CSC 2025
CORONARY AND STRUCTURAL CONGRESS
CONGRESO CORONARIO Y ESTRUCTURAL
MADRID

5, 6 y 7 NOVIEMBRE
HOTEL RIU PLAZA DE ESPAÑA

HOW TO DO

MANEJO DEL TROMBO EN EL INFARTO

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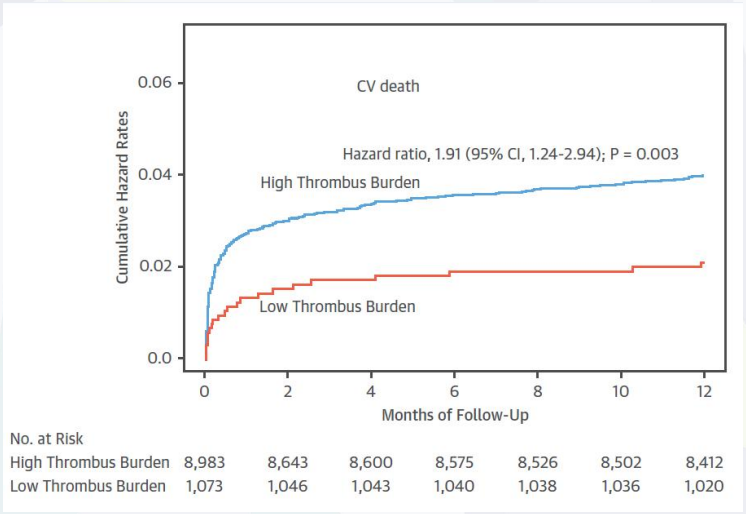
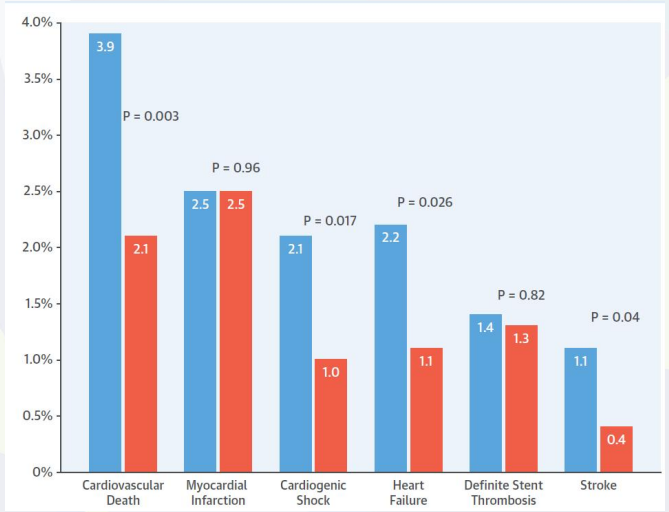
Hospital Universitario de Salamanca

¿La cantidad de trombo en el infarto importa?

TIMI thrombus grading system

Grade	Description
Grade 0	No angiographic evidence of thrombus.
Grade 1	Possible thrombus, shown by decreased contrast density, haziness, or an irregular lesion contour.
Grade 2	Definite thrombus, with the greatest dimension being less than half the vessel diameter.
Grade 3	Definite thrombus, with the greatest dimension being more than half but less than two vessel diameters.
Grade 4	Definite thrombus, with the greatest dimension being more than two vessel diameters.
Grade 5	Complete occlusion of the vessel by thrombus.

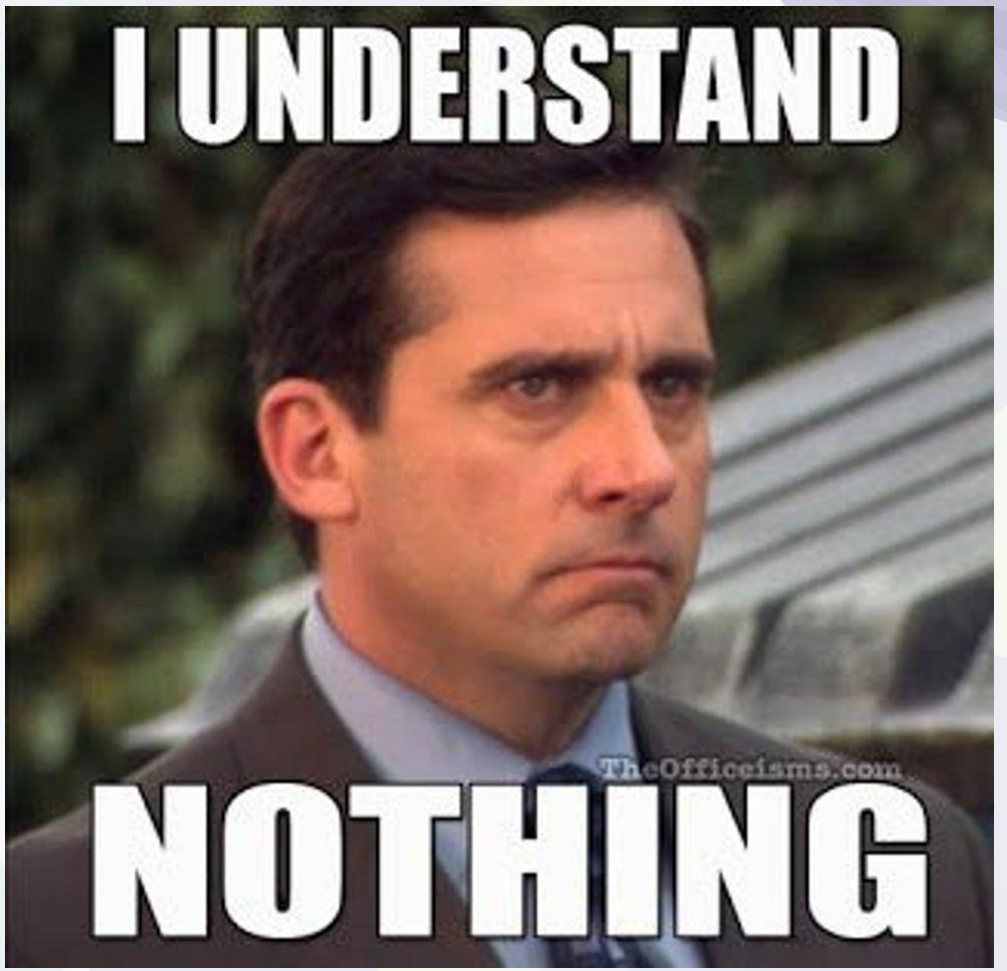




Tamis-Holland et al. JSCAI 2024; Feng X et al. Rev Cardiovasc Med 2025;
Jenca D et al. ESC Heart Failure 2021; Jolly SS et al. JACC 2018

¿La cantidad de trombo en el infarto importa?

Pre-treatment with a $P2Y_{12}$ receptor inhibitor may be considered in patients undergoing a primary PCI strategy.	IIb	B
GP IIb/IIIa receptor antagonists should be considered if there is evidence of no-reflow or a thrombotic complication during PCI.	IIa	C
In $P2Y_{12}$ receptor inhibitor-naïve patients undergoing PCI, cangrelor may be considered.[251–254]	IIb	A
PCI with stent deployment in the IRA during the index procedure is recommended in patients undergoing PPCI.[490–494]	I	A
The routine use of thrombus aspiration is not recommended.[472–474]	III	A

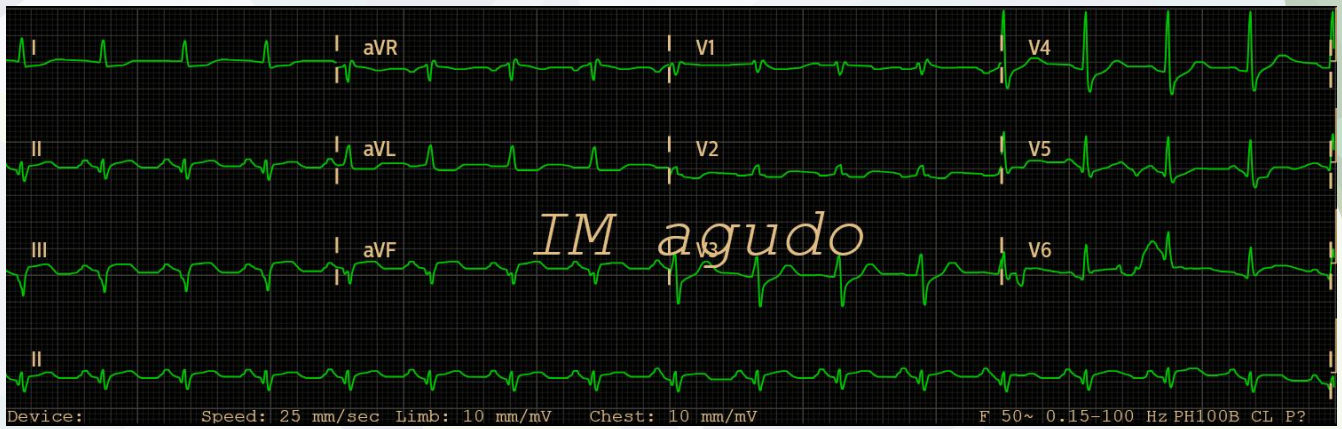


Byrne RA et al. ESC guidelines. EHJ 2023

Manejo del trombo en el IAM

Antecedentes

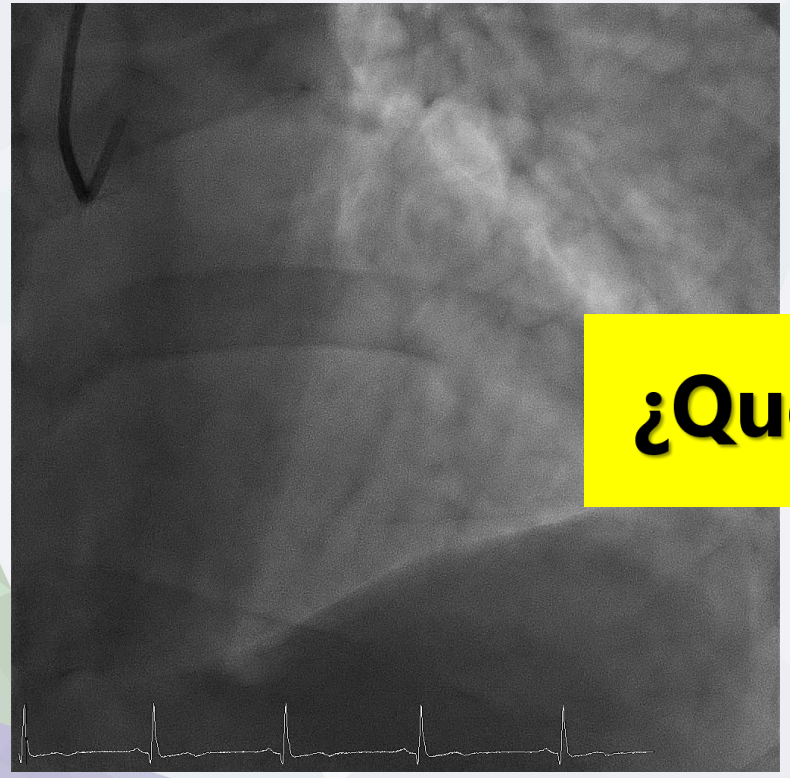
- Varón de 65 años
- Fumador, IMC 25 Kg/m2.
- Sin historia cardiológica previa.

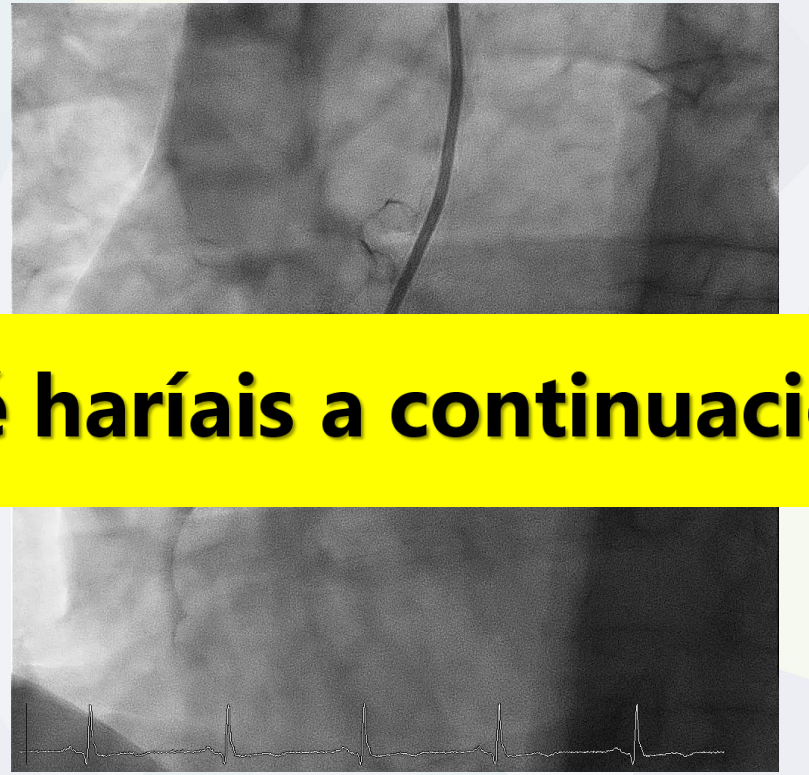


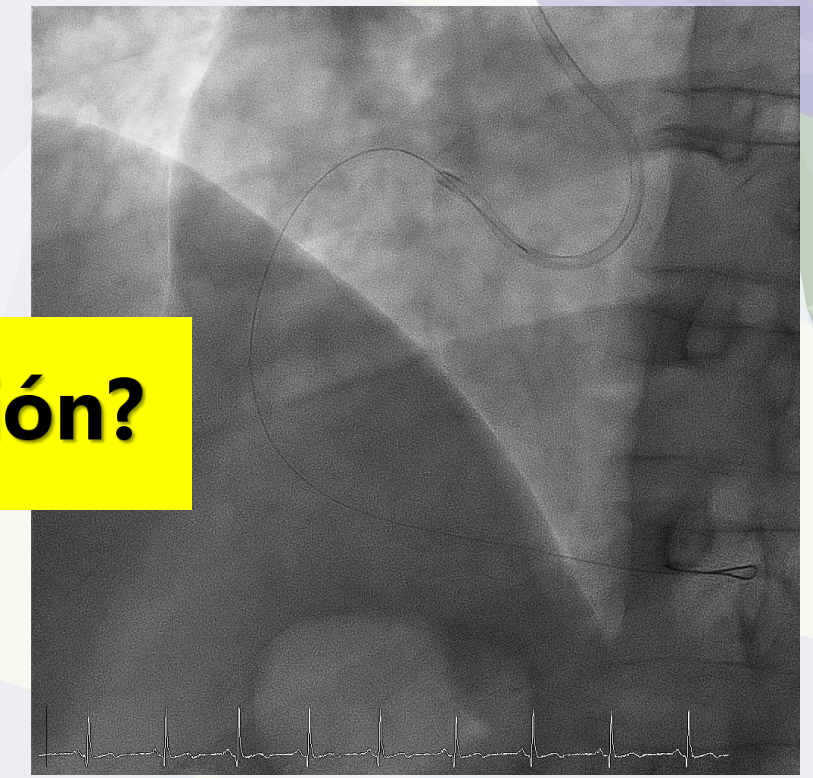
Clínica:

