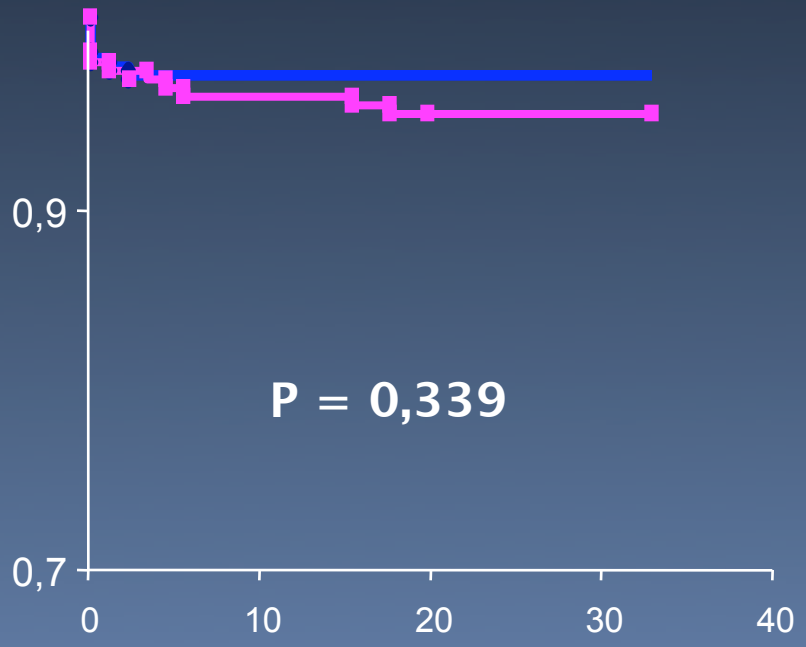
Bénéfice de la thrombolyse pré-hospitalière

Avant 2 heures, lyse > angioplastie

< 2 h



> 2 h



CAPTIM Steg. Circulation. 2003;108:2851-2856

Délai début de la douleur et reperfusion

Association of onset to balloon and door to balloon time with long term clinical outcome in patients with ST elevation acute myocardial infarction having primary percutaneous coronary intervention: observational study

Conclusions Short onset to balloon time was associated with better 3 year clinical outcome in patients with STEMI having primary percutaneous coronary intervention, whereas the benefit of short door to balloon time was limited to patients who presented early. Efforts to minimise onset to balloon time, including reduction of patient related delay, should be recommended to improve clinical outcome in STEMI patients.

Hiroki Shiomi et al. BMJ 2012;344:e3257

LA REPERFUSION PEUT-ELLE ÊTRE DÉLÉTERE ?

REPERFUSION

LÉSIONS DE REPERFUSION

LA REPERFUSION PEUT-ELLE ÊTRE DÉLÉTERE ?

