5 6 7 JUIN 2019

APPAC
Ensemble, imaginons la cardiologie de demain

Votations autour du SCA :
J'adopte une attitude MIMI

(minimalist immediate mechanical intervention)

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On reste dans les clichés

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Voter, notre spécialité !
En 2018 :

- 10 objets fédéraux
- 1 objet cantonal

En marge de cela..

Table 1. Characteristics of percutaneous coronary interventions, dedicated centres and operators in Switzerland from 2010 to 2015.

	2010	2011	2012	2013	2014	2015
Swiss inhabitants, n	7,870,134	7,954,662	8,039,060	8,139,631	8,237,666	8,327,126
Facilities						
Facilities with cathlab, n	33	33	35	36	37	37
PCI¶ operators, n	144	147	165	174+	167	178+
PCI per centre, n, median (IQR÷)	498 (274-981)	498 (248-949)	504 (264-1,011)	494 (296-1,040)	481 (305-932)	505 (253-964)
PCI per operator, n, median (IQR)	138∞	136 (71-151)	127 (86-158)	120 (68-165)	147 (87-208)≈	146 (61-191)+
On-site cardiac surgery, n (%)	15 (52%)	15# (52%)	15 (48%)	15 (45.5%)	18 (48.6%)	17 (46%)√

EuroIntervention 2017;13:Z75-Z79

Donc en résumé…

Chaque 13 dilatations, on vote

Un pays interventionnel ?

Année	Electeurs inscrits	Participation
2011	5'092'212	49.1
2012	5'153'959	38.4
2013	5'189'673	46.6
2014	5'230'302	52.4
2015	5'260'043	42.8
2016	5'320'514	49.6
2017	5'357'836	45.6
2018	5'406'424	43.7

2 votations sur 5,

on fait du MIMI…

MIMI

Circ Cardiovasc Interv. 2016 Mar;9(3):e003388. doi: 10.1161/CIRCINTERVENTIONS.115.003388.

Comparison of Immediate With Delayed Stenting Using the Minimalist Immediate Mechanical Intervention Approach in Acute ST-Segment-Elevation Myocardial Infarction: The MIMI Study.

Belle L[1], Motreff P[2], Mangin L[2], Rangé G[2], Marcaggi X[2], Marie A[2], Ferrier N[2], Dubreuil O[2], Zemour G[2], Souteyrand G[2], Caussin C[2], Amabile N[2], Isaaz K[2], Dauphin R[2], Koning R[2], Robin C[2], Faurie B[2], Bonello L[2], Champin S[2], Delhaye C[2], Cuilleret F[2], Mewton N[2], Genty C[2], Viallon M[2], Bosson JL[2], Croisille P[2]; MIMI Investigators*.

SUPER-MIMI

EuroIntervention. 2017 Jul 20;13(4):390-396. doi: 10.4244/EIJ-D-16-00667.

At least seven days delayed stenting using minimalist immediate mechanical intervention (MIMI) in ST-segment elevation myocardial infarction: the SUPER-MIMI study.

Mester P[1], Bouvaist H, Delarche N, Bouisset F, Abdellaoui M, Petiteau PY, Dubreuil O, Boueri Z, Chettibi M, Souteyrand G, Madiot H, Belle L.

Roland-Garros présente la raclette comme française

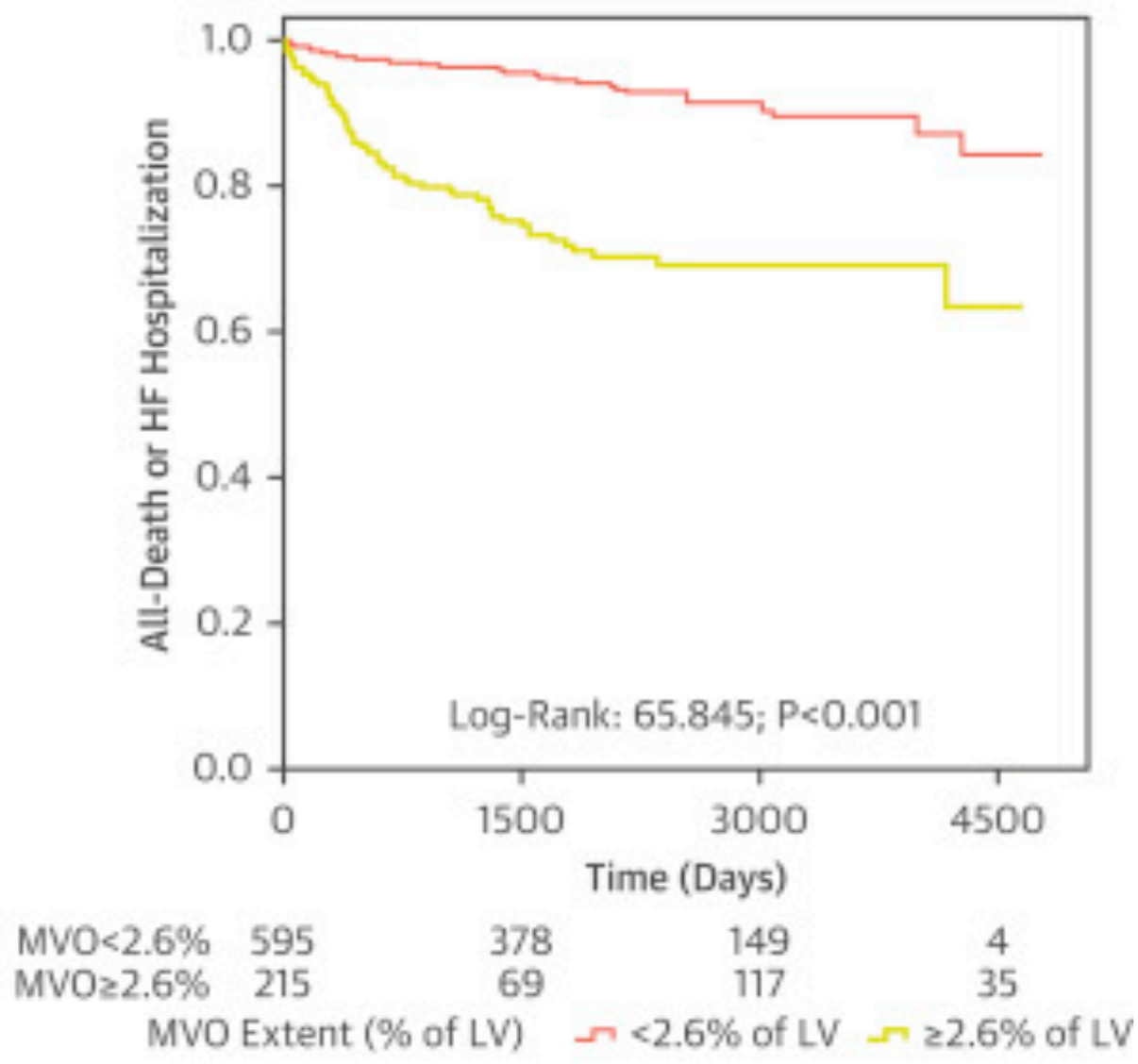
La levée parisienne du Grand Chelem a tourné une capsule vidéo avec le joueur japonais Kei Nishikori qui risque de déclencher une révolution en Valais.