- Inicio del dolor: 22/07/2025 - 10:00
- Primer contacto médico (Ávila): 23/07/2025 – 9:00
- Llegada a HD: 23/07/2025 – 10:40

Manejo del trombo en el IAM



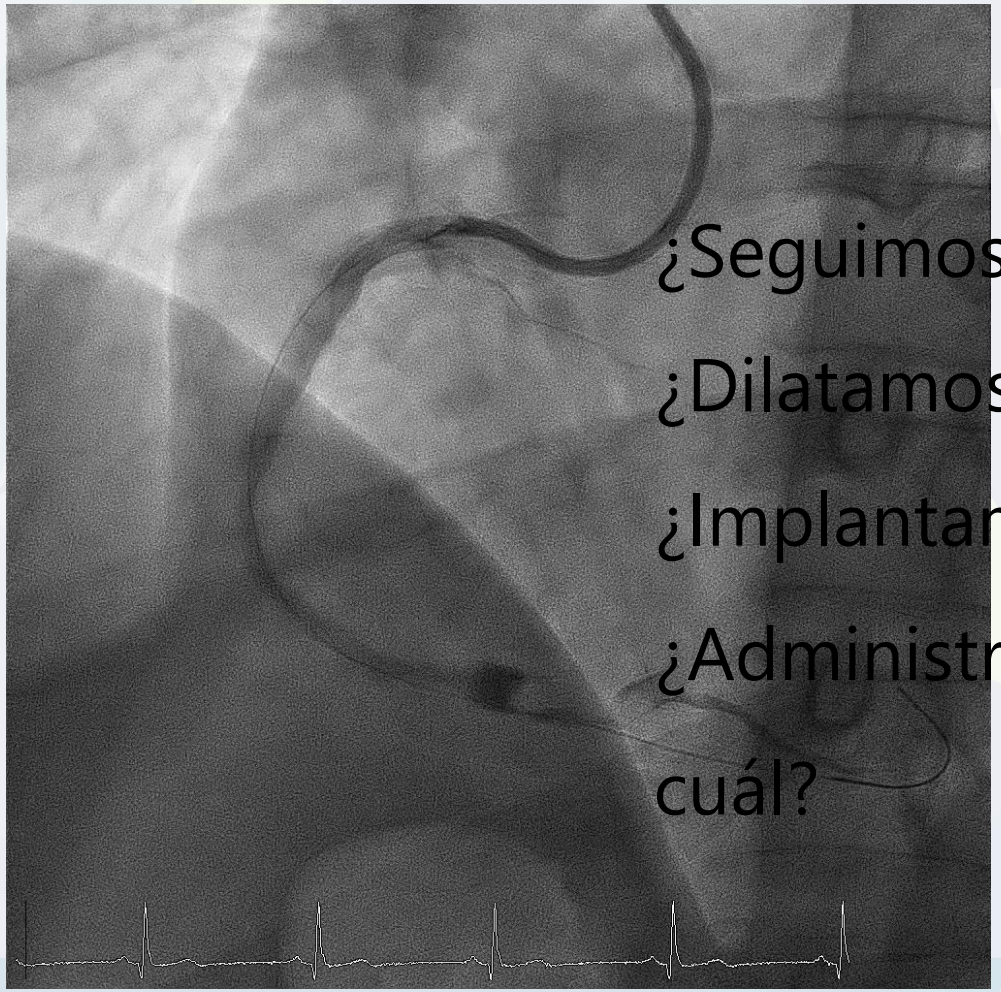




¿Qué haríais a continuación?

Manejo del trombo en el IAM

Tromboaspiración x3 con catéter Hunter, con salida de abundante contenido trombótico



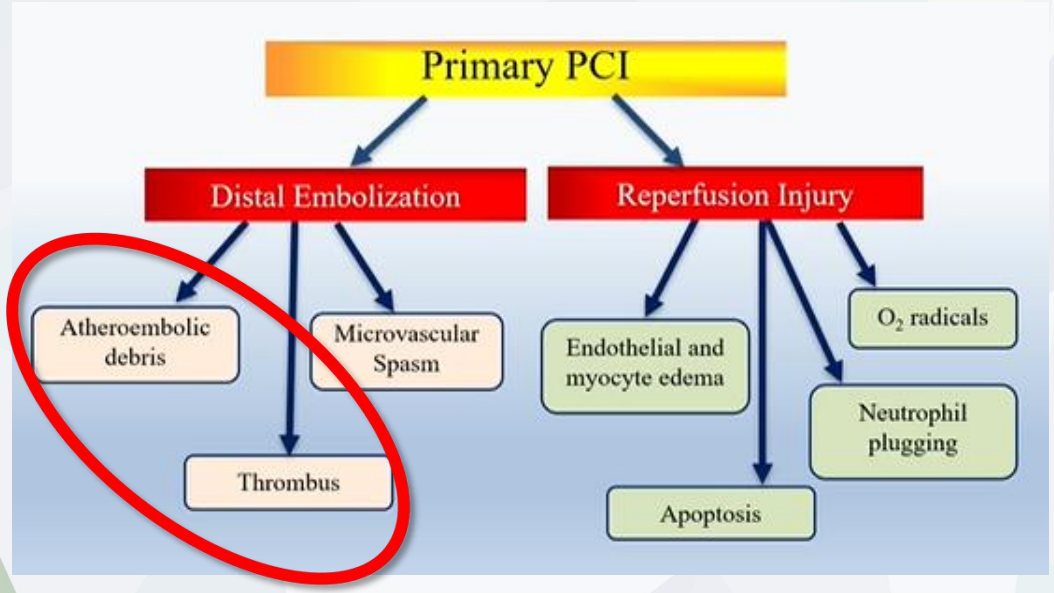
¿Seguimos tromboaspirando?

¿Dilatamos con balón?

¿Implantamos Stents?

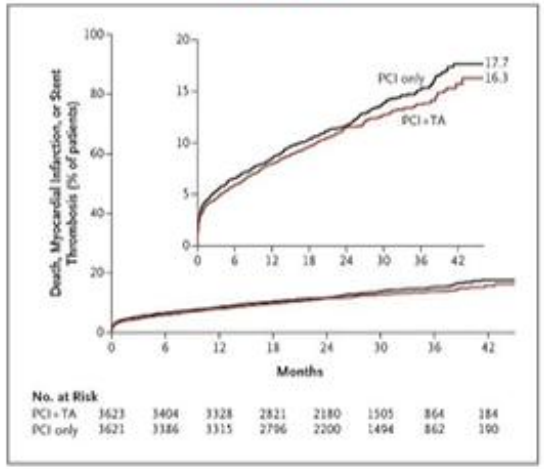
¿Administramos medicación, y cuál?

Manejo del trombo en el IAM: Tromboaspiración



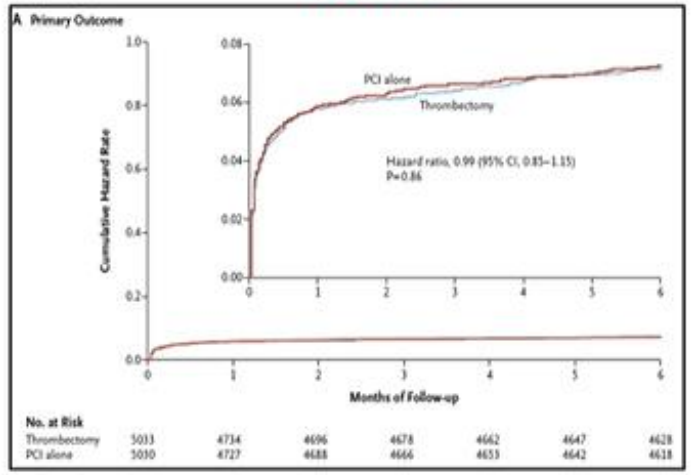
- Tromboaspiración "de rutina"
- Valoración de la carga trombótica
- ¿Técnica? → Más ACV

TASTE



At **1 Year**: No difference in rate of death from any cause or the composite of all-cause death, rehospitalization for MI, or stent thrombosis at 1 year

TOTAL



At **180 days**: No difference in cardiovascular death, recurrent myocardial infarction, cardiogenic shock, or NYHA class IV heart failure but was associated with an increased rate of stroke within 30 days.

Thrombus grade				0.93
4–5	41/1138	41/1078	0.95 (0.61–1.46)	
0–3	61/2451	64/2499	0.97 (0.68–1.38)	
TIMI grade before PCI				0.36
0–1	91/2821	92/2811	0.98 (0.74–1.32)	
2–3	12/792	18/809	0.68 (0.33–1.41)	

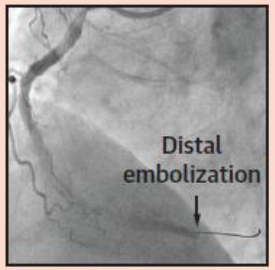
Manejo del trombo en el IAM: Tromboaspiración

Failed Thrombus Aspiration Among STEMI Patients With Large Clot Burden

Patients with STEMI undergoing PPCI with large thrombus burden (N = 812)

Failed TA (n = 279)

No thrombus retrieval, remnant thrombus grade ≥2, or distal embolization



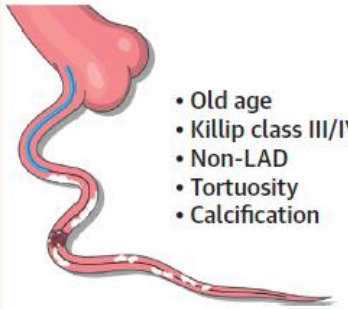
Successful TA (n = 533)

Thrombus retrieval, remnant thrombus grade 0/1, and no distal embolization

Outcome Measures

	Failed TA (n = 279)	Successful TA (n = 533)	*P* Value
Final TIMI flow grade 0-2	71 (25.4)	94 (17.6)	0.009
Myocardial blush grade 0/1	55 (19.7)	73 (13.7)	0.025
Microvascular obstruction on CMR	46/56 (82.1)	62/100 (62.0)	0.009
Cardiac death at 30 days	31 (11.1)	34 (6.4)	0.018

Predictors of TA Failure



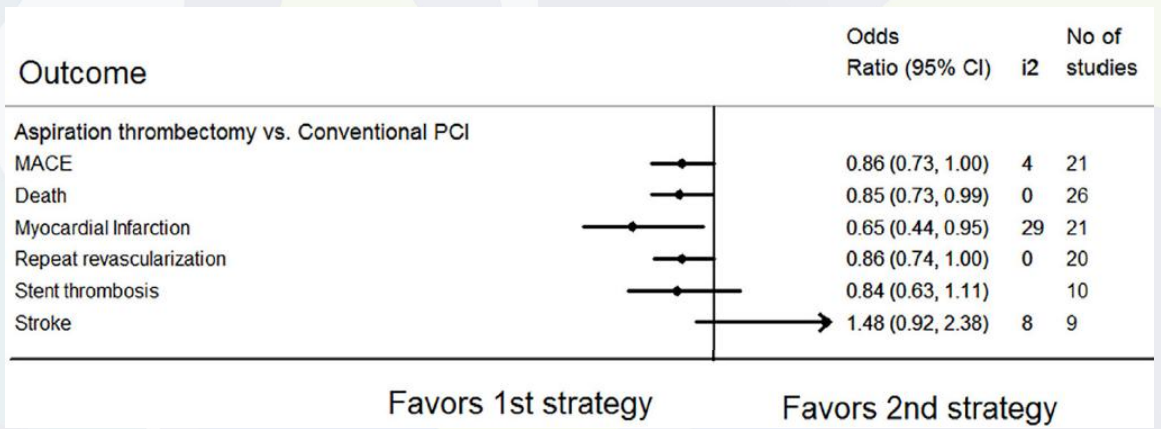
- Old age
- Killip class III/IV
- Non-LAD
- Tortuosity
- Calcification

- Failed thrombus aspiration is associated with reduced myocardial perfusion and an unfavorable clinical outcome in patients with STEMI and large thrombus burden
- Older age, hemodynamic instability, tortuous and calcified IRA, and non-LAD as the IRA mitigate the effectiveness of manual thrombus aspiration

Table 1a
Study Characteristics of Aspiration thrombectomy trials.