REPERFUSION

LÉSIONS DE REPERFUSION

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REPERFUSION

LÉSIONS DE REPERFUSION

OUI LA REPERFUSION PEUT ETRE DELETERE

- **Homme 65 ans**
- **IDM antérieur en**

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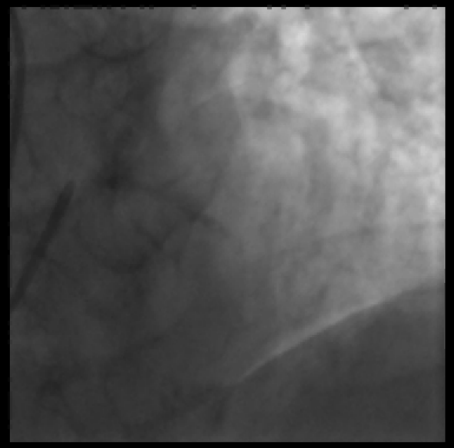
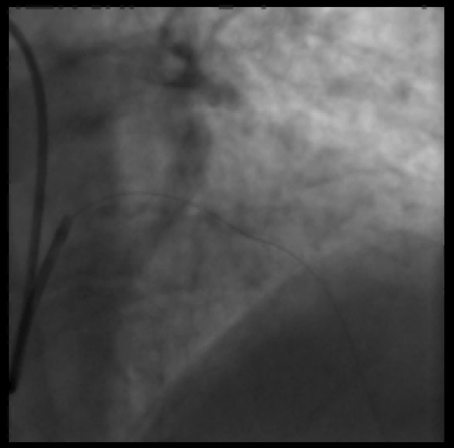
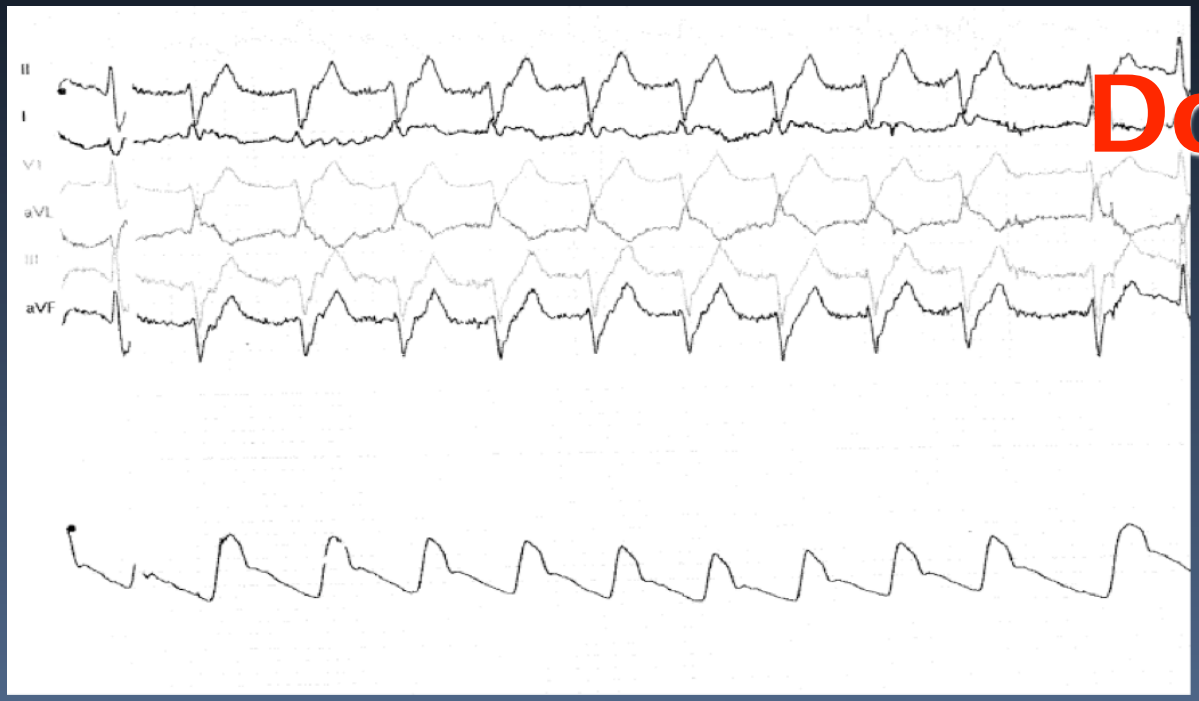
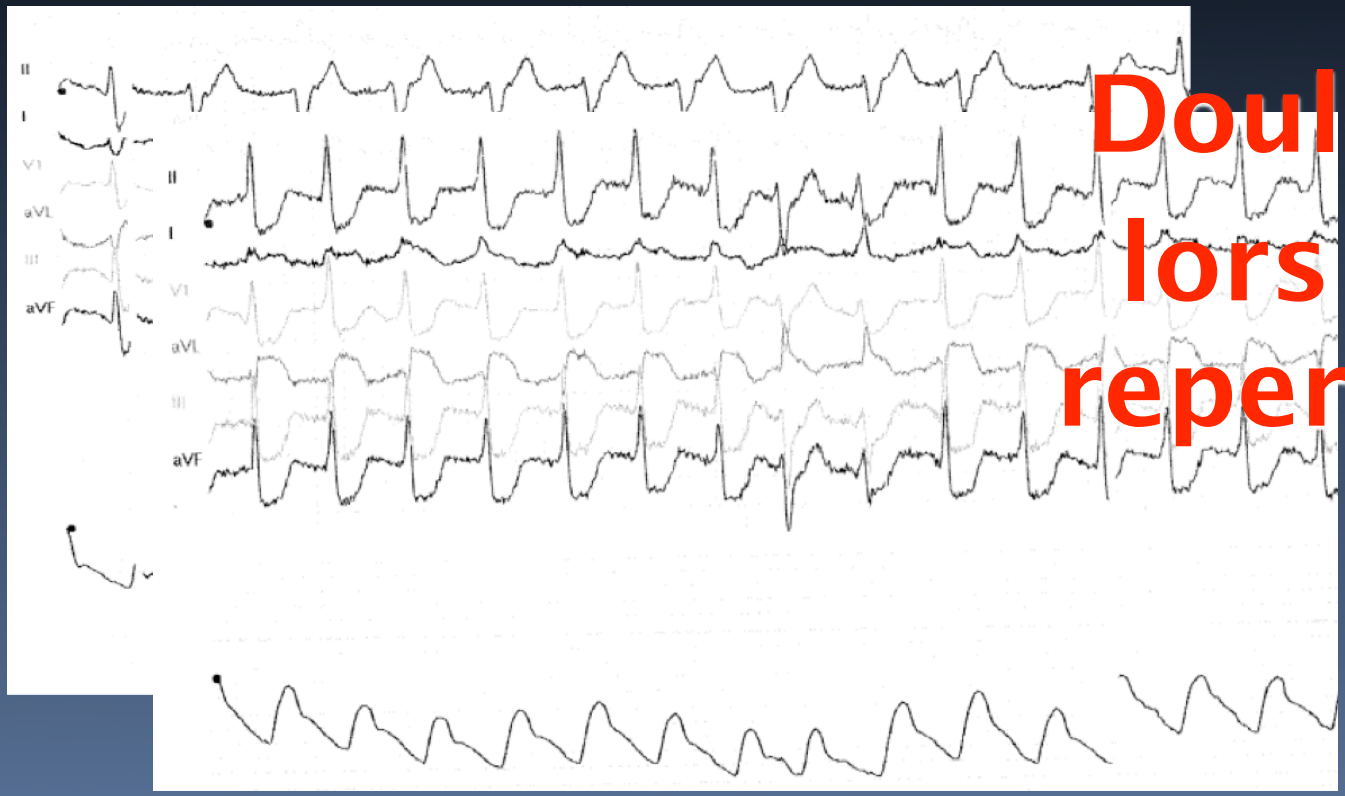