Pourquoi le MIMI ?

Eviter le MVO :

Embolisation lors de la PCI

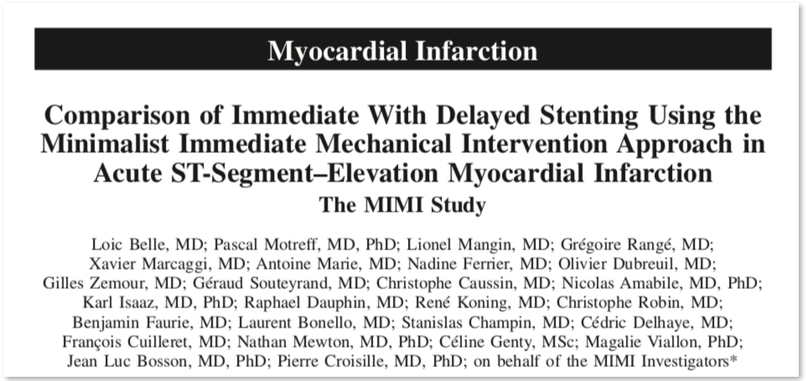
- Thrombus
- Plaques friables



MVO, et alors ?

JACC Cardiovasc Imaging. 2018 Jun;11(6):813-825

La littérature



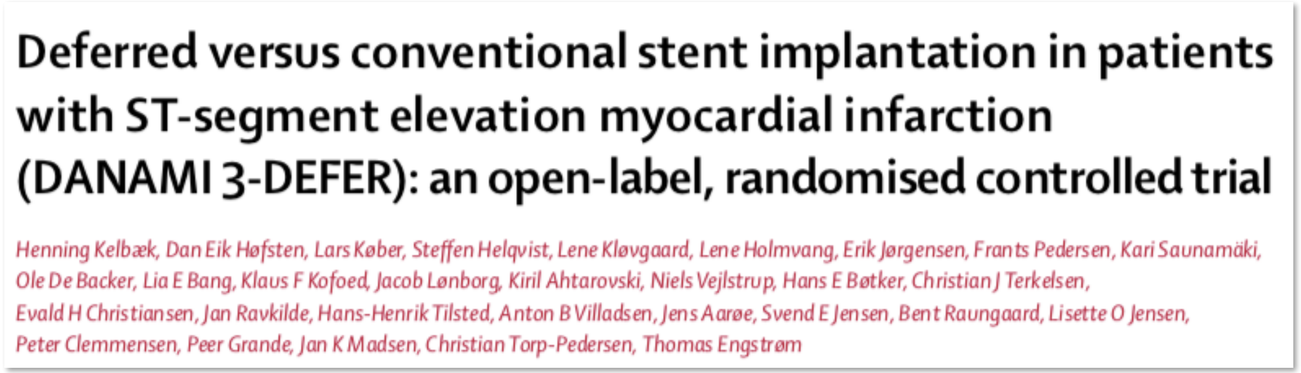
Myocardial Infarction

Comparison of Immediate With Delayed Stenting Using the Minimalist Immediate Mechanical Intervention Approach in Acute ST-Segment–Elevation Myocardial Infarction

The MIMI Study

Loic Belle, MD; Pascal Motreff, MD, PhD; Lionel Mangin, MD; Grégoire Rangé, MD; Xavier Marcaggi, MD; Antoine Marie, MD; Nadine Ferrier, MD; Olivier Dubreuil, MD; Gilles Zemour, MD; Géraud Souteyrand, MD; Christophe Caussin, MD; Nicolas Amabile, MD, PhD; Karl Isaaz, MD, PhD; Raphael Dauphin, MD; René Koning, MD; Christophe Robin, MD; Benjamin Faurie, MD; Laurent Bonello, MD; Stanislas Champin, MD; Cédric Delhaye, MD; François Cuilleret, MD; Nathan Mewton, MD, PhD; Céline Genty, MSc; Magalie Viallon, PhD; Jean Luc Bosson, MD, PhD; Pierre Croisille, MD, PhD; on behalf of the MIMI Investigators*

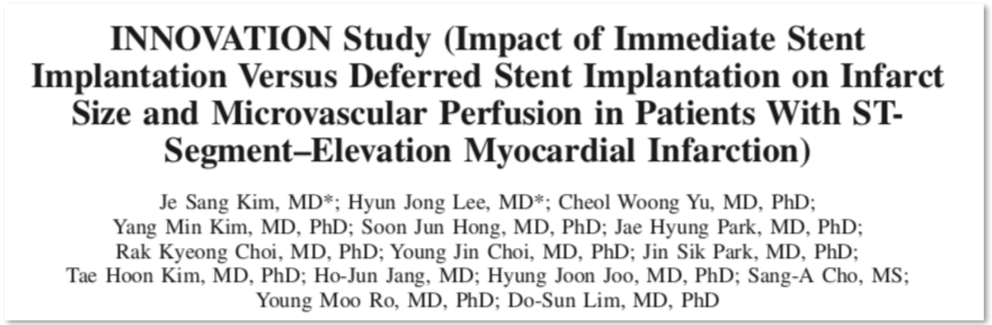
MIMI



Deferred versus conventional stent implantation in patients with ST-segment elevation myocardial infarction (DANAMI 3-DEFER): an open-label, randomised controlled trial