Trial/Author	Device	N	Age	Sex (F)	DM	MVD	Mean Ischemic Time	LAD	GP2b3a	TIMI 0/1	P2Y12	Direct stenting	DES
Ahn SG[1]	NA	40	60	20	30	NA	5.4	75	75	90	100	NA	NA
Bulum J[6]	Export	60	56	22	10	NA	4.4	42	90	NA	100	NA	NA
Chao[7]	Export	74	61	15	27	NA	5.8	58	26	99	100	31	NA
Chevalier B[8]	Export	249	60	19	15	NA	5.5	50	68	100	42	NA	NA
COCTAIL II[10]	Thrombuster	128	63	16	18	47	2.9	43	34	60	NA	NA	80
De Luca[11]	Diver	76	66	37	21	21	7.4	99	100	100	NA	49	57
DEAR-MI[12]	Pronto	148	58	20	18	51	3.4	47	100	77	NA	47	NA
Examination[14]	NA	1498	61	18	18	13	NA	42	50	NA	100	56	NA
Expira[15]	Export	175	66	40	21	21	6.2	43	100	100	100	39	58
INFUSE-AMI[17]	Export	452	60	26	11	NA	2.5	100	50	72	66	NA	73
ITTI[18]	Thrombuster	100	59	14	26	59	4.3	51	50	87	100	NA	NA
Liistro[21]	Export	111	65	23	16	42	3.4	42	100	73	100	15	0
Lipiecki[22]	Export	44	59	32	7	57	7.2	41	44	98	100	93	NA
Liu X[23]	Zeek	80	66	NA	NA	NA	NA	NA	50	NA	100	NA	NA
Messas N[24]	Export	239	61	26	17	52	4.7	42	74	87	NA	52	17
Noel[27]	Export	50	61	NA	NA	NA	4.7	44	NA	NA	NA	NA	NA
PATA STEMI[30]	Eliminate	128	59	33	11	65	3.0	41	27	81	NA	NA	NA
PIHRATE[31]	Diver	196	59	19	11	NA	NA	39	9	97	100	40	NA
REMEDIA[32]	Diver	99	61	16	20	38	4.8	45	66	88	100	45	NA
Shehata M[33]	Export	100	60	36	100	NA	1.3	54	100	NA	100	NA	0
Sim DS[34]	Thrombuster	86	62	31	30	NA	2.1	56	38	77	100	NA	86
TAPAS[35]	Export	1071	63	30	12	68	3.1	43	92	57	100	73	0
TASTE[36]	Export/Pronto	7244	66	25	12	43	3.0	45	16	78	100	NA	NA
TOTAL[37]	Export	10732	61	22	18	NA	2.9	NA	38	67	91	30	45
TROFI[39]	Eliminate	141	61	28	11	0	NA	59	55	48	100	NA	100
Wita K[41]	Diver	42	57	25	11	55	4.9	67	100	NA	100	NA	NA
Woo SI[42]	Export	63	54	8	19	29	4.5	64	0	81	100	NA	100

N, number; F, female; DM, diabetes mellitus; MVD, multi-vessel disease; LAD, left anterior descending artery, GP2b3a, glycoprotein 2b 3a inhibitors; TIMI, thrombolysis in myocardial infarction; DES, drug-eluting stent.



Gajulapalli RD, et al. Indian Heart Journal 2021; Yeon HS et al. JACC Cardiovasc Interv 2024

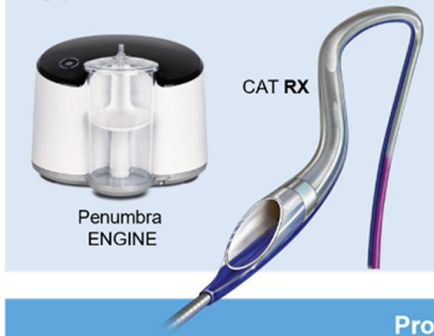
Manejo del trombo en el IAM: Tromboaspiración

GRAPHIC ABSTRACT: Results of the CHEETAH Study

Study Overview

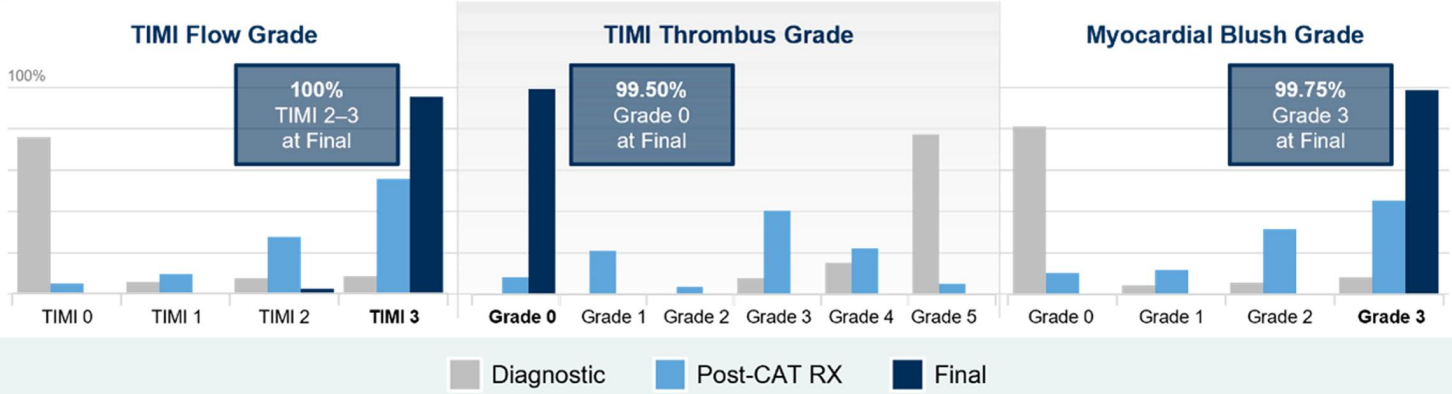
400 Patients

25 Sites



Key Endpoints, per IMR	All Patients (N=400)	95% CI
Primary composite endpoint:	**3.60%** (14/389)	2.0%, 6.0%
Cardiovascular Death within 30 days	**0.51%** (2/389)	0.1%, 1.8%
Recurrent MI within 30 days	**1.80%** (7/389)	0.7%, 3.7%
Cardiogenic Shock within 30 days	**1.80%** (7/389)	0.7%, 3.7%
New or worsening NYHA Class IV heart failure within 30 days	**0.77%** (3/389)	0.2%, 2.2%
Stroke within 30 days	**0.77%** (3/389)	0.2%, 2.2%
Major Bleeding within 30 days	**1.03%** (4/389)	0.3%, 2.6%
Incidence of device related SAE(s)	**0.00%** (0/389)	N/A
Distal Embolization Rate (per core lab)	**0.75%** (3/400)	0.2%, 2.2%

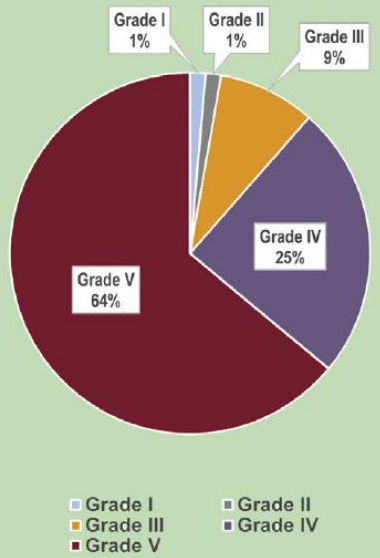
Progression of Angiographic Assessments, per Core Lab



Mathews SJ et al. Circulation Cardiovasc Interv 2023

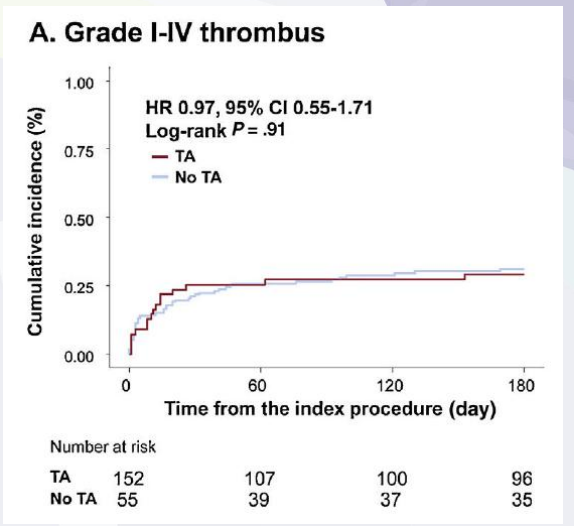
Manejo del trombo en el IAM: Tromboaspiración

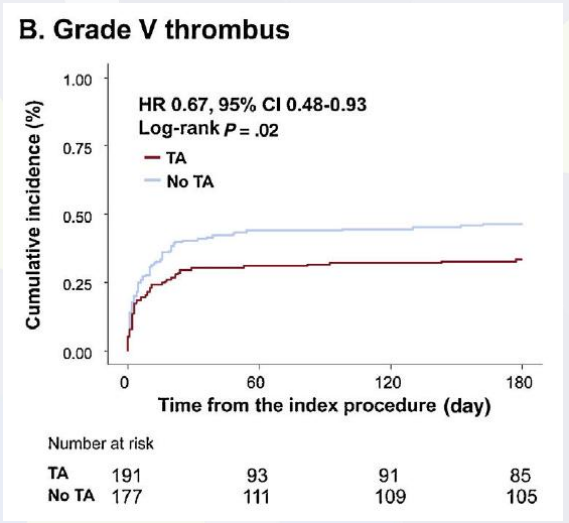
Proportion of thrombus grade in cardiogenic shock due to acute myocardial infarction



6-month death or heart failure rehospitalization according to use of thrombus aspiration and thrombus burden

	Grade I-IV thrombus	Grade V thrombus	*P*-value
Thrombus aspiration used	30.9%	33.4%	.50
Thrombus aspiration not used	29.3%	46.3%	.001
P-value	.91	.02	