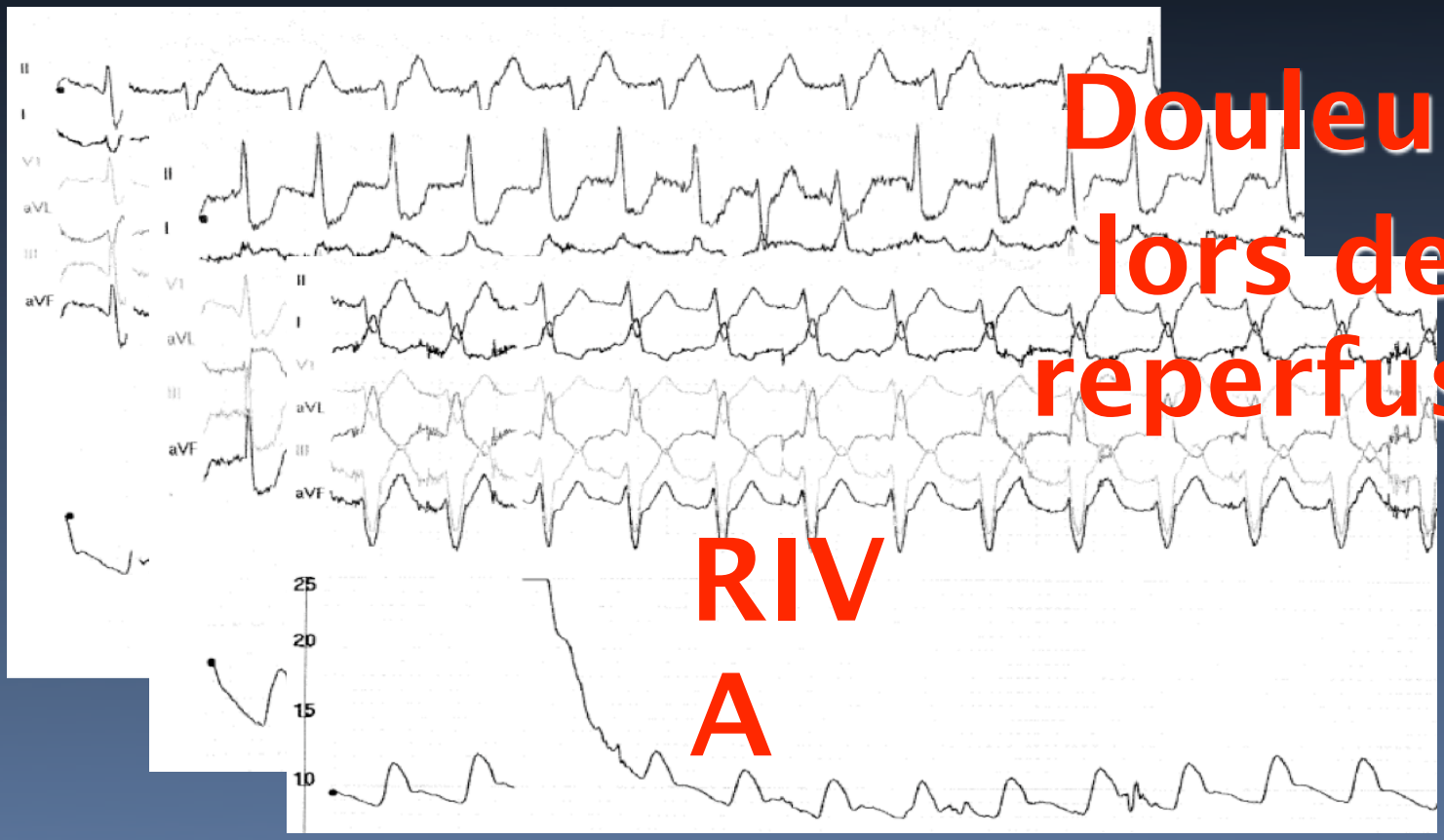




Douleurs



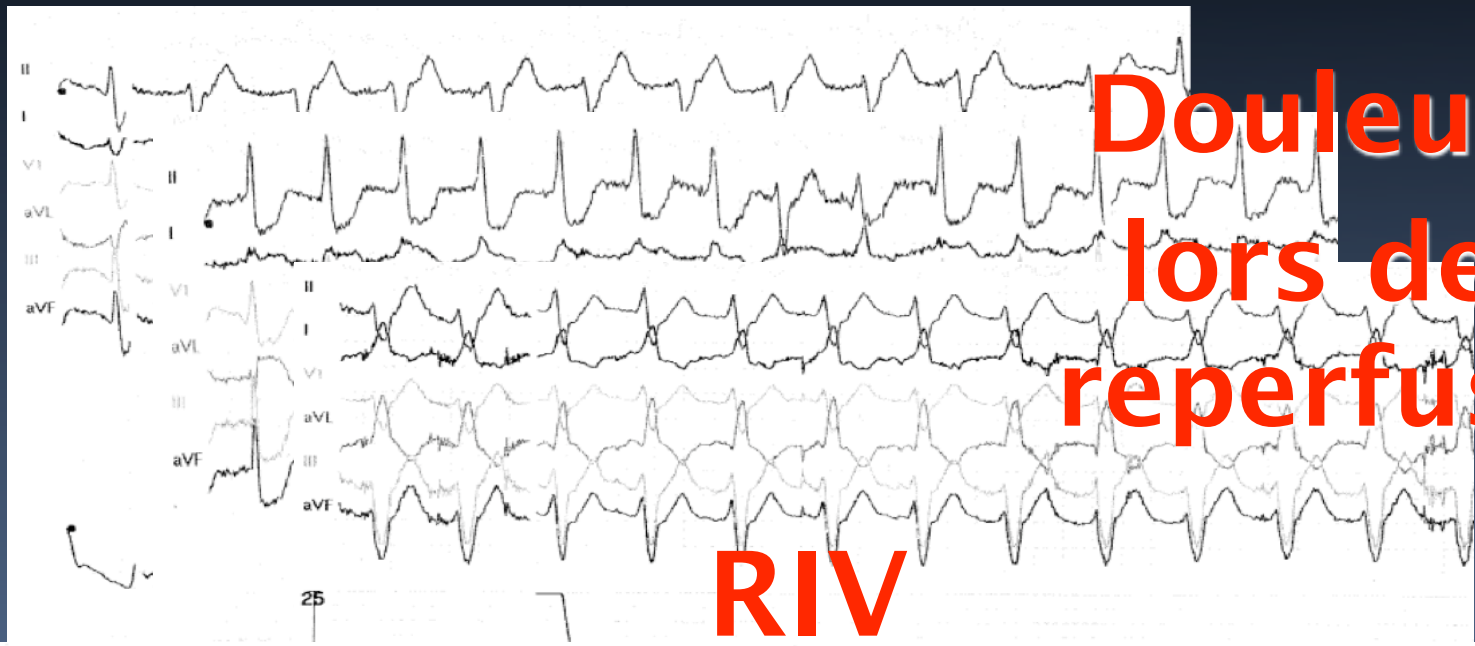
Douleurs lors de la reperfusion



Douleurs lors de la reperfusion

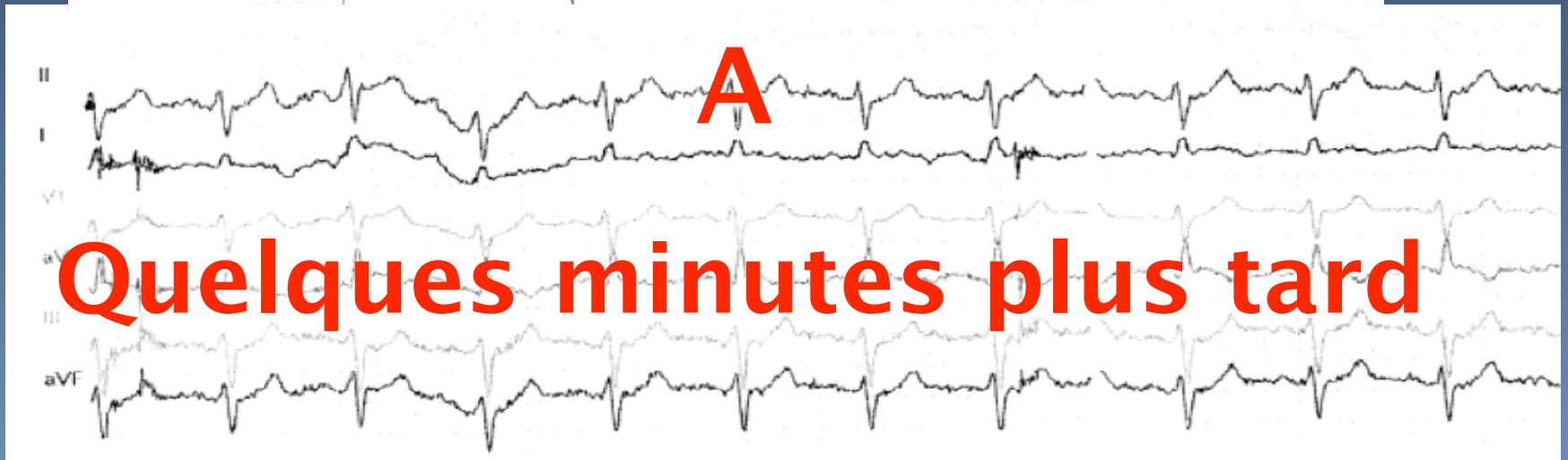
RIV

A

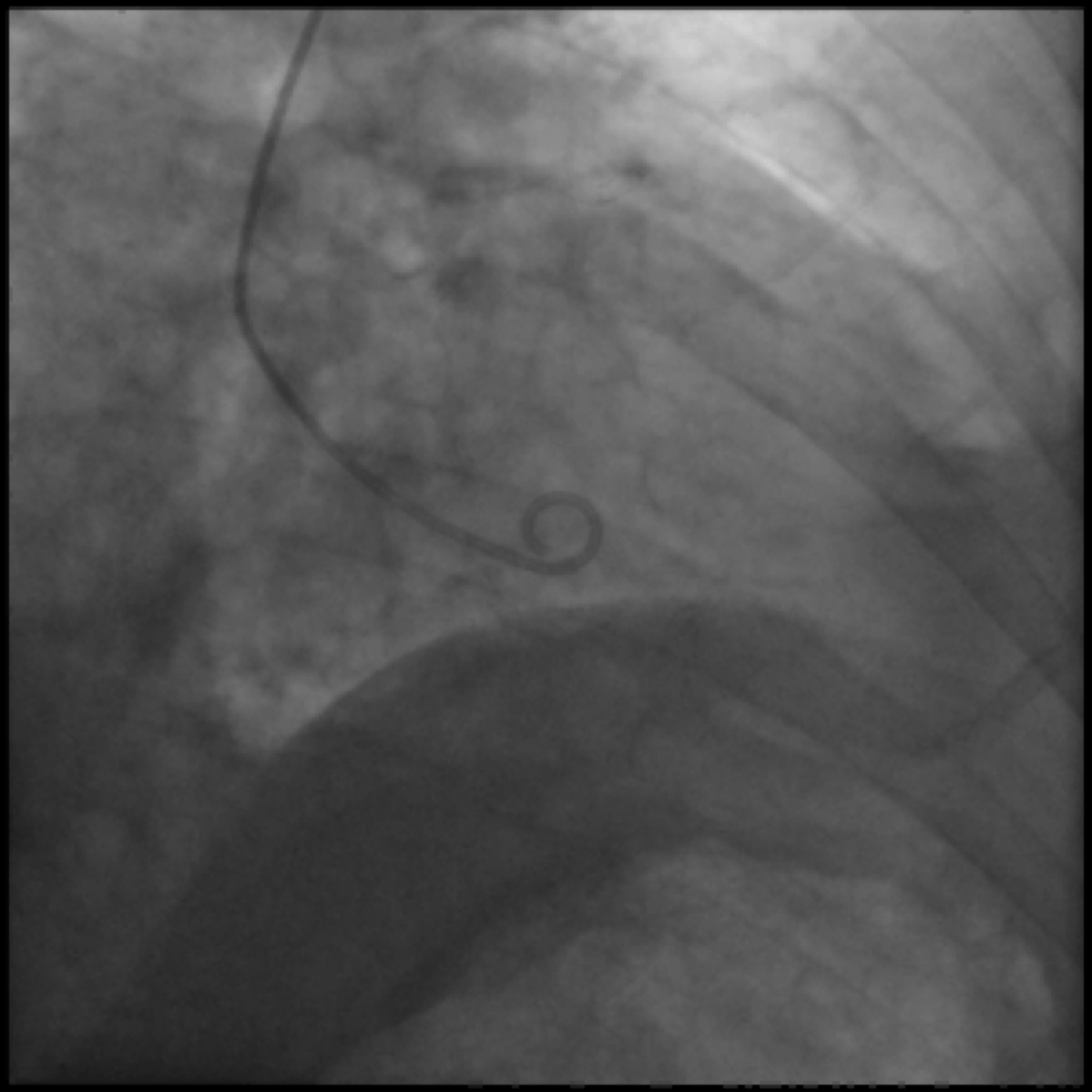


Douleurs lors de la reperfusion

RIV A



Quelques minutes plus tard