Henning Kelbæk, Dan Eik Høfsten, Lars Køber, Steffen Helqvist, Lene Kløvgaard, Lene Holmvang, Erik Jørgensen, Frants Pedersen, Kari Saunamäki, Ole De Backer, Lia E Bang, Klaus F Kofoed, Jacob Lønborg, Kiril Ahtarovski, Niels Vejlstrup, Hans E Bøtker, Christian J Terkelsen, Evald H Christiansen, Jan Ravkilde, Hans-Henrik Tilsted, Anton B Villadsen, Jens Aarøe, Svend E Jensen, Bent Raungaard, Lisette O Jensen, Peter Clemmensen, Peer Grande, Jan K Madsen, Christian Torp-Pedersen, Thomas Engstrøm

DANAMI 3-DEFER



INNOVATION Study (Impact of Immediate Stent Implantation Versus Deferred Stent Implantation on Infarct Size and Microvascular Perfusion in Patients With ST-Segment–Elevation Myocardial Infarction)

Je Sang Kim, MD*; Hyun Jong Lee, MD*; Cheol Woong Yu, MD, PhD; Yang Min Kim, MD, PhD; Soon Jun Hong, MD, PhD; Jae Hyung Park, MD, PhD; Rak Kyeong Choi, MD, PhD; Young Jin Choi, MD, PhD; Jin Sik Park, MD, PhD; Tae Hoon Kim, MD, PhD; Ho-Jun Jang, MD; Hyung Joon Joo, MD, PhD; Sang-A Cho, MS; Young Moo Ro, MD, PhD; Do-Sun Lim, MD, PhD

INNOVATION STUDY

CLINICAL RESEARCH — Interventional Cardiology

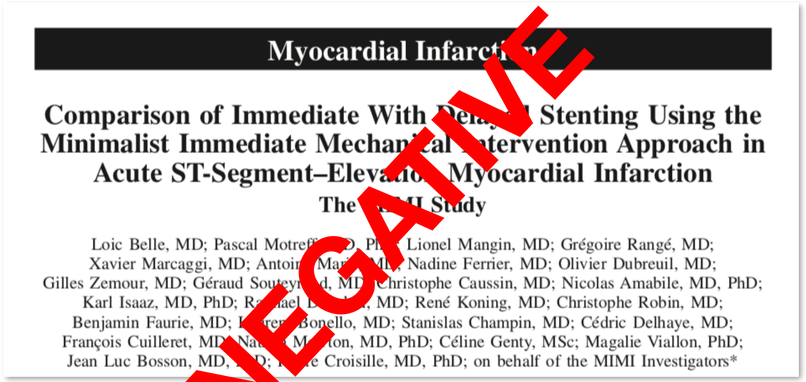
A Randomized Trial of Deferred Stenting Versus Immediate Stenting to Prevent No- or Slow-Reflow in Acute ST-Segment Elevation Myocardial Infarction (DEFER-STEMI)

David Carrick, BMEDSCI, MBCHB,*† Keith G. Oldroyd, MBCHB, MD,* Margaret McEntegart, MBCHB, PHD,† Caroline Haig, PHD,‡ Mark C. Petrie, MBCHB, MD,* Hany Eteiba, MBCHB, MD,* Stuart Hood, MBCHB, MD,* Colum Owens, MBCHB, MD,* Stuart Watkins, MBCHB, PHD,* Jamie Layland, MBCHB,*† Mitchell Lindsay, MBCHB, MD,* Eileen Peat, MBCHB, MD,* Alan Rae, MBCHB, MD,† Miles Behan, MBCHB, MD,§ Arvind Sood, MBCHB, MD,‖ W. Stewart Hillis, MBCHB, MD,* Ify Mordi, MBCHB,*† Ahmed Mahrous, MSC,† Nadeem Ahmed, MBCHB,* Rebekah Wilson, BMEDSCI,* Laura Lasalle, MPH,¶ Philippe Généreux, MD,¶ Ian Ford, PHD,‡ Colin Berry, MBCHB, PHD*†

Glasgow, Dunbartonshire, Edinburgh, and Lanarkshire, United Kingdom; and New York, New York