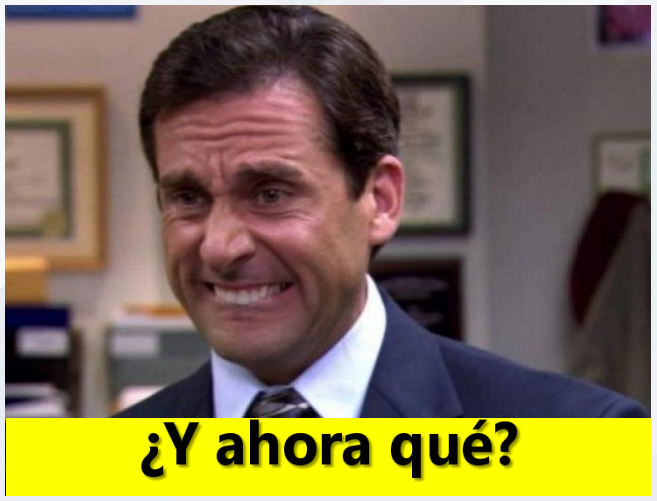


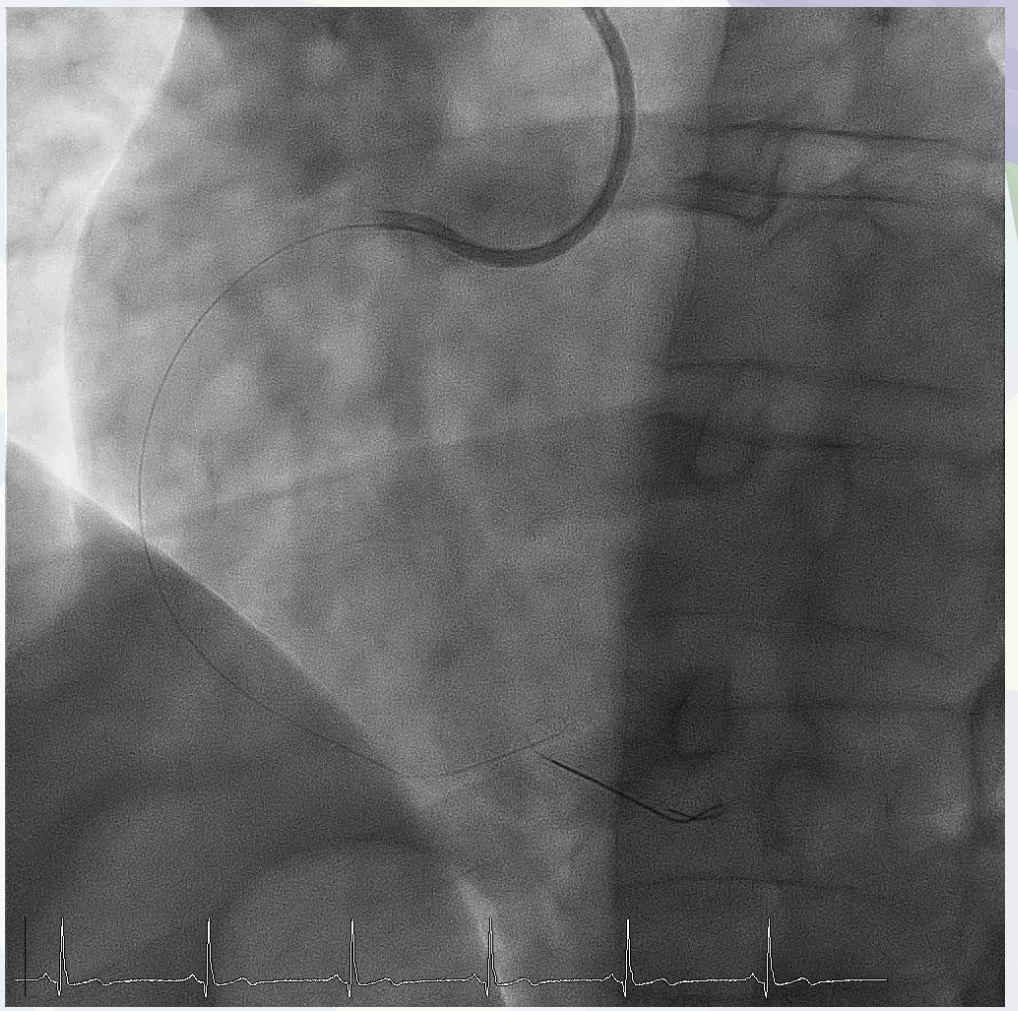


Kwon W et al. Rev Esp Cardiol 2023

Manejo del trombo en el IAM

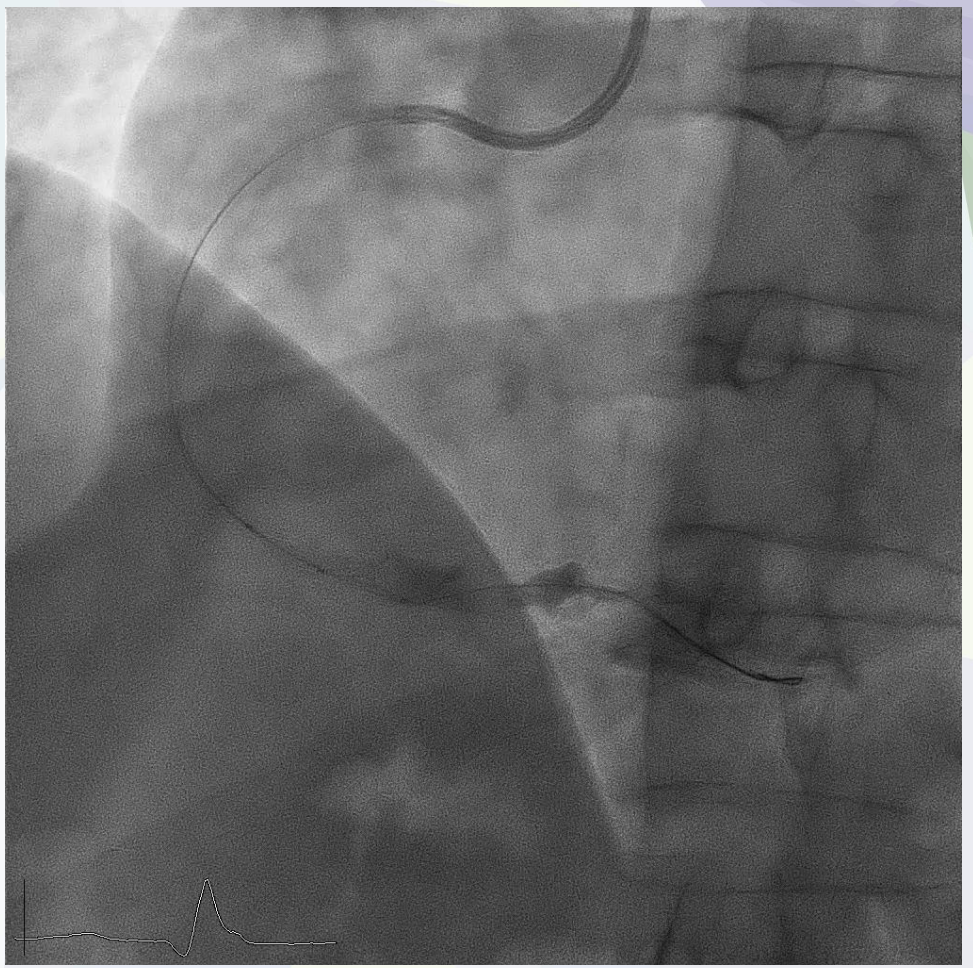
- Adecuada carga de DAPT. ACT > 300.
- Avance de balón SC 2 mm a IVP embolizada, con movilización de material a PL.
- Se administra Adenosina y Noradrenalina IC.





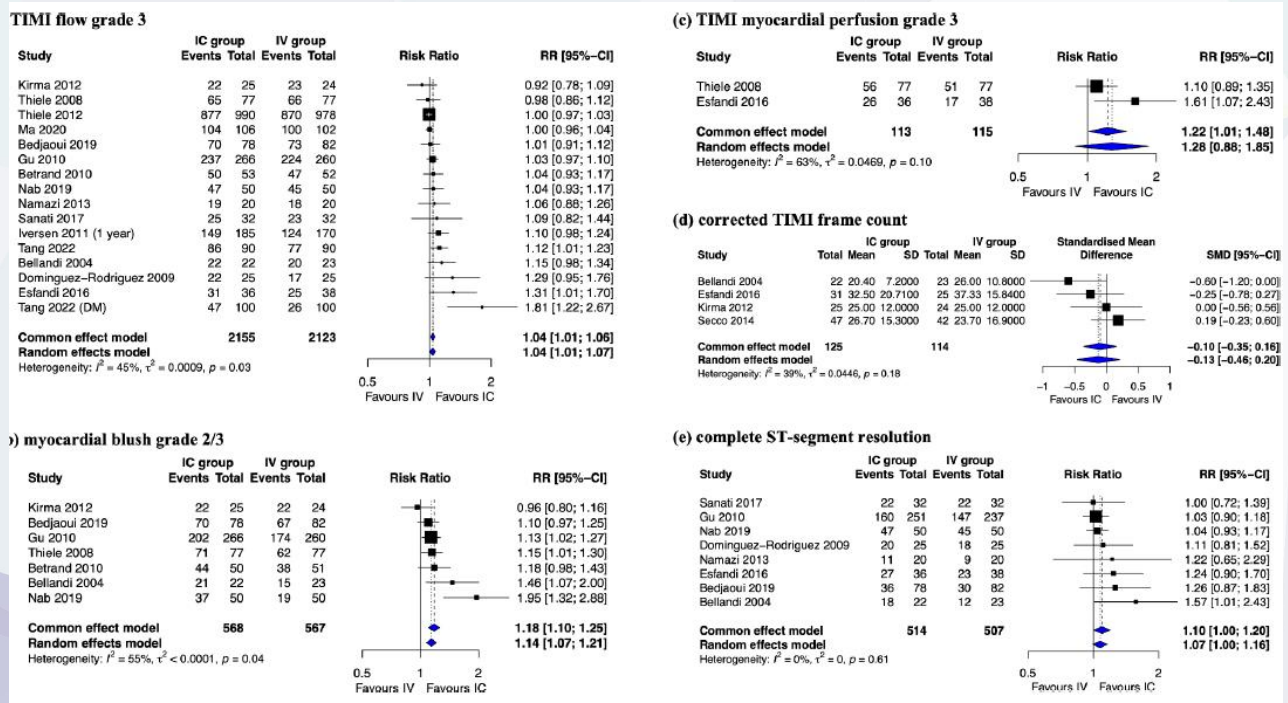
Manejo del trombo en el IAM

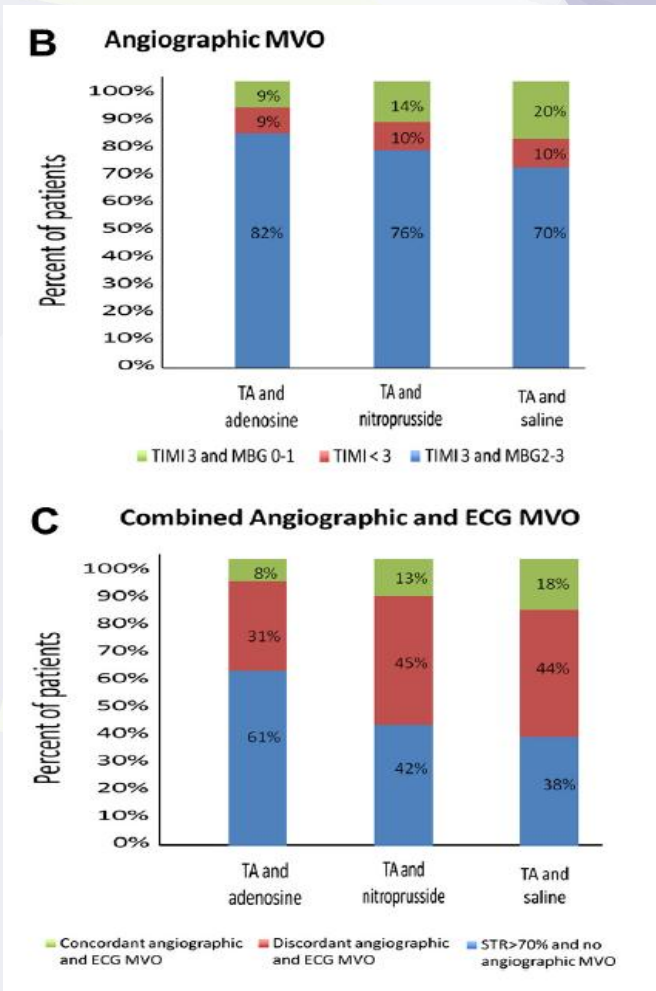
Aislar desde CD media con un balón de 3mm y administrar fibrinolíticos a través de un microcatéter Finecross.



Manejo del trombo en el IAM: GP IIb/IIIa

- No disminuye mortalidad.
- Menor tamaño del infarto
- Mejor vía intracoronaria





Hahn et al. Thrombosis Journal 2023; Geng T et al. Am J Transl Res 2021
Niccoli G et al. JACC Cardiov Interv 2013. Todkil et al. Acta cardiologica 2025.

Manejo del trombo en el IAM: Fibrinolisis

Low-Dose Alteplase During Primary Percutaneous Coronary Intervention According to Ischemic Time

Peter J. McCartney, MBChB,[a,b] Annette M. Maznyczka, MD,[a,b] Hany Eteiba, MD,[a,b] Margaret McEntegart, PhD,[a,b] Keith G. Oldroyd, MD(Hons),[b] John P. Greenwood, PhD,[c] Neil Maredia, MD,[d] Matthias Schmitt, PhD,[e] Gerry P. McCann, MD,[f] Timothy Fairbairn, PhD,[g] Elisa McAlindon, PhD,[h] Campbell Tait, MBChB,[i] Paul Welsh, PhD,[a] Naveed Sattar, PhD,[a] Vanessa Orchard, MSc,[b] David Corcoran, PhD,[a] Thomas J. Ford, PhD,[a,j] Aleksandra Radjenovic, PhD,[a] Ian Ford, PhD,[k] Alex McConnachie, PhD,[k] Colin Berry, PhD,[a,b] for the T-TIME Investigators

Efficacy and safety of intracoronary versus intravenous tirofiban in patients with ST-segment elevation myocardial infarction undergoing primary percutaneous coronary intervention: A meta-analysis of randomized controlled trials

Rui Tian[a,b,c,1], Rugang Liu[a,b,c,1], Jiajun Zhang[a,b,c], Yong Li[a,b,c], Shujian Wei[a,b,c], Feng Xu[a,b,c], Xiaoxing Li[d,**], Chuanbao Li[a,b,c,*]

Intracoronary pharmacological therapy versus aspiration thrombectomy in STEMI (IPAT-STEMI): A systematic review and meta-analysis of randomized trials

Rasha Kaddoura[1]*, Mohamed Izham Mohamed Ibrahim[2], Daoud Al-Badriyeh[2], Amr Omar[3], Fahad Al-Kindi[4], Abdul Rahman Arabi[4]

Intracoronary Low-Dose Recombinant Tissue Plasminogen Activator in Primary PCI for ST-Segment Elevation Myocardial Infarction and Large Thrombus Burden: A Randomized Trial

Authors: Shamir R. Mehta, Natalia Pinilla-Echeverri, Denise Tiong, Tanya Kovalova, Tej Sheth, Madhu K. Natarajan, Matthew Sibbald, ... SHOW ALL ... , and Kevin R. Bainey AUTHORS INFO & AFFILIATIONS

Publication: JACC • Preprint

Effect of intracoronary tirofiban following aspiration thrombectomy on infarct size, in patients with large anterior ST-segment elevation myocardial infarction undergoing primary percutaneous coronary intervention

Basuoni, Ahmed[a,,b]; El-Naggar, Wael[a,,b]; Mahdy, Mohamed[b]; Al-Kaffas, Sameh[b]

Original research

Intracoronary thrombolysis in ST-elevation myocardial infarction: a systematic review and meta-analysis

Rajan Rehan[1,2], Sohaib Virk[3], Christopher C Y Wong[4,5], Freda Passam,[6] Jamie Layland,[7] Anthony Keech,[8] Andy Yong,[4] Harvey D White[9], William Fearon,[10] Martin Ng[1,11]

JAMA | Original Investigation

Effect of Low-Dose Intracoronary Alteplase During Primary Percutaneous Coronary Intervention on Microvascular Obstruction in Patients With Acute Myocardial Infarction
A Randomized Clinical Trial

Peter J. McCartney, MBChB; Hany Eteiba, MD; Annette M. Maznyczka, MBChB; Margaret McEntegart, PhD; John P. Greenwood, PhD; Douglas F. Muir, MBChB; Saqib Chowdhary, PhD; Anthony H. Gershlick, MBBS; Clare Appleby, PhD; James M. Cotton, MD; Andrew Wragg, PhD; Nick Curzen, PhD; Keith G. Oldroyd, MD (Hons); Mitchell Lindsay, MD; J. Paul Rocchiccioli, MD; Aadil Shaukat, MBBS; Richard Good, MD; Stuart Watkins, MD; Keith Robertson, PhD; Christopher Malkin, MD; Lynn Martin, BN; Lynsey Gillespie, PhD; Thomas J. Ford, MBChB; Mark C. Petrie, MBChB; Peter W. Macfarlane, DSc; R. Campbell Tait, MBChB; Paul Welsh, PhD; Naveed Sattar, PhD; Robin A. Weir, MD;