Syndrome de reperfusion et risques

Patients à risque ?

- Infarctus inaugural
- Délai entre douleurs et reperfusion

Patients ± protégés ?

- ATCD d'angor stable
- ATCD d'angor instable

Patients à haut risque devant ce syndrome ?

- Choc relatif ou avéré

→ Assistance circulatoire

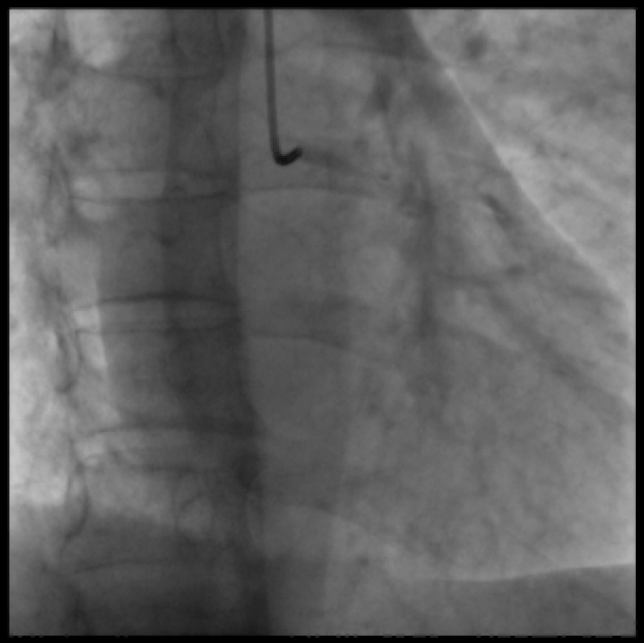
CPD, IMPELLA, ou autre (ECMO)