DEFER STEMI

La littérature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NEGATIVE

MIMI


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NEGATIVE

DANAMI 3-DEFER


CLINICAL RESEARCH

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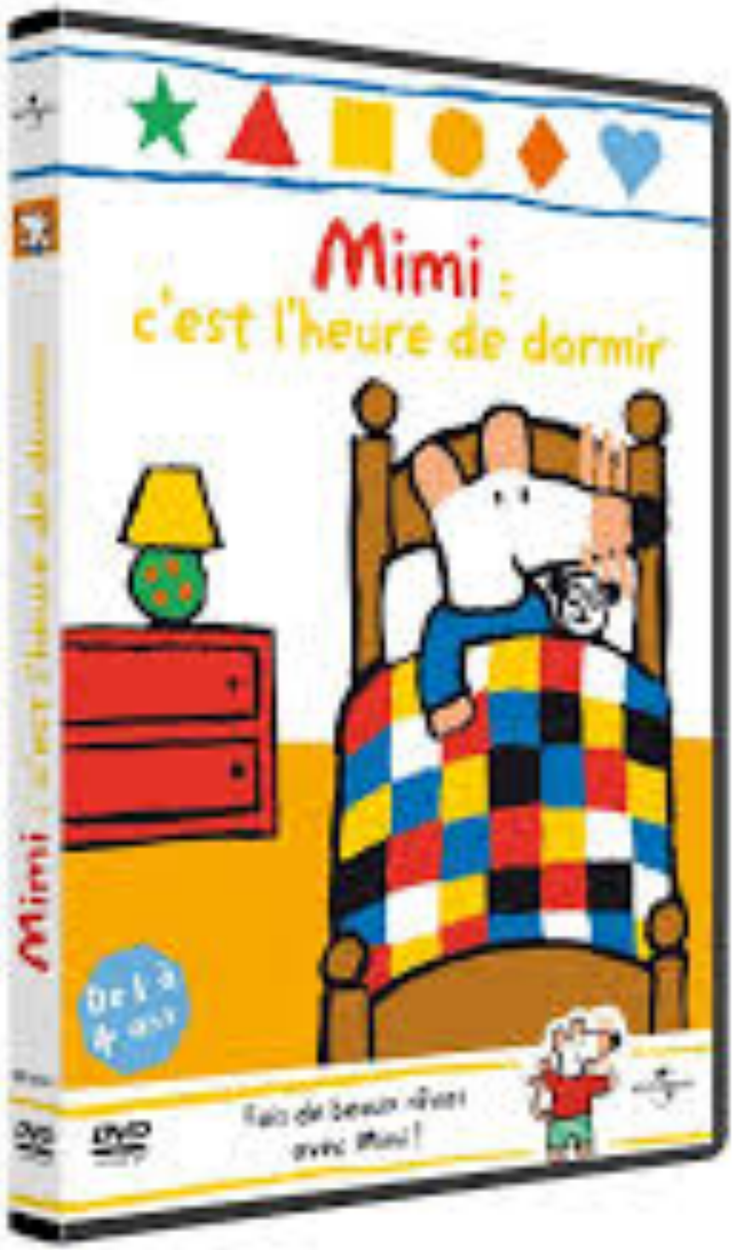
David Carrick, BMEDSCI, MBCHB,*† Keith G. Oldroyd, MBCHB, MD,* Margaret McEntegart, MBCHB, PHD, Hany Eteiba, MD,‡ Mark C. Petrie, MBCHB, MD,* Hany Eteiba, MBCHB, MD,* Stuart Hood, MBCHB, MD,* Colum Owens, MBCHB, MD,* Stuart Watkins, MBCHB, PHD,* James Rayland, MBCHB,*† Mitchell Lindsay, MBCHB, MD,* Eileen Peat, MBCHB, MD,* Miles Behan, MBCHB, MD,§ Arvind Sood, MBCHB, MD, Stewart Hillis, MBCHB, MD,* Ify Mordi, MBCHB,*† Ahmed Mahrous, MSC,† Nadeem Ahmed, MBCHB,* Rebekah Wilson, BMEDSCI,* Laura Lasalle, MPH,¶ Philippe Gobeaux, MD,¶ Ian Ford, PHD,‡ Colin Berry, MBCHB, PHD*†

Glasgow, Dunbartonshire, Edinburgh, and Lanarkshire, United Kingdom; and New York, New York

POSITIVE

DEFER STEMI

Routine use of deferred stenting is not recommended.[153–155]	III	B


Mimi :
c'est l'heure de dormir
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De 1 à 4 ans
DVD
Plein de beaux rêves avec Mimi !

?

Pas si simple…

	DEFER-STEMI
N=	101
Primary Outcome	TIMI Flow ≤ 2
Secondary	Angio, ECG, IRM
Population	« à risque de no reflow »
Délai entre procédures	9 h (6-12)
Anti G2b-3a	98.1

Outcome	Immediate Stenting (n = 49)	Deferred Stenting (n = 51)*	Odds Ratio (95% CI)	p Value†
Primary outcome				
No- or slow-reflow (TIMI 0 to 2)‡				
Yes	14 (28.6)	3 (5.9)	0.16 (0.03–0.63)	0.005
Secondary angiographic outcomes				
No-reflow (TIMI grade 0 or 1)				
Yes	7 (14.3)	1 (2.0)	0.12 (0.03–1.02)	0.052
Final TIMI coronary flow grade post-PCI§				
3	39 (79.6)	50 (98.0)		
2	6 (12.2)	0 (0.0)	0.08 (0.01–0.65)	0.018
0/1	4 (8.2)	1 (2.0)		
Final TIMI myocardial blush grade post-PCI‖				
Missing	0	1		
3	26 (53.1)	40 (80.0)		
2	18 (36.7)	9 (18.0)	0.28 (0.11–0.65)	0.004
0/1	5 (10.2)	1 (2.0)		