Feasibility and Safety of Low-Dose Intra-Coronary Tenecteplase During Primary Percutaneous Coronary Intervention for ST-Elevation Myocardial Infarction (ICE T-TIMI 49)

C. Michael Gibson, MS, MD[a,b,*], Varun Kumar, MBBS[a], Lakshmi Gopalakrishnan, MBBS[a], Priyamvada Singh, MBBS[a], Jianping Guo, MS[b], Samer Kazziha, MD[c], Chandan Devireddy, MD[d], Duane Pinto, MD, MPH[a], J. Jeffrey Marshall, MD[e], George A. Stouffer, MD[f], Kreton Mavromatis, MD[g], Laura Grip, BA[b], and Kevin R. Bainey, MD, MSc[h], For the TIMI & PERFUSE Study Group

Safety and Efficacy of Intracoronary Thrombolysis as Adjunctive Therapy to Primary PCI in STEMI: A Systematic Review and Meta-analysis

Motasem Alyamani, MBBS, Sandra Campbell, BSc, Eliano Navarese, MD, PhD, Robert C. Welsh, MD, and Kevin R. Bainey, MD, MSc

Safety and efficacy of low-dose intracoronary thrombolysis during primary percutaneous coronary intervention in patients with ST elevation myocardial infarction: A meta-analysis of randomized trials

Nazanin Sahami, MD, FACC[a], Elie Akl, MD[b], Rohan Sanjanwala, MD[c], Ashish H. Shah, MD, MD-Research, FRCP[c,*]

Intracoronary Thrombolysis in ST-Segment Elevation Myocardial Infarction Patients Undergoing Primary Percutaneous Coronary Intervention: an Updated Meta-analysis of Randomized Controlled Trials

Sophia Alexiou[1] · Dimitrios Patoulias[2] · Konstantinos C. Theodoropoulos[3] · Matthaios Didagelos[3] · Athina Nasoufidou[1] · Athanasios Samaras[1] · Antonios Ziakas[3] · Nikolaos Fragakis[1] · Efthimios Dardiotis[4] · George Kassimis[1,3]

Effects of different strategies on high thrombus burden in patients with ST-segment elevation myocardial infarction undergoing primary percutaneous coronary catheterization

Yuyang Xiao, Xianghua Fu, Yanbo Wang, Yanming Fan, Yanqiang Wu, Wenlu Wang and Qian Zhang

Local Intracoronary Fibrinolysis in Acute Myocardial Infarction of Ectatic Coronary Arteries in the Post-Abciximab Era

Leire Unzue[a,b,c,*], Eulogio Garcia[a,c], Rodrigo Teijeiro[a,c], Carmen Ginestal[d], Beatriz Fuertes[e], Ana Pastor[e], Blanca Zorita[e], Francisco José Rodríguez Rodrigo[e], Julio Osende[f], Francisco Javier Parra[b,g], Leire Moreno[f]

Manejo del trombo en el IAM: Fibrinolisis

Principios:

- Mejor administración intracoronaria
- Mejores resultados con "non-fibrin specific":

Estreptocinasa, urocinasa	> prourocinasa	> alteplasa, tenecteplasa
20000-250000 UI	100000-300000 UI	5-10 mg	10-20 mg	1-10 mg

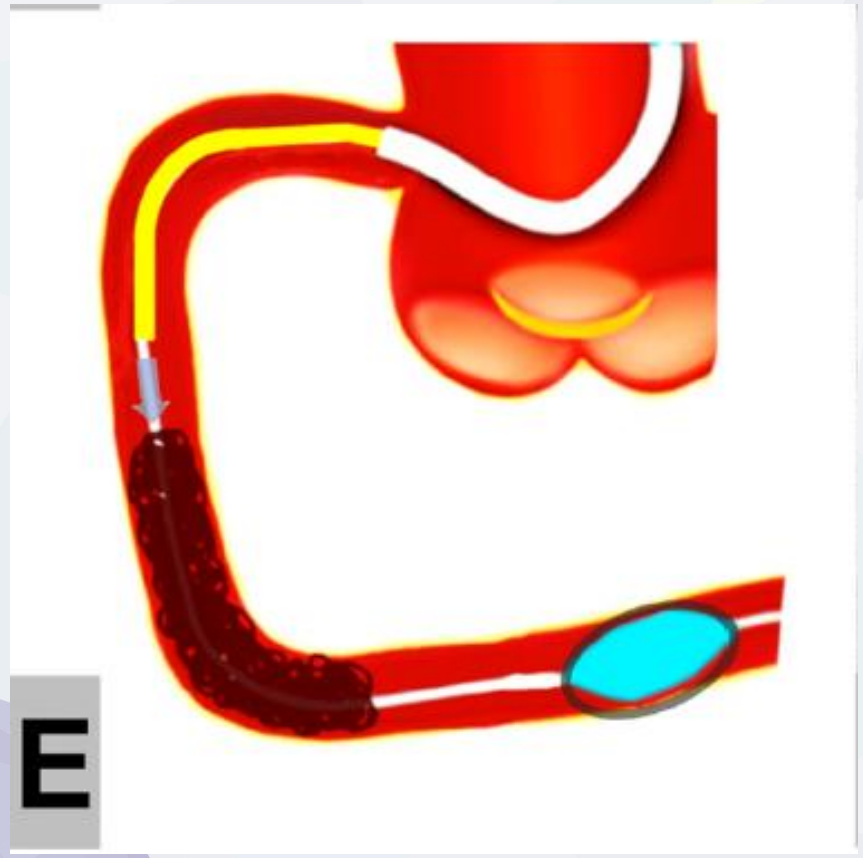
Resultados:

- Menos MACE en seguimiento
- Menor tamaño del infarto
- Mayor resolución del ST
- Mayor grado de blush al final de la angioplastia (≥2)
- No diferencias significativas en tasa de sangrados

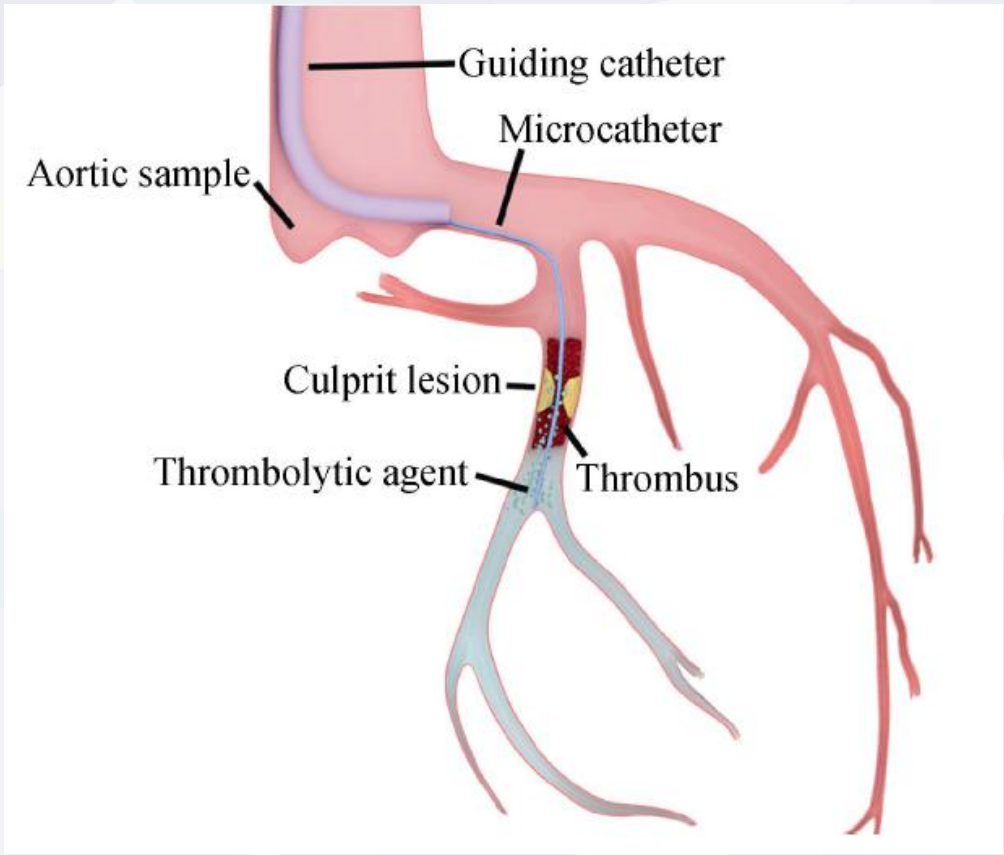
Alyamani et al. Canadian Journal of Cardiology 2021
Rehan R, et al. Heart 2024
Alexiou S et al. Cardiovascular Drugs and Therapy 2024

Manejo del trombo en el IAM: Fibrinolisis

Marinado coronario



Trombolisis "retrógrada"



Unzue L et al. Cardiovascular Revascularization Medicine 2023
Tian J et al. Journal of Geriatric Cardiology 2019

Manejo del trombo en el IAM: Fibrinolisis

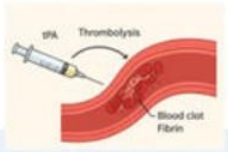
Intracoronary Low-Dose Recombinant Tissue Plasminogen Activator in Primary PCI for ST-Segment Elevation Myocardial Infarction and Large Thrombus Burden (STRIVE Trial)

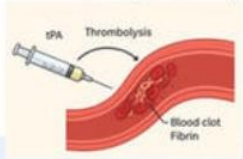
Name(s) of the reviewer: **Elad Asher** Source: PCRonline.com

210 Patients with Large Territory STEMI undergoing Primary PCI + High Thrombus Burden (Grade 3-5) Within 6 (max 12) hours

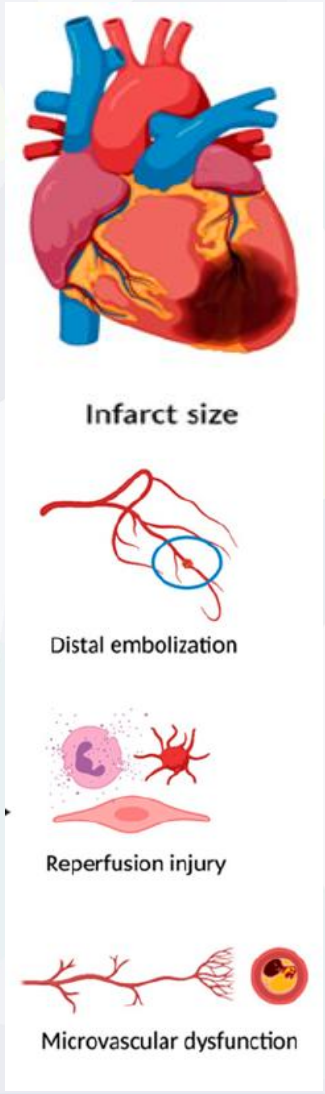
Composite of MACE at 30 days, TIMI MBG 0/1, distal embolization, failure to achieve 50% ST segment resolution at 30 minutes

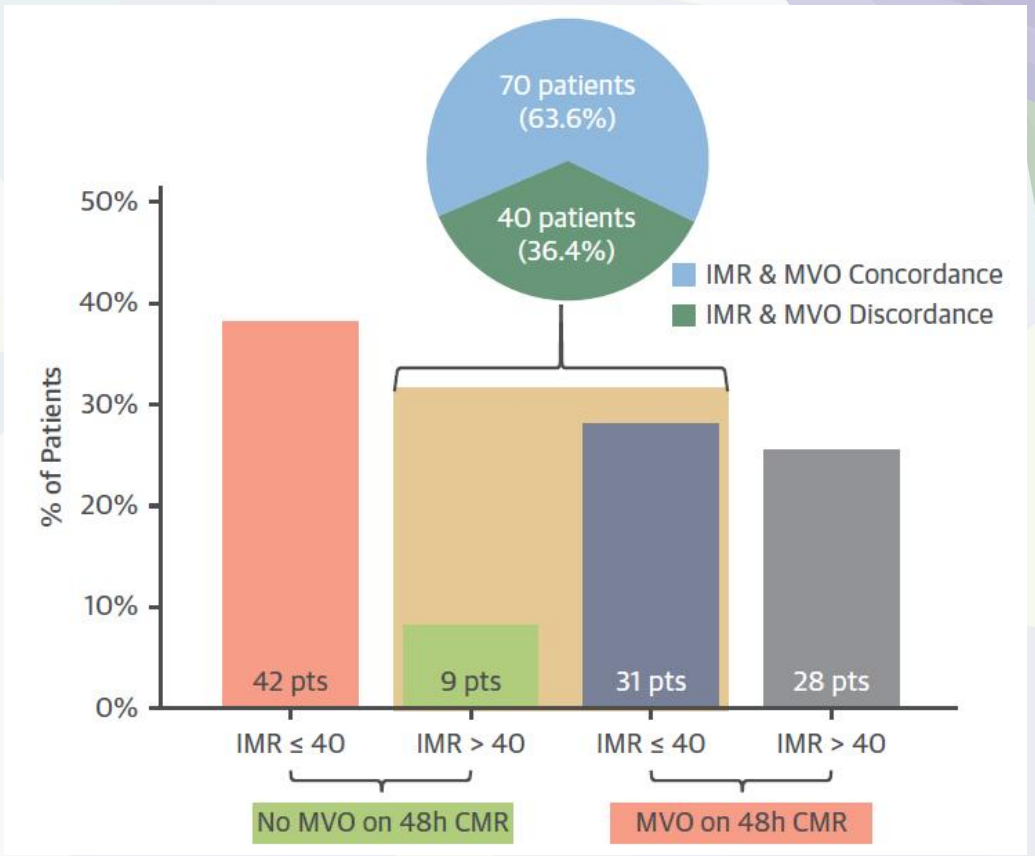
IC Alteplase 10 mg	IC Alteplase 20 mg	Placebo (Saline)
(allocated n=69)	(allocated n=70)	(allocated n=71)
MACE 32 (47.06%)	MACE 41 (59.42%)	MACE 37 (52.86%)