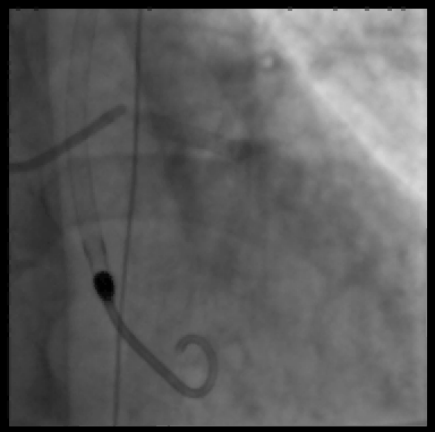
Homme 41 ans
IDM H+1

Impella

Homme 41 ans
IDM H+1

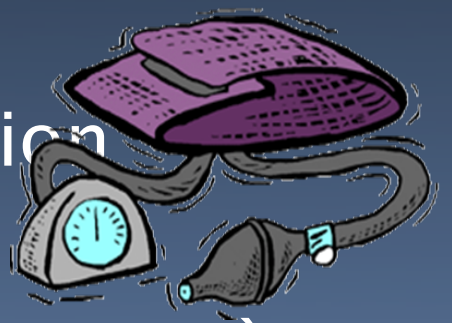
Impella



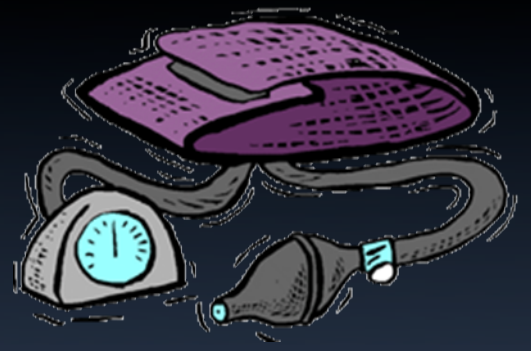


Différents types de conditionnement

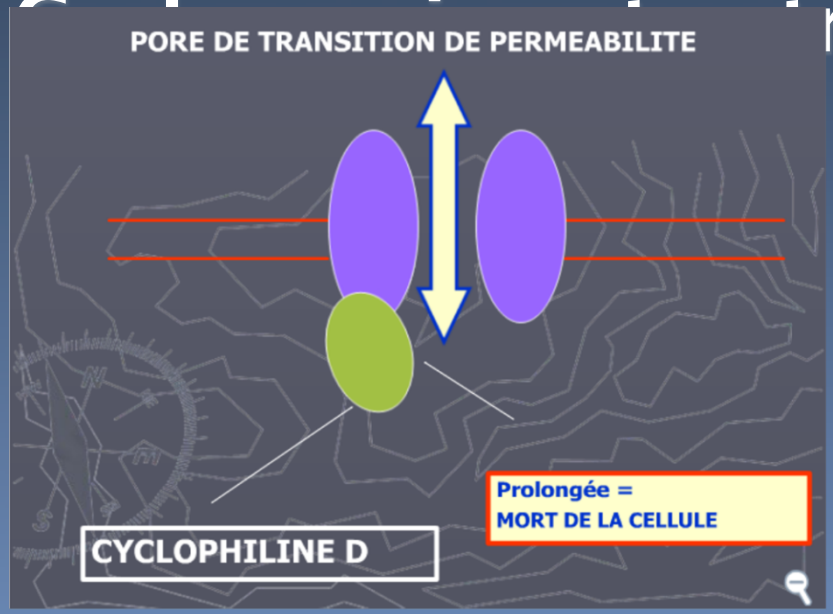
- Pré conditionnement
  - Etude sur animaux de laboratoire
  - ATCD angor stable et instable
- Per conditionnement
  - Inflation d'un brassard de tension
- Post conditionnement
  - Inflations itératives de ballonnets après désobstruction
  - Traitement pharmacologiques (cyclosporine…)



Nécessité d'un conditionnement



- Inflation du brassard dans l'ambulance
- Inflation / Déflation du ballon
- [illegible]res molécules ?



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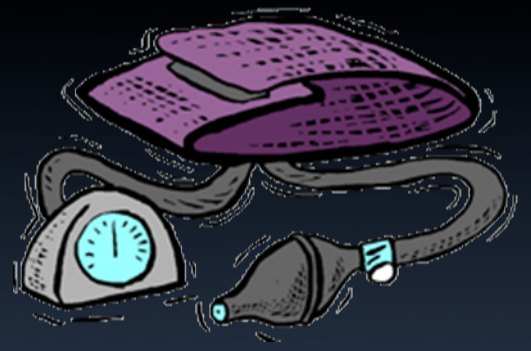

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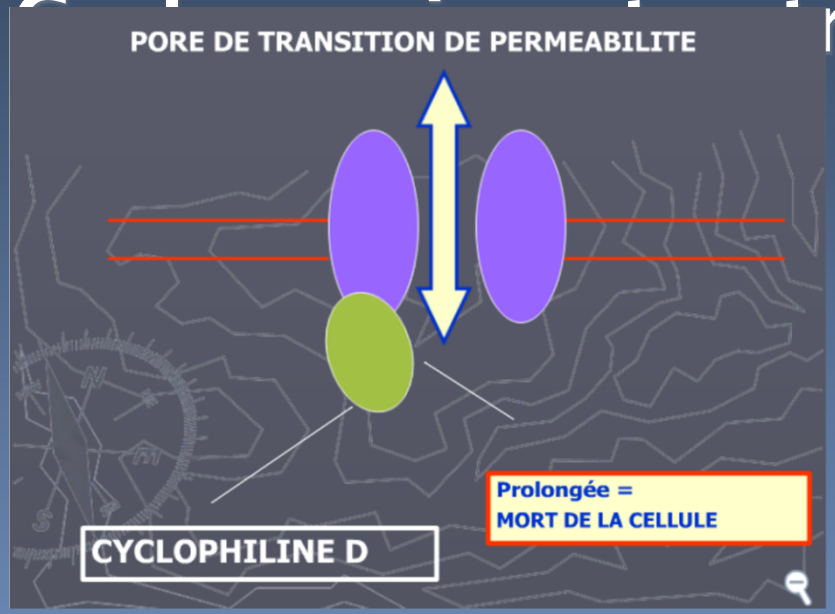