	DEFER-STEMI
N=	101
Primary Outcome	TIMI Flow ≤ 2
Secondary	Angio, ECG, IRM
Population	« à risque de no reflow »
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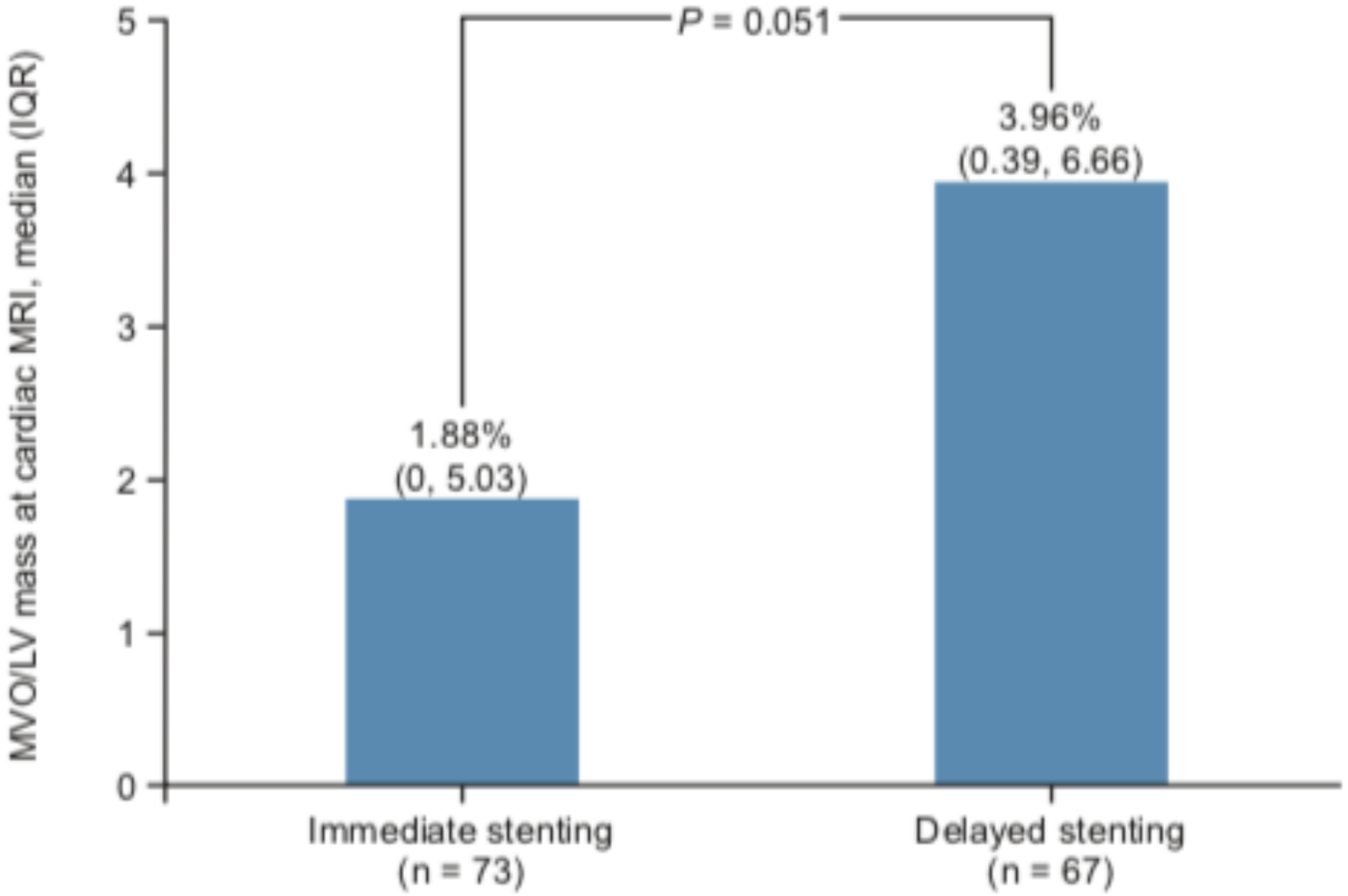
Anti G2b-3a	98.1

	DEFER-STEMI	MIMI	DANAMI 3-DEFER	INNOVATION
N=	101	140	1215	114
Primary Outcome	TIMI Flow ≤ 2	MVO	Mortality, Hosp for HF , MI, UR	Infarctus size
Secondary	Angio, ECG, IRM	Angio, ECG, IRM, Events	Events	MVO
Population	« à risque de no reflow »	Non-sélectionnée	Non-sélectionnée	Non-sélectionnée
Délai entre procédures	9 h (6-12)	36 h (29–46)	3 jours (1–4)	3 jours
Anti G2b-3a	98.1	100	35 %	77 %


P = 0.051
MVO/LV mass at cardiac MRI, median (IQR)
5
4
3
2
1
0
1.88%
(0, 5.03)
3.96%
(0.39, 6.66)
Immediate stenting
(n = 73)
Delayed stenting
(n = 67)

	DEFER-STEMI	MIMI	DANAMI 3-DEFER	INNOVATION
N=	101	140	1215	114
Primary Outcome	TIMI Flow ≤ 2	MVO	Mortality, Hosp for HF , MI, UR	Infarctus size
Secondary	Angio, ECG, IRM	Angio, ECG, IRM, Events	Events	MVO
Population	« à risque de no reflow »	Non-sélectionnée	Non-sélectionnée	Non-sélectionnée
Délai entre procédures	9 h (6-12)	36 h (29–46)	3 jours (1–4)	3 jours
Anti G2b-3a	98.1	100	35 %	77 %