In patients with large territory STEMI and high thrombus burden, intracoronary delivery of low-dose alteplase compared with placebo did not reduce the composite primary outcome of MACE or microvascular obstruction





Vidal J. Cardiovasc Dev Dis 2021
De maria et al. JACC Cardiovasc Imaging 2019

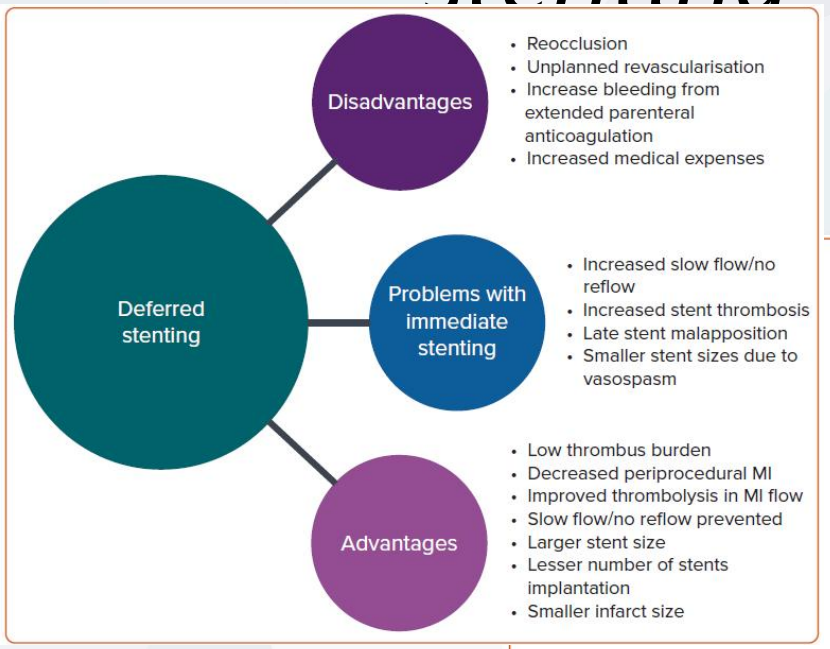
Manejo del trombo en el IAM

Flujo lento, persistencia de trombo intraluminal, ramo PL embolizado

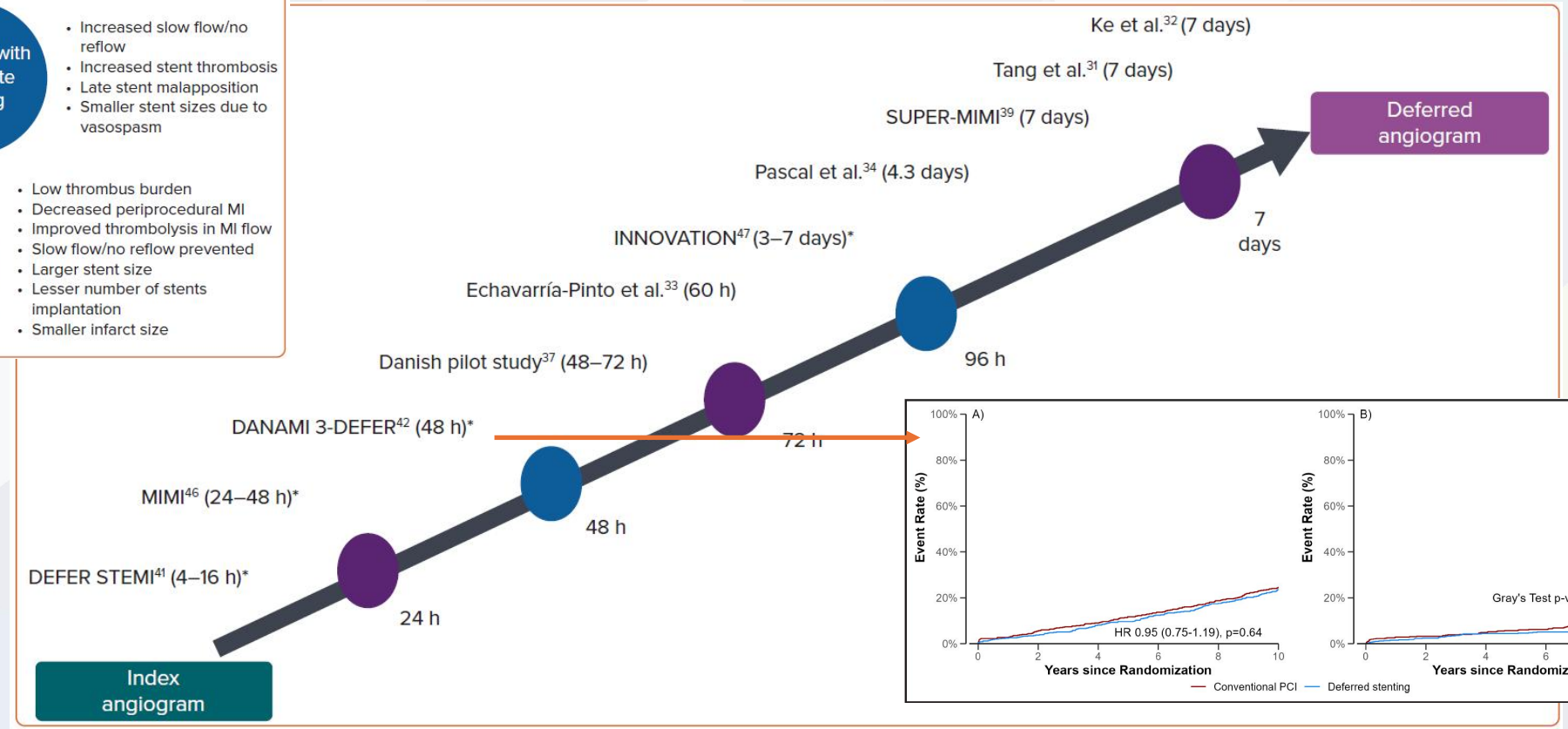
¿Qué haríais a continuación?

- ¿Quién continuaría la angioplastia?
- ¿Quién pararía?
- ¿Administraríais alguna otra medicación?

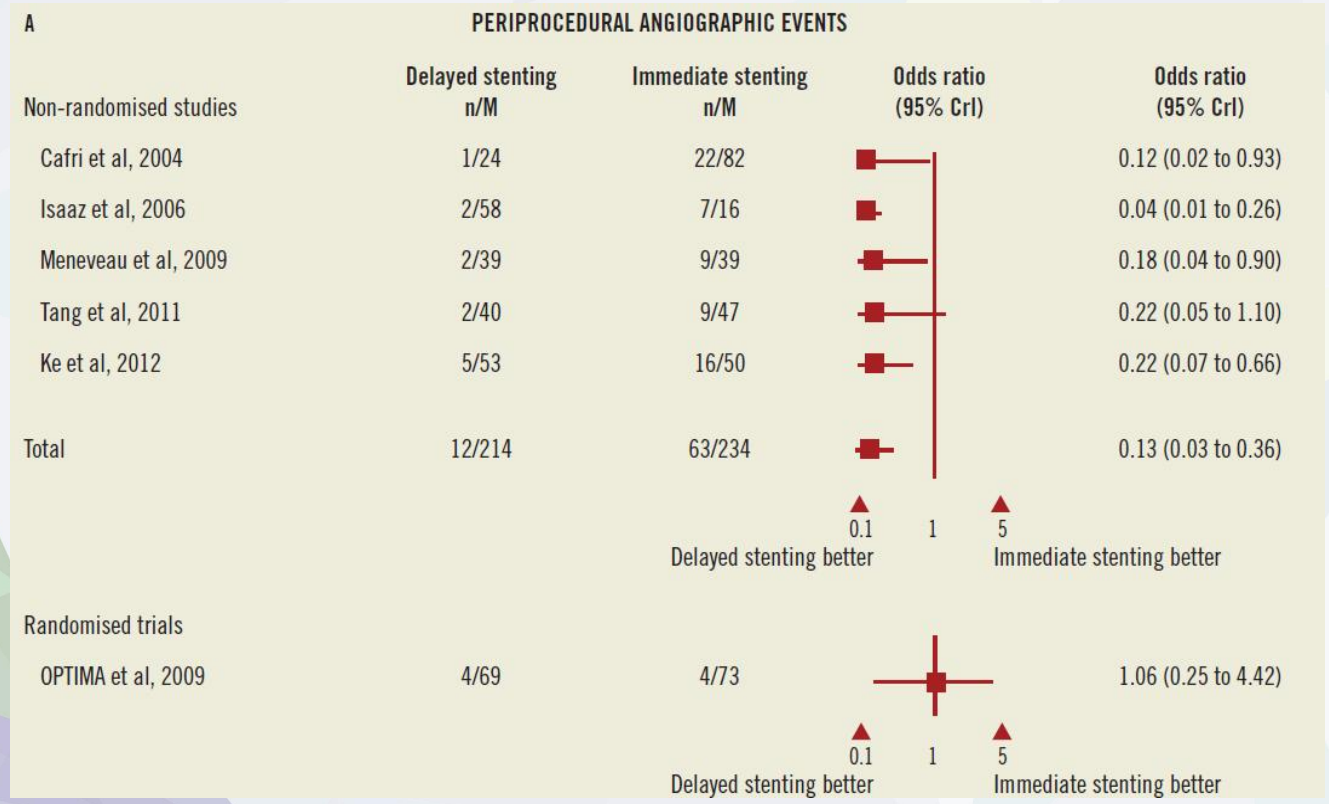
Manejo del trombo en el IAM: *Deferred stenting*

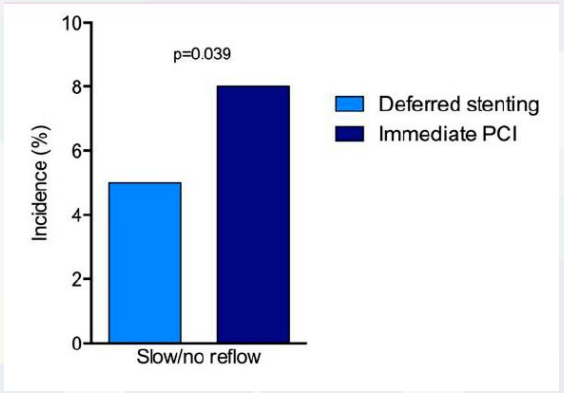


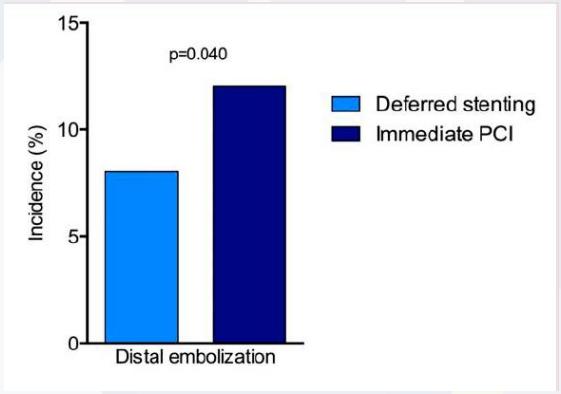
Pradhan et al. European Cardiology Review 2020
Marquard et al. *Circ Cardiovasc Interv* 2025