Adénosine (AMISTAD I et II)
ANP (J-WIND)
Béta bloqueurs (nébivolol)
Hypothermie modérée (COOL MI, RAPID-AMI-ICE)
O^2 hyperbarre (AMIHOT II)
Nitrates
Inh Phosphodiésterase 5

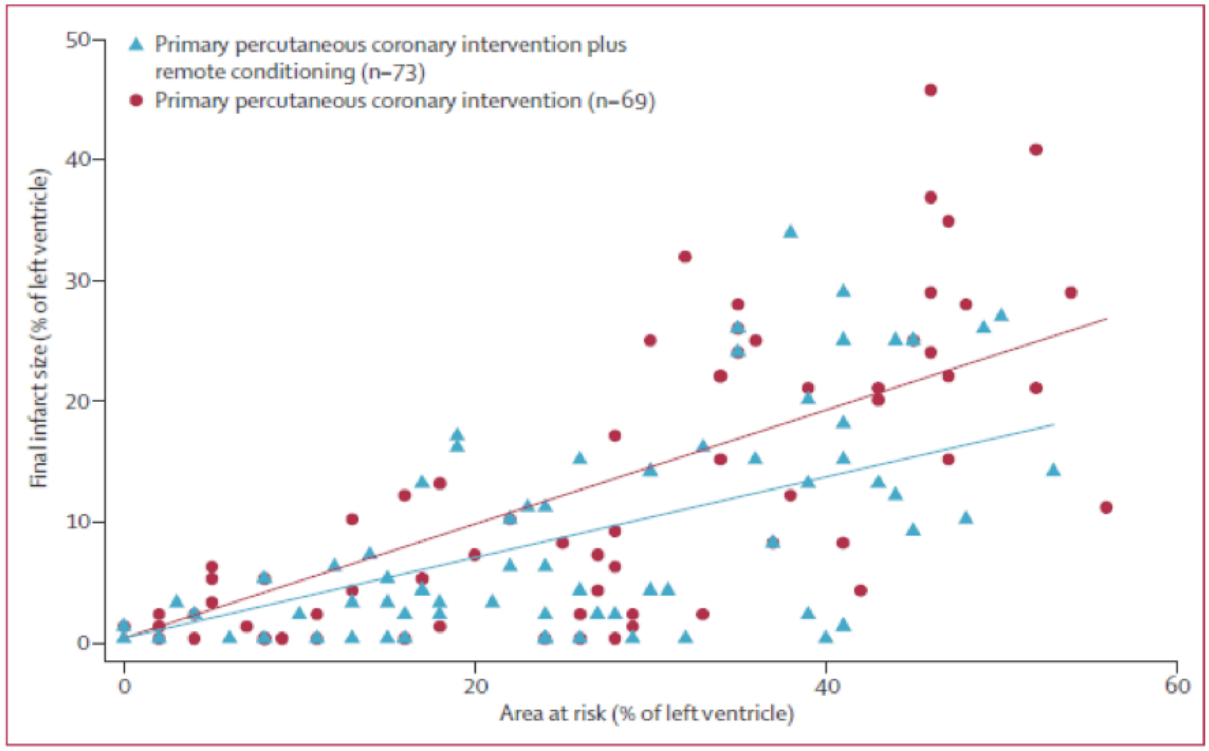
Table 2 Clinical Trials Examining Post-Conditioning in Acute STEMI

First Author, Year (Ref. #)	Study Design	Post-Conditioning Protocol	Primary Endpoints	Results
Staat et al., 2005 (25)	Prospective, open-label multicenter randomized controlled study (N = 30)	4 cycles of 1-min occlusion/1-min reperfusion within 1 min of index reperfusion	Serum CK release during first 72 h of reperfusion Peak serum CK level Blush grade during reflow ST-segment shifts at 48 h	36% decrease in area under the curve of CK release Increased blush grade
Laskey 2005 (102)	Prospective, open-label single-center randomized controlled study (N = 17)	2 cycles of 90-s occlusion/ 3–5-min reperfusion	Doppler-derived distal coronary flow velocity parameters ST-segment shift	Decreased magnitude of final ST-segment elevation Increased rate of ST-segment resolution Improved coronary flow velocity reserve
Laskey et al., 2008 (26)	Prospective, open-label single-center randomized controlled study (N = 24 patients with anterior STEMI)	2 cycles of 90-s occlusion/ 3-min reperfusion	Doppler-derived distal coronary flow velocity parameters ST-segment shift Peak CK release	Greater and more rapid ST-segment resolution Improved coronary flow velocity reserve Lower peak serum CK level
Ma et al., 2006 (103)	Prospective, open-label single-center, randomized controlled study (N = 94 patients with first STEMI)	3 cycles of 30-s occlusion/ 30-s reperfusion within 1 min of index reperfusion	Serum CK/CK-MB release during first 72 h Myocardial contractile function 8 weeks after infarction Corrected TIMI frame count Level of oxidative stress (MDA levels)	Faster CTFC Greater change in WMSI Lower peak CK-MB level Lower MDA-reactive products
Thibault et al., 2008 (104)	Prospective, open-label single-center randomized controlled study (N = 38 patients with first STEMI)	4 cycles of 1-min occlusion/ 1-min reperfusion within 1 min of index reperfusion	Infarct size (by CK and troponin) SPECT rest-redistribution index at 6 months Echocardiography at 1 yr	39% decrease in SPECT rest-redistribution index 40% reduction in infarct size Improved EF at 1 yr Improved WMSI at 1 yr
Lonborg et al., 2010 (105)	Prospective, open-label single-center randomized controlled study (N = 118)	4 cycles of 30-s occlusion/ 30-s reperfusion within 1 min of index reperfusion	Myocardial salvage at 3 months as assessed by delayed enhancement cardiac MRI	19% reduction in infarct size 31% increase in salvage ratio

Remote ischaemic conditioning before hospital admission, as a complement to angioplasty, and effect on myocardial salvage in patients with acute myocardial infarction: a randomised trial

Hans Erik Bøtker, Rajesh Kharbanda, Michael R Schmidt, Morten Bøttcher, Anne K Kaltoft, Christian J Terkelsen, Kim Munk, Niels H Andersen, Troels M Hansen, Sven Trautner, Jens Flensted Lassen, Evald Høj Christiansen, Lars R Krusell, Steen D Kristensen, Leif Thuesen, Søren S Nielsen, Michael Rehling, Henrik Toft Sørensen, Andrew N Redington, Torsten T Nielsen

Per conditionnement : Inflations/ déflations itératives d'un brassard tensionnel avant angioplastie



Lancet 2010; 375: 727–34

Protection myocardique et Thrombolyse ?