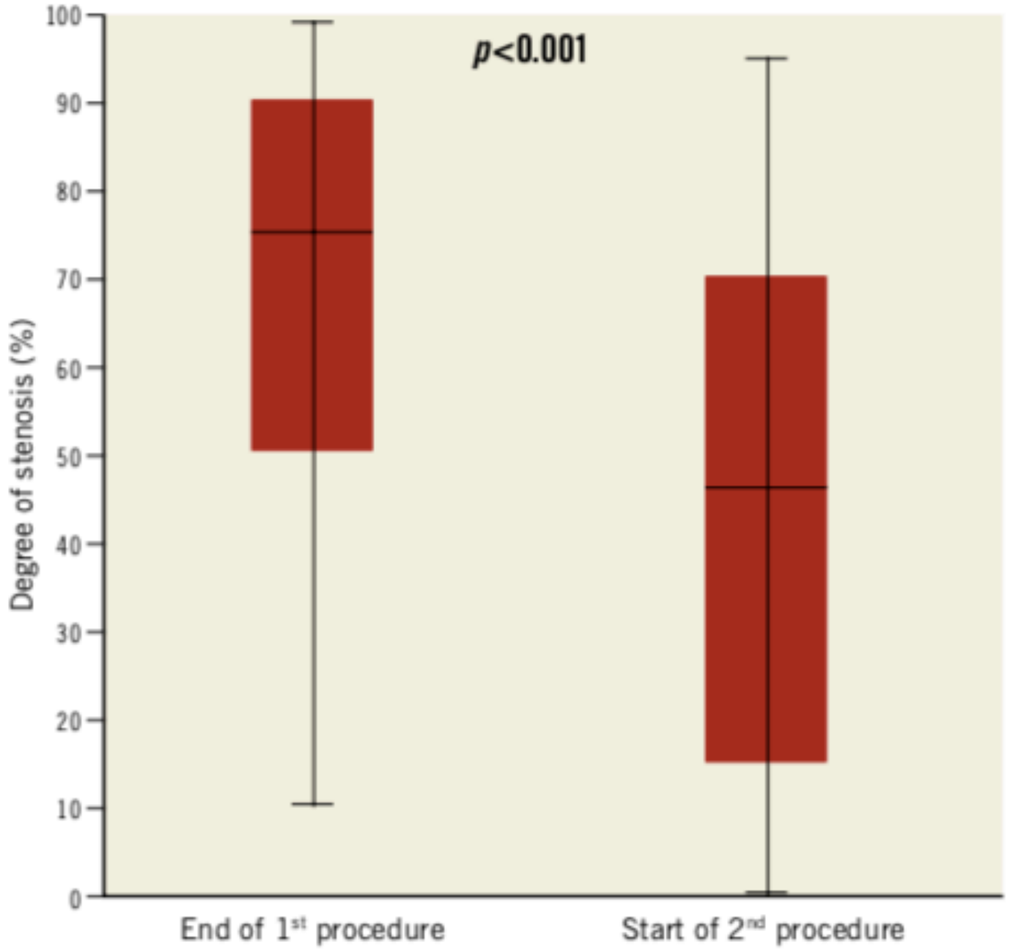
SUPER-MIMI

Critère d'inclusion :

"and a sufficiently important thrombotic burden for the operator to opt for delaying stent implantation for ≥7 days. "

SUPER-MIMI

First procedure device use	Nothing	30 (19.4)
	Only wire	17 (11.0)
	Only aspiration	71 (45.8)
	Balloon (±aspiration)	37 (23.9)



SUPER-MIMI

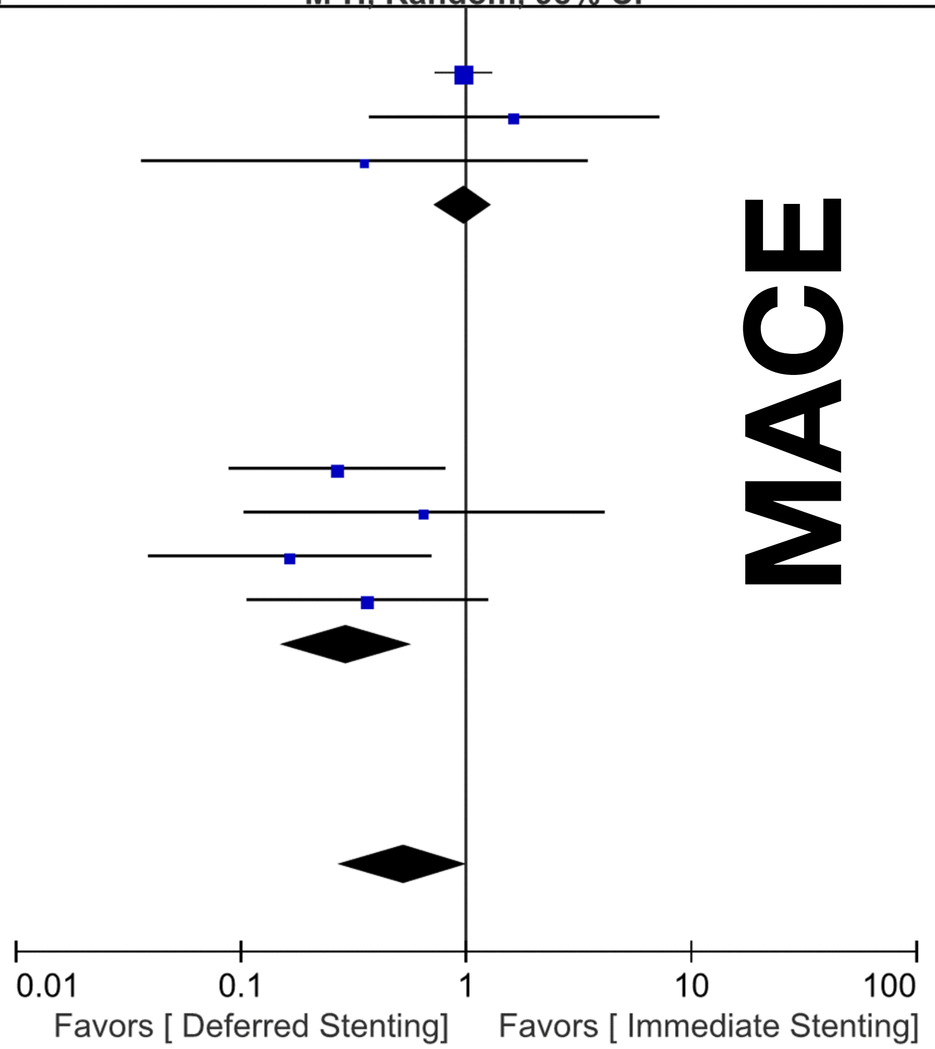
Les points négatifs :

- 2 ré-occlusions (sans anti G2b-3a) sur 155 patients
- Long séjour
- Coûts
- Hémorragies

Les points positifs :