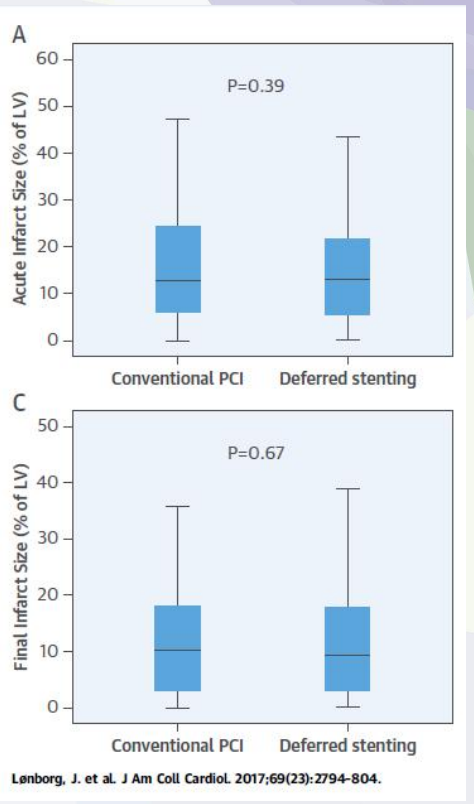


Manejo del trombo en el IAM: *Deferred stenting*



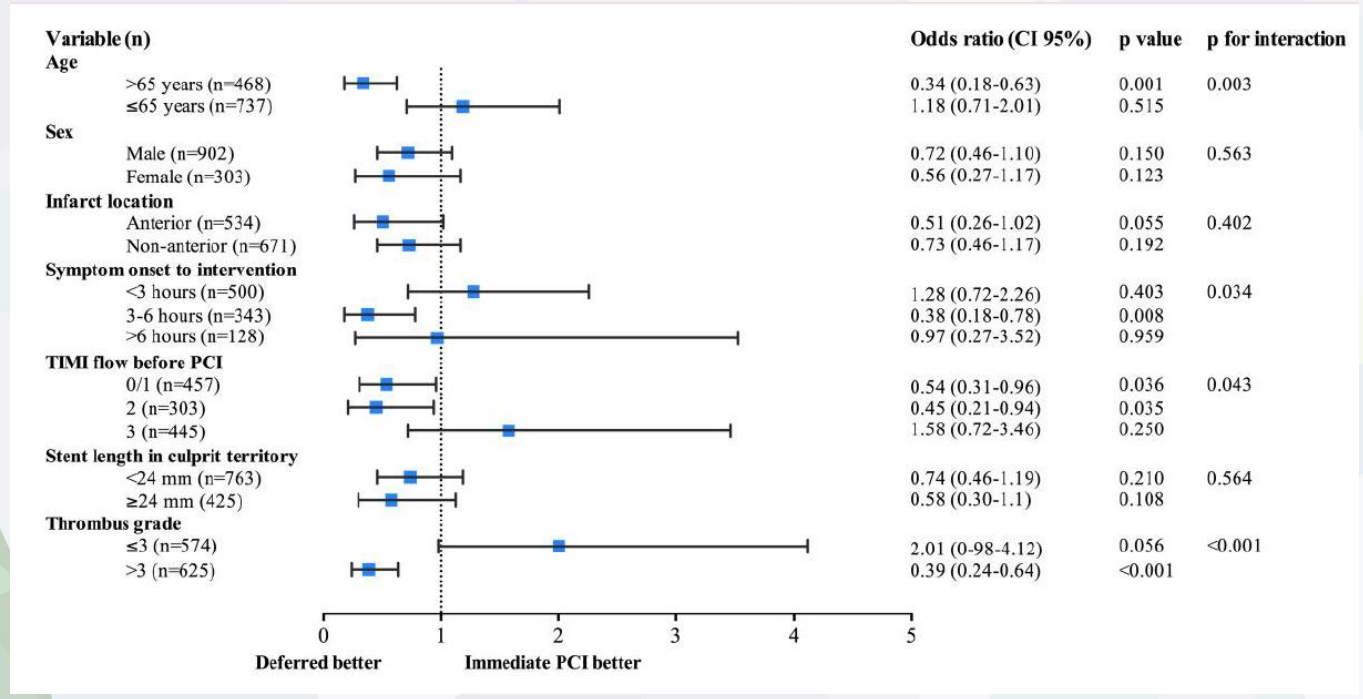


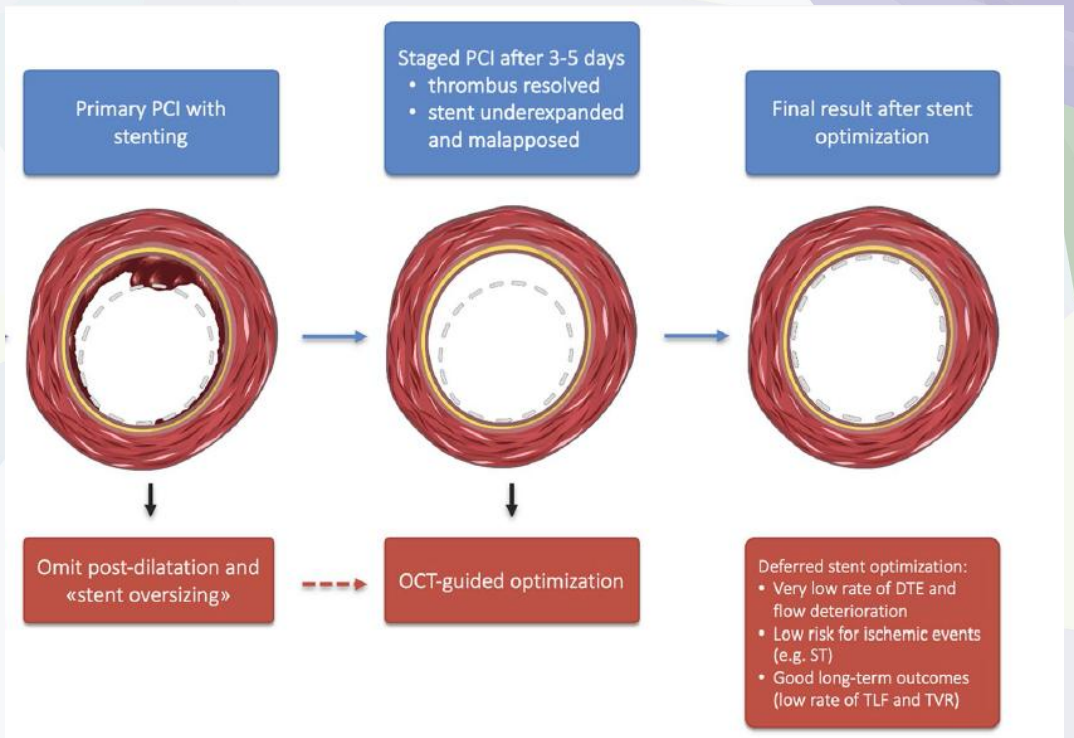




Freixa J et al. Eurointervention 2013; L. Nepper-christensen *et al. EHJ* Acute Cardiovascular Care 2022; Luo D et al. *Ann Transl Med* 2021; Lønborg et al JACC 2017

Manejo del trombo en el IAM: *Deferred stenting*





Qiao et al. JAHA 2017; Cioffi et al. BMC Cardiovascular Disorders 2023

Manejo del trombo en el IAM: *Deferred stenting*

Efficacy and Safety of Deferred Stenting in Geriatric Patients with STEMI and High Thrombus Burden

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[2]The Center of Cardiology, Affiliated Hospital of Beihua University, 132011 Jilin, Jilin, China
*Correspondence: Drwuxiaofan@163.com (Xiaofan Wu)
Academic Editor: Gianluca Rigatelli
Submitted: 24 July 2023 Revised: 13 October 2023 Accepted: 27 November 2023 Published: 5 March 2024

Abstract

Background: Deferred stenting has been recognized as beneficial for patients with acute ST-segment elevation myocardial infarction (STEMI) accompanied by a high thrombus burden. Nevertheless, its efficacy and safety specifically in geriatric STEMI patients remain to be elucidated. This study aims to bridge this knowledge gap and assess the potential advantages of deferred stenting in an older patient cohort. **Methods**: In this study, 208 geriatric patients (aged ≥80 years) with STEMI and a high thrombus burden in the infarct-related artery (IRA) were enrolled. They were categorized into two groups: the deferred stenting group, where stent implantation was conducted after 7–8 days of continuous antithrombotic therapy, and the immediate stenting group, where stent implantation was performed immediately. **Results**: In the deferred stenting group, the stents used were significantly larger in diameter and shorter in length compared to those in the immediate stenting group ($p < 0.05$). This group also exhibited a lower incidence of distal embolism in the IRA, and higher rates of the thrombolysis in myocardial infarction (TIMI) blood flow grade 3 and myocardial blush grade 3 ($p < 0.05$). Additionally, the left ventricular ejection fractions at the 1-year follow-up were significantly higher in the deferred stenting group than in the immediate stenting group ($p < 0.05$). The rate of the major adverse cardiac events in the deferred stenting group was significantly lower than in the immediate stenting groups ($p < 0.05$). **Conclusions**: Deferred stenting for geriatric patients with STEMI and high thrombus burden demonstrates significant clinical benefits. This approach not only reduces the incidence of distal embolism in the IRA, but also enhances myocardial tissue perfusion and preserves cardiac ejection function. Moreover, deferred stenting has proven to be safe in this patient population, indicating its potential as a preferred treatment strategy in such cases.

Deferred Versus Immediate Stenting in Late-Presenting ST-Segment Elevation Myocardial Infarction (STEMI) Patients With a High Thrombus Burden: A Retrospective Analysis

Ahmed Hesham Hammad [1], Mahmoud Abdelaziz Ismaiel [2], Mohammed H. Abd-Elnaby [1], Attaa Khaleel Taha [3], Hamza Kabil [4]

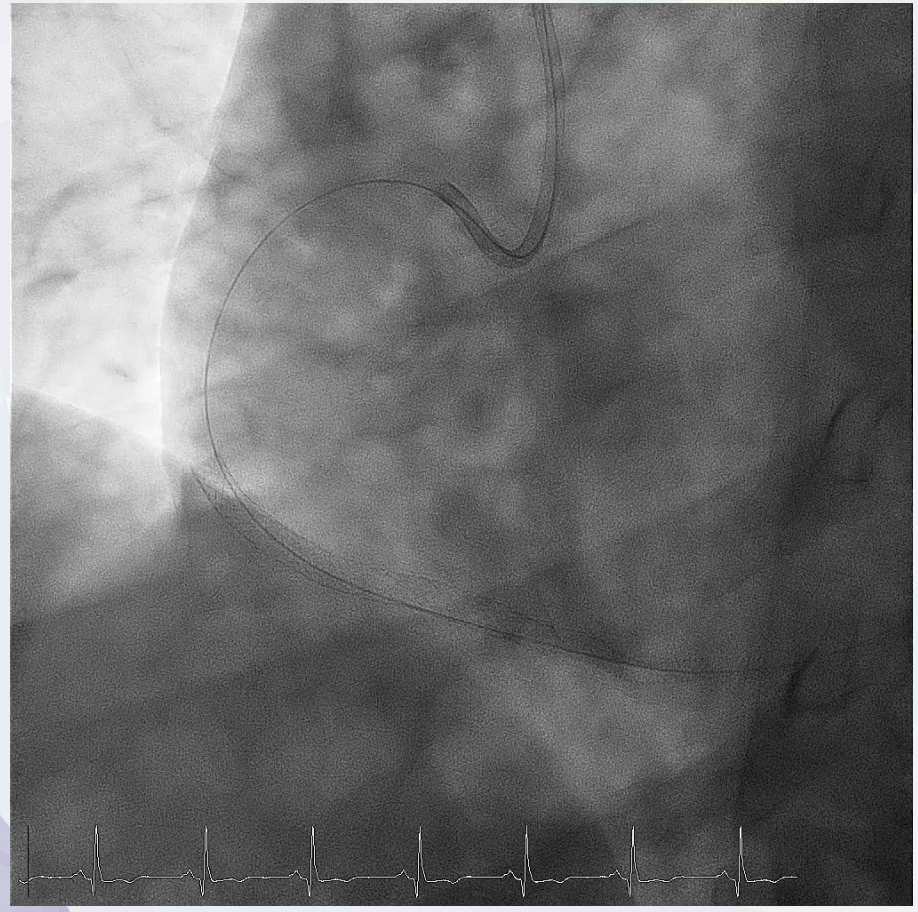
Background: Late-presenting patients with ST-segment elevation myocardial infarction (STEMI), defined as those presenting >12 hours after symptom onset, represent a high-risk and often underrepresented population. Despite evidence supporting primary percutaneous coronary intervention (PCI) in these patients, those with a high thrombus burden (HTB) face an increased risk of no reflow and adverse outcomes, particularly with immediate stenting. The optimal stent timing in this subgroup remains unclear.

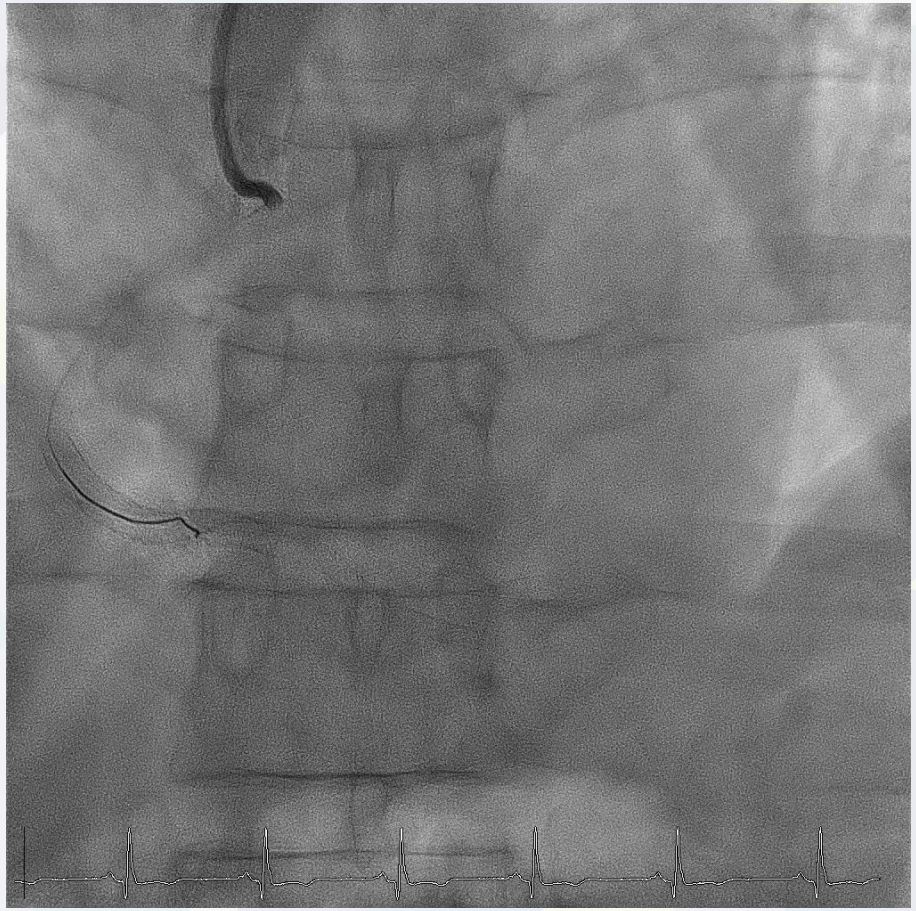
Methods: This retrospective study included 200 patients with late-presenting STEMI and angiographically confirmed HTB. Patients were assigned to either the deferred stenting (DS; n=100) group or the immediate stenting (IS; n=100) group. Clinical and procedural outcomes, including myocardial blush grade (MBG), thrombolysis in myocardial infarction (TIMI) flow, and major adverse cardiovascular events (MACE) at one year, were compared.