- Per conditionnement
  - (inflation de brassard de tension)
- Post conditionnement ?
  - Inflations itératives de ballonnet (impossible)
  - Cyclosporine ?
  - Autres ?

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MOI Jean-Pierre MONASSIER, JE RECOMMANDE LE POST-CONDITIONNEMENT

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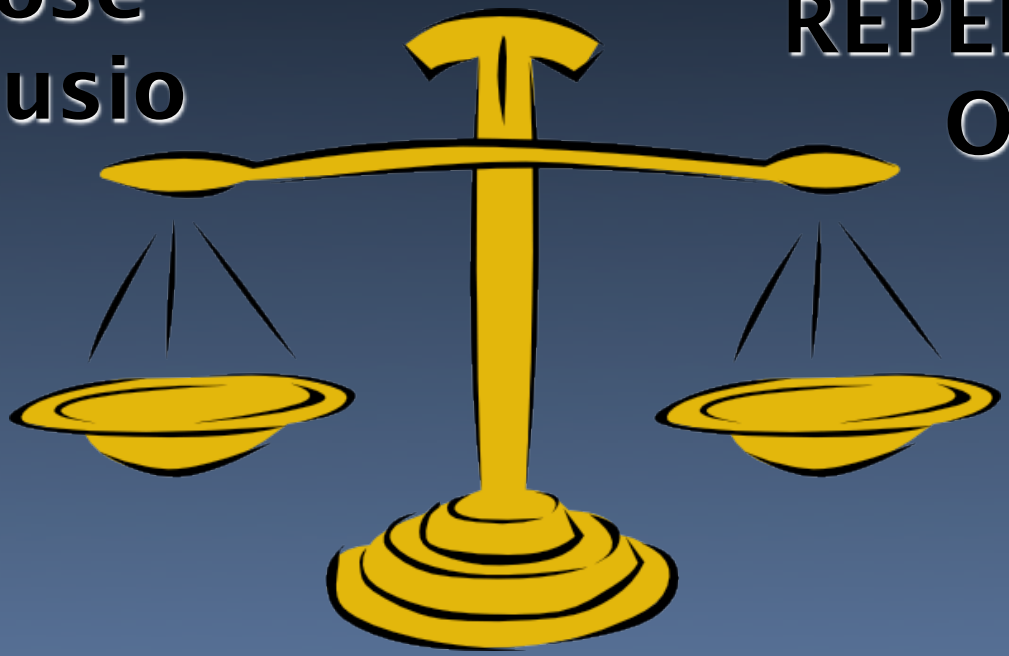
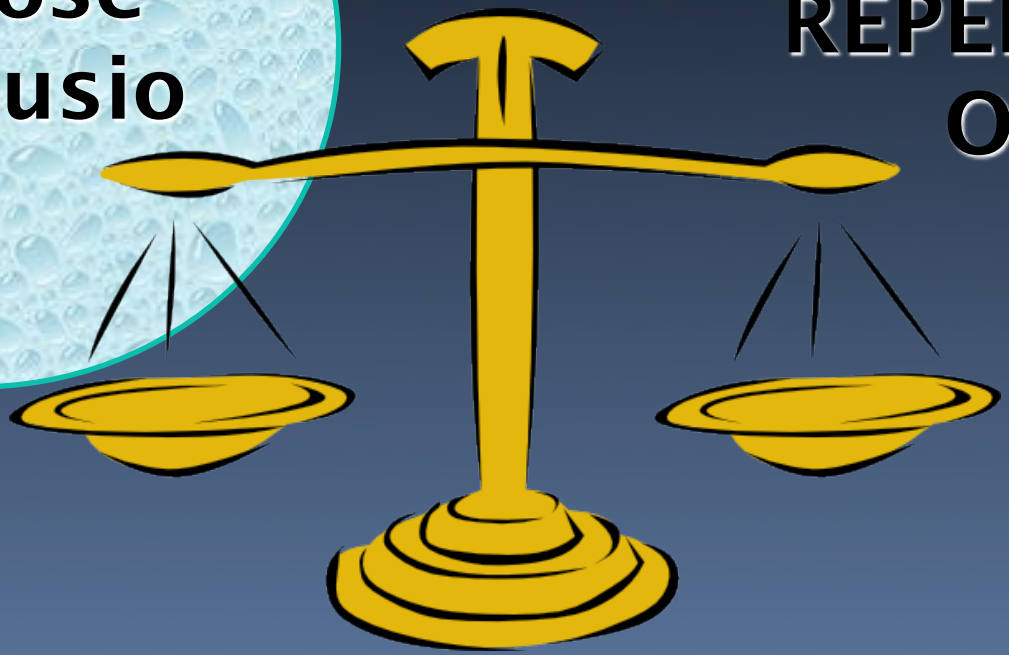
Nécrose d'occlusion



Nécrose de REPERFUSION

Nécrose d'occlusion



Nécrose de REPERFUSION

Nécrose d'occlusion

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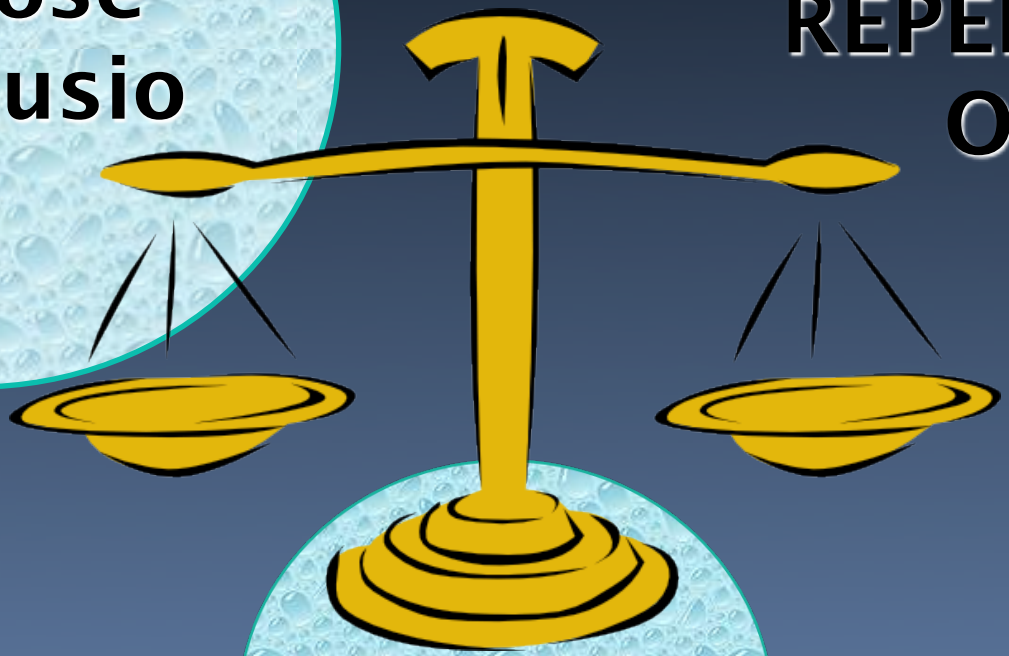