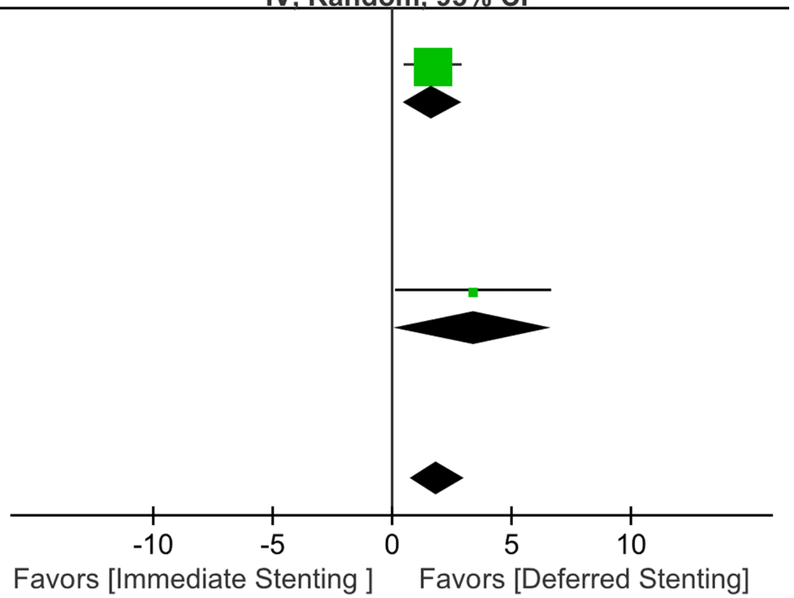
- 56 lesions non stentées au final

Study or Subgroup	Deferred Stenting Events	Deferred Stenting Total	Immediate Stenting Events	Immediate Stenting Total	Weight	Odds Ratio M-H, Random, 95% CI
2.1.1 Randomized controlled trials						
DANAMI 3-DEFER(2016)[12]	105	603	109	612	29.0%	0.97 [0.72, 1.31]
DEFER-STEMI(2014)[23]	5	52	3	49	12.0%	1.63 [0.37, 7.22]
MIMI(2016)[13]	1	67	3	73	6.5%	0.35 [0.04, 3.48]
Subtotal (95% CI)		**722**		**734**	**47.5%**	**0.98 [0.73, 1.30]**
Total events	111		115			
Heterogeneity: $\tau^2 = 0.00$; $\chi^2 = 1.22$, df = 2 (P = 0.54); $I^2 = 0\%$						
Test for overall effect: Z = 0.16 (P = 0.87)						
2.1.2 Observational studies						
Ke et al(2012)[10]	5	53	14	50	16.4%	0.27 [0.09, 0.81]
Meneveau et al(2009)[9]	2	39	3	39	9.0%	0.65 [0.10, 4.11]
Pascal et al(2016)[11]	2	56	38	207	12.3%	0.16 [0.04, 0.71]
Tang et al(2011)[24]	4	40	11	47	14.8%	0.36 [0.11, 1.25]
Subtotal (95% CI)		**188**		**343**	**52.5%**	**0.30 [0.15, 0.58]**
Total events	13		66			
Heterogeneity: $\tau^2 = 0.00$; $\chi^2 = 1.50$, df = 3 (P = 0.68); $I^2 = 0\%$						
Test for overall effect: Z = 3.56 (P = 0.0004)						
Total (95% CI)		**910**		**1077**	**100.0%**	**0.53 [0.27, 1.01]**
Total events	124		181			
Heterogeneity: $\tau^2 = 0.37$; $\chi^2 = 13.13$, df = 6 (P = 0.04); $I^2 = 54\%$						
Test for overall effect: Z = 1.92 (P = 0.06)						
Test for subgroup differences: $\chi^2 = 10.27$, df = 1 (P = 0.001); $I^2 = 90.3\%$						



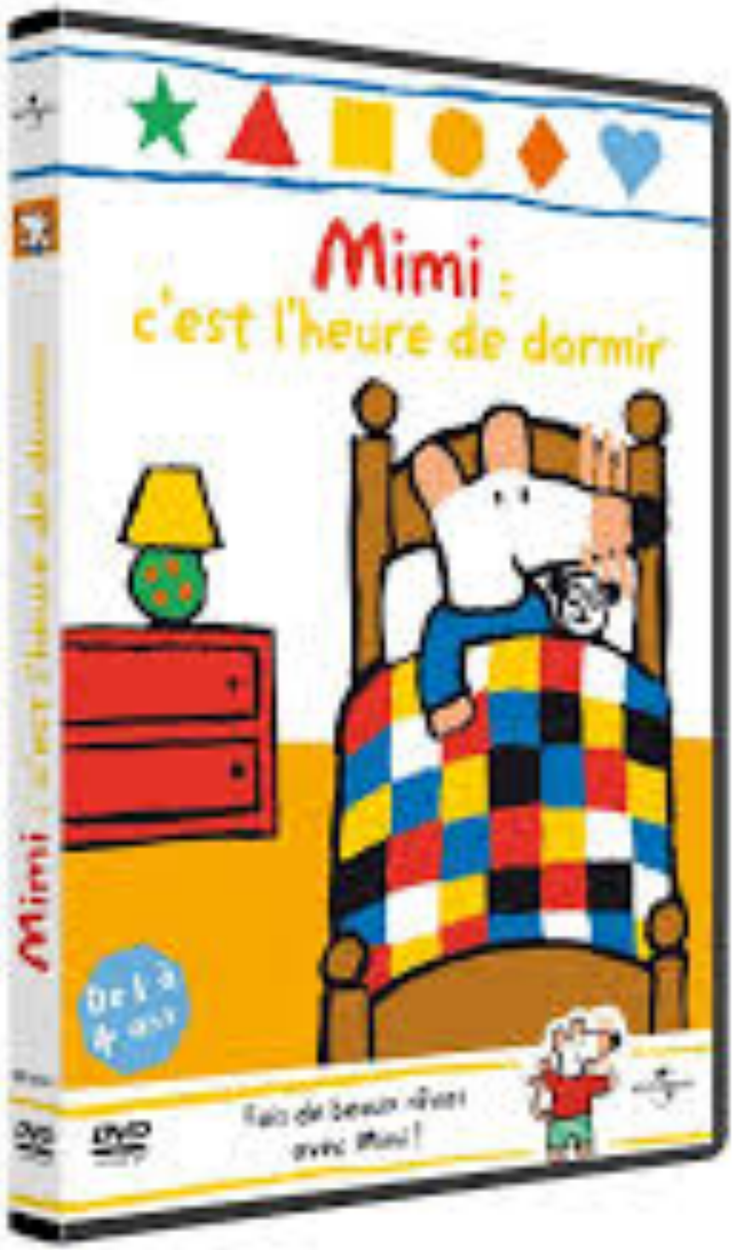
Qiao et al AHJ 2017

Study or Subgroup	Deferred stenting Mean	SD	Total	Immediate stenting Mean	SD	Total	Weight	Mean Difference IV, Random, 95% CI
7.1.1 Randomised controlled trials								
DANAMI 3-DEFER(2016) [12]	55.2	7.63	383	53.5	9.43	392	88.1%	1.70 [0.49, 2.91]
Subtotal (95% CI)			**383**			**392**	**88.1%**	**1.70 [0.49, 2.91]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 2.76 (P = 0.006)								
7.1.2 Observational studies								
Ke et al(2012) [10]	55.2	6.9	52	51.8	9.6	49	11.9%	3.40 [0.12, 6.68]
Subtotal (95% CI)			**52**			**49**	**11.9%**	**3.40 [0.12, 6.68]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 2.03 (P = 0.04)								
Total (95% CI)			**435**			**441**	**100.0%**	**1.90 [0.77, 3.03]**
Heterogeneity: $\tau^2 = 0.00$; $\chi^2 = 0.91$, df = 1 (P = 0.34); $I^2 = 0\%$								
Test for overall effect: Z = 3.29 (P = 0.0010)								
Test for subgroup differences: $\chi^2 = 0.91$, df = 1 (P = 0.34); $I^2 = 0\%$								



LVEF

Qiao et al AHJ 2017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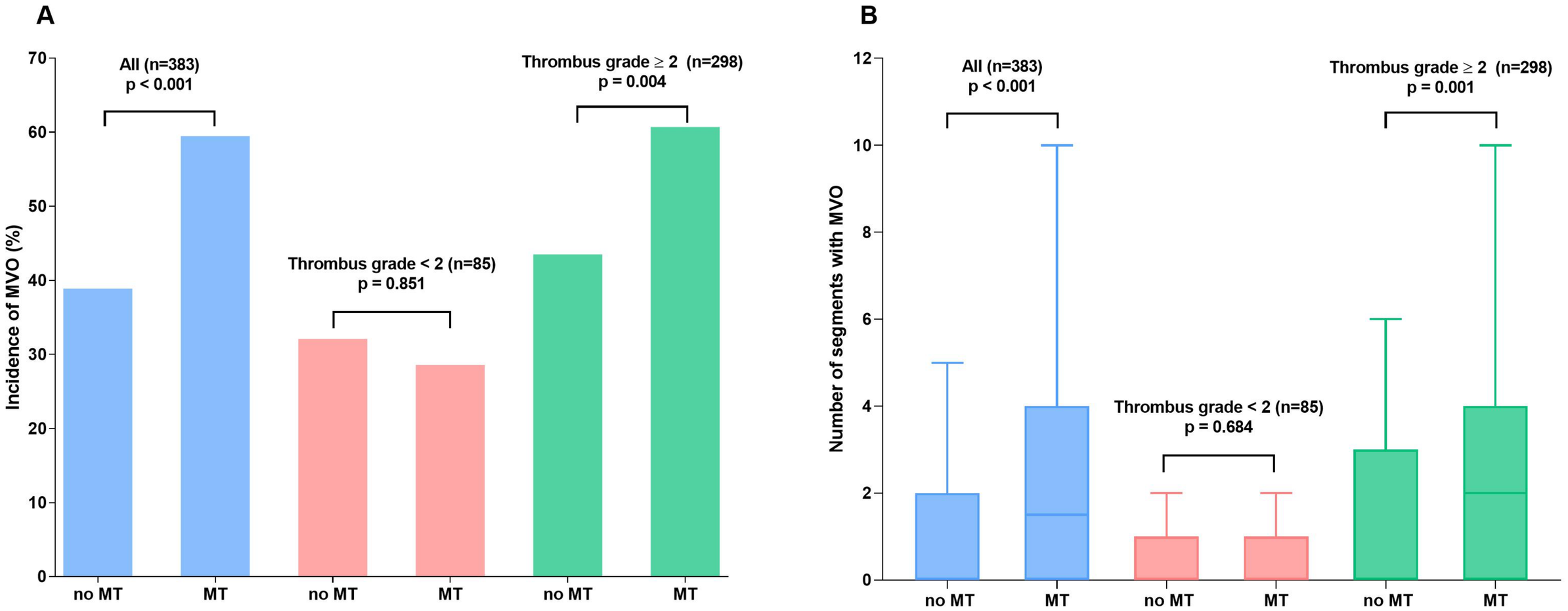
L’importance de la charge thrombotique



David Meier , Stephane Fournier , Eric Eeckhout , Piergiorgio Masci , Jurg Schwitter , Panagiotis Antiochos , Georgios Tzimas , Pierre Monney , Olivier Muller , Brahim Harbaoui

Take Home Message

- **Lorsque la charge thrombotique est importante, lorsque le flux est rétabli, moins on en fait, mieux ça va (DEFER-STEMI).**
- **Si on attend, (sous couverture d'anti G2b/3a), on choisit potentiellement le meilleur traitement final (stent et taille de celui-ci) (SUPER MIMI).**
- **Hormis le risque de ré-occlusion (en l'absence d'anti G2b/3a), le MIMI est safe (DANAMI 3-DEFER).**
- **Le candidat idéal est peut-être le patient avec haute charge thrombotique, mais flux préservé (pas besoin de thrombo-aspirer).**
- **Attendre en tous cas une semaine paraît raisonnable.**

Invasive management without stents in selected acute coronary syndrome patients with a large thrombus burden: a prospective study of optical coherence tomography guided treatment decisions

Geraud Souteyrand[1,2]*, MD; Nicolas Amabile[1], MD, PhD; Nicolas Combaret[1,2], MD; Sami Hammas[1], MD; Francesco Prati[4], MD, PhD; Colin Berry[5], MD, PhD; Bruno Pereira[6], MD; Jean-Rene Lusson[1,2], MD; Christophe Caussin[1], MD; Pascal Motreff[1,2], MD, PhD

Merci !