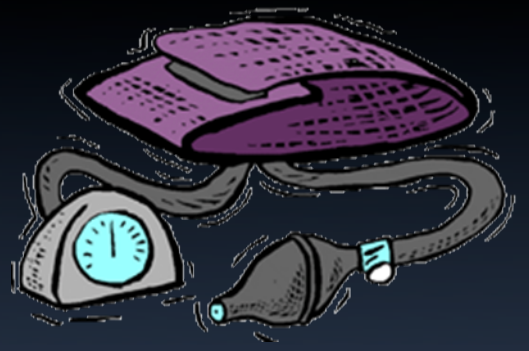
Sidération ?

TAKE HOME MESSAGE

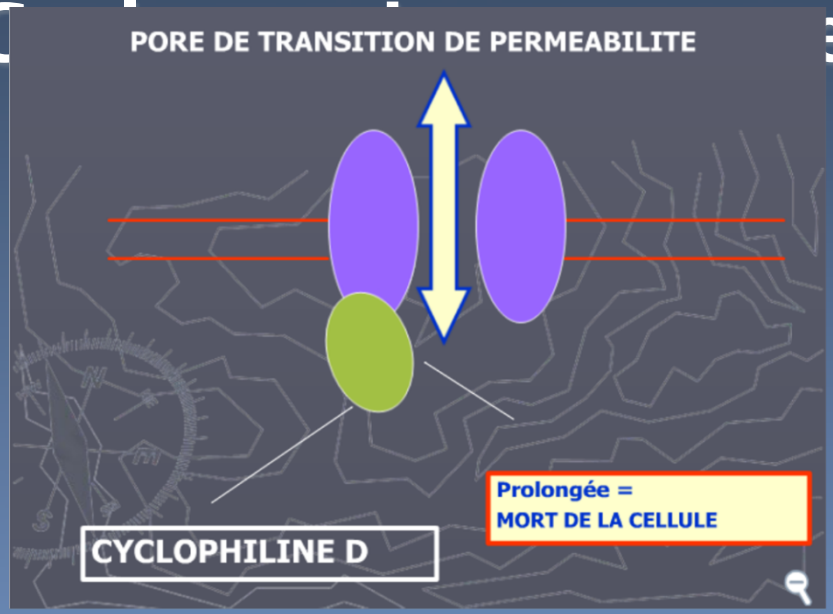
Association of onset to balloon and door to balloon time with long term clinical outcome in patients with ST elevation acute myocardial infarction having primary percutaneous coronary intervention: observational study

Conclusions Short onset to balloon time was associated with better 3 year clinical outcome in patients with STEMI having primary percutaneous coronary intervention, whereas the benefit of short door to balloon time was limited to patients who presented early. Efforts to minimise onset to balloon time, including reduction of patient related delay, should be recommended to improve clinical outcome in STEMI patients.

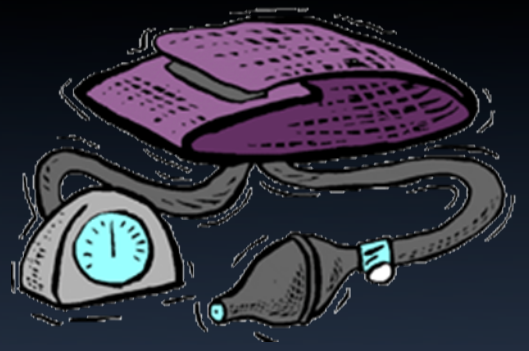
Nécessité d'un conditionnement



- Inflation du brassard dans l'ambulance
- Inflation / Déflation du ballon
- C[illegible]es molécules ?



Nécessité d'un conditionnement



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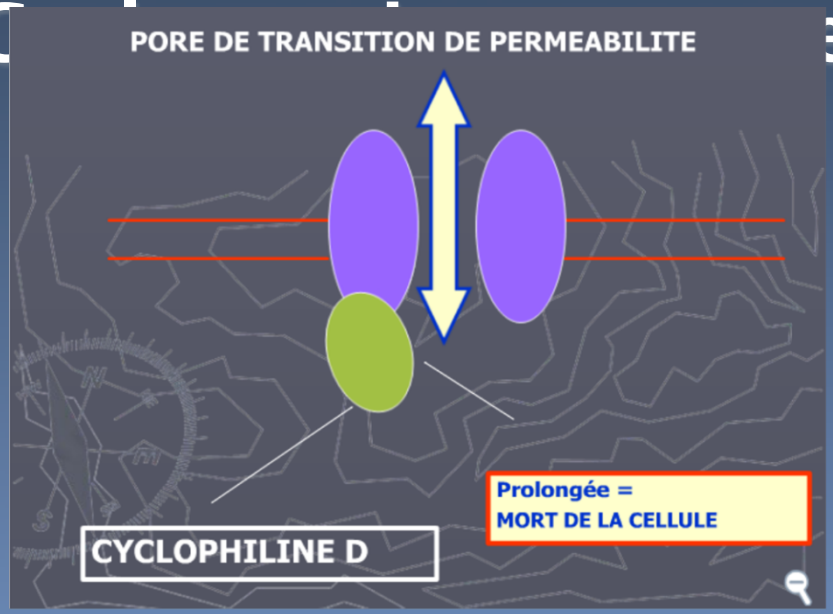

Adénosine (AMISTAD I et II)
ANP (J-WIND)
Béta bloqueurs (nébivolol)
Hypothermie modérée (COOL MI, RAPID-AMI-ICE)
O^2 hyperbarre (AMIHOT II)
Nitrates
Inh Phosphodiésterase 5