Results: The DS group was associated with significantly lower no reflow (11 (11%) vs. 26 (26%), p=0.01), less distal embolization (6 (6%) vs. 16 (16%), p=0.04), and higher post-PCI TIMI grade 3 flow (73 (73%) vs. 57 (57%), p=0.03) and MBG 3 (58 (58%) vs. 36 (36%), p=0.01). One-year MACE was significantly reduced in the DS group (7 (7%) vs. 20 (20%), p=0.01). The DS group was independently associated with improved myocardial perfusion and lower MACE.

Conclusion: In late-presenting STEMI patients with HTB, deferred stenting yielded superior perfusion and clinical outcomes compared to immediate stenting. These findings underscore the importance of individualized stent timing strategies in this high-risk, often overlooked subgroup.

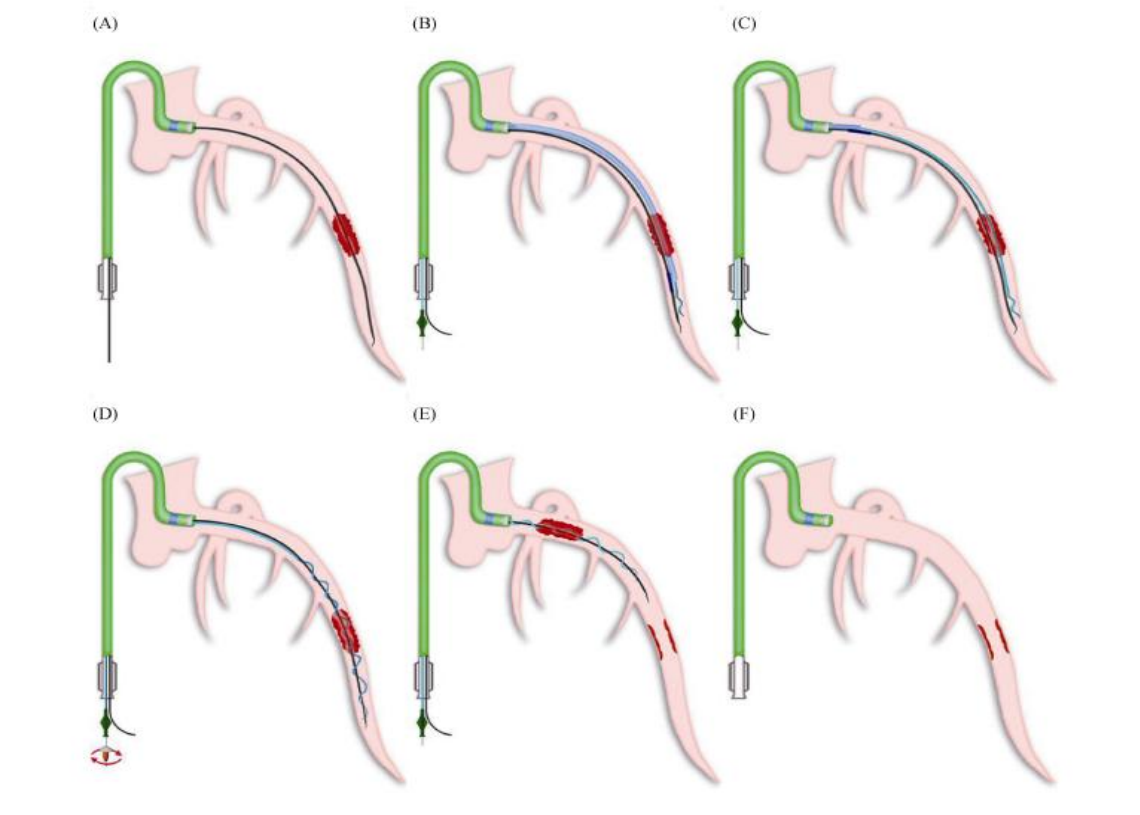
Manejo del trombo en el IAM



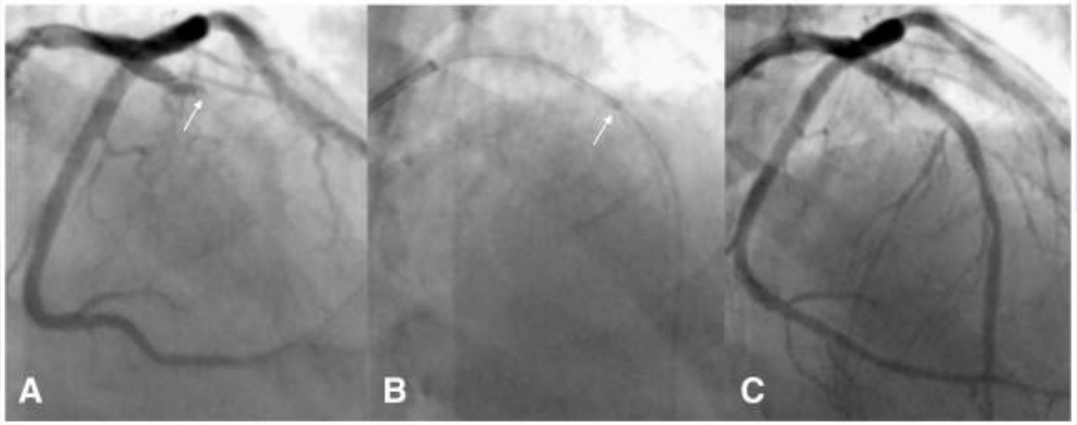


Manejo del trombo en el IAM: *MacGyver techniques*

Twirling

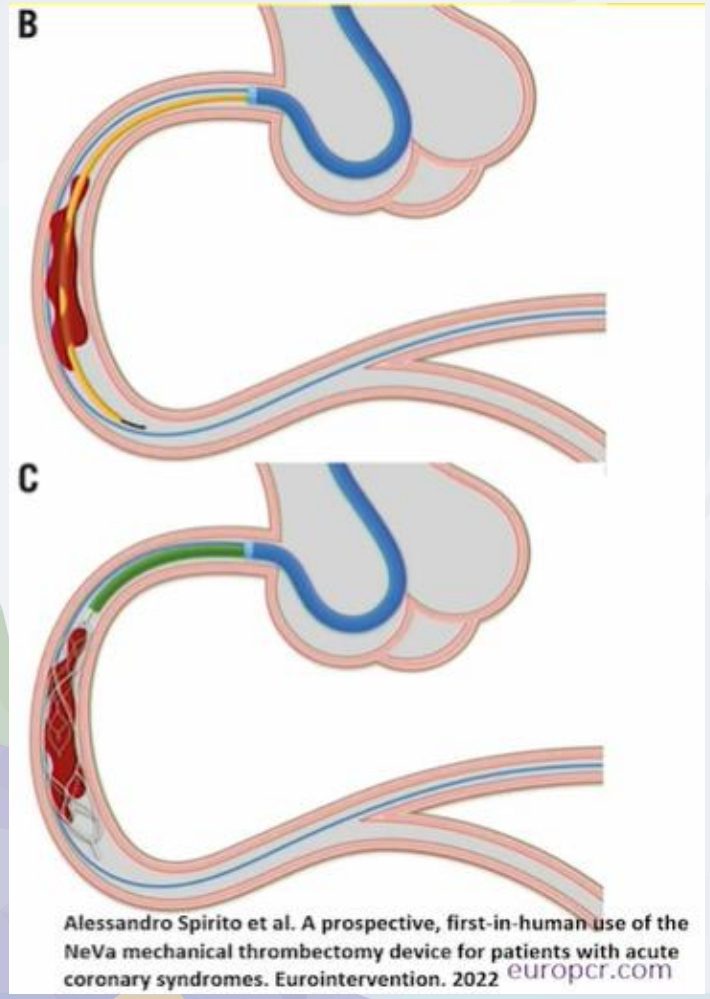


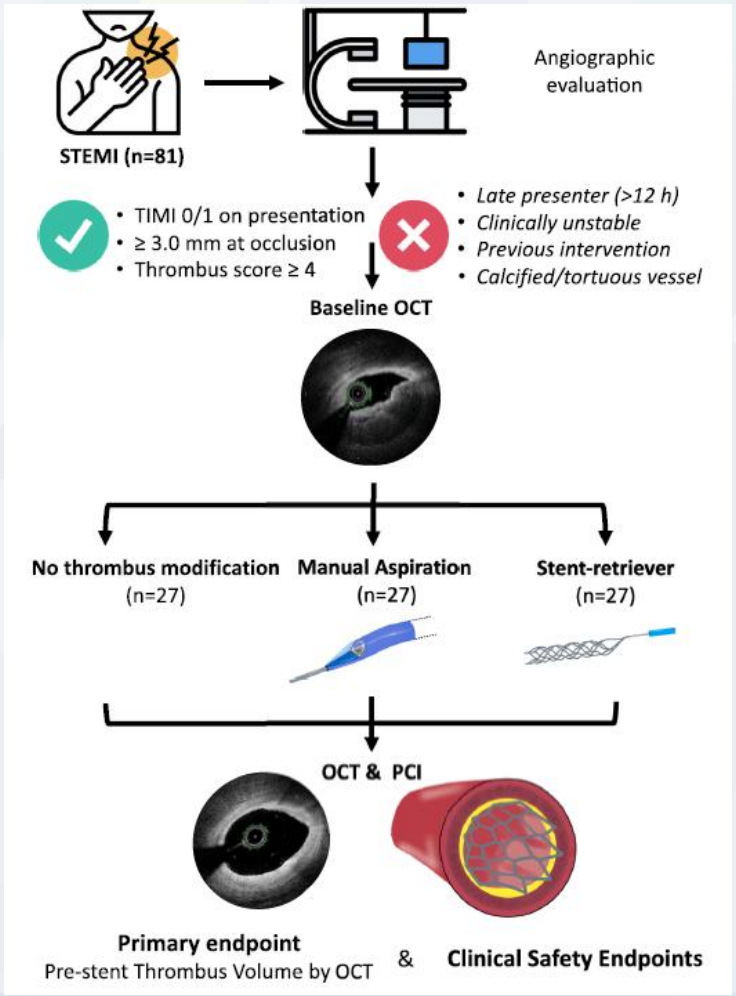
Mother-in-child

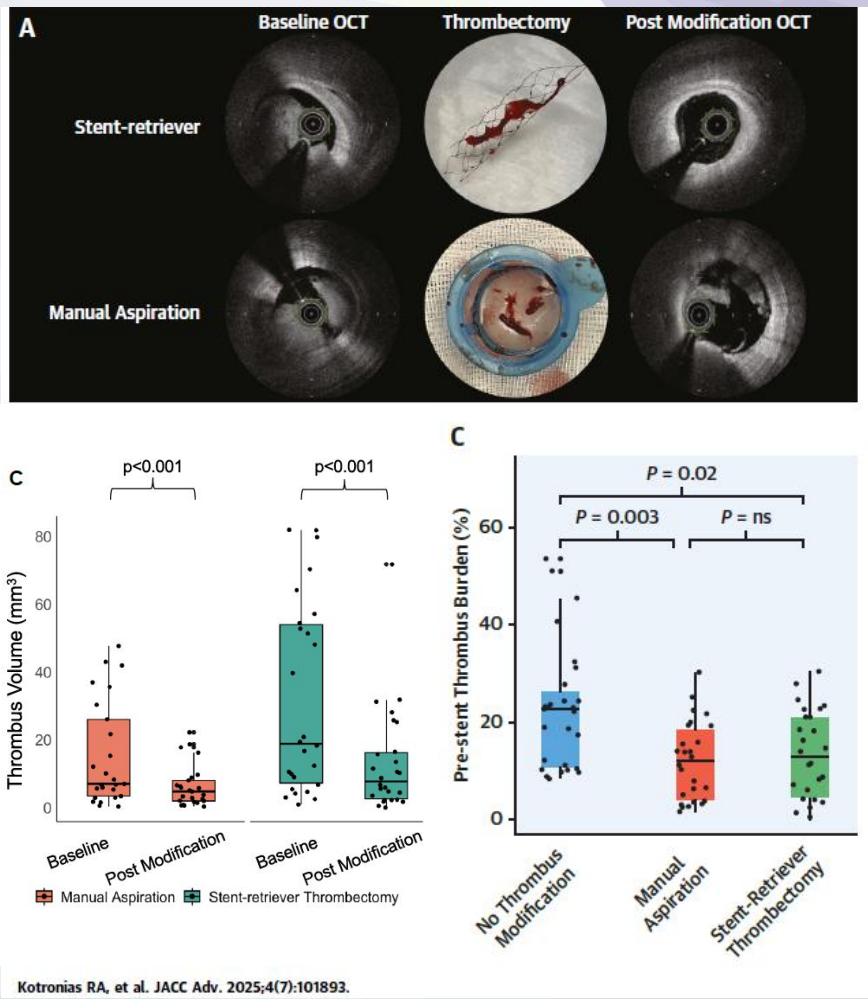


Dauvergne et al. Cardiovasc Revasc Med 2013
Zou Y et al. Journal of Geriatric Cardiology 2020

Manejo del trombo en el IAM: *New kids on the block. Stent Retriever*







Kotronias RA et al. RETRIEVE AMI

Manejo del trombo en el IAM: *Future kids on the block? Sonotrombolisis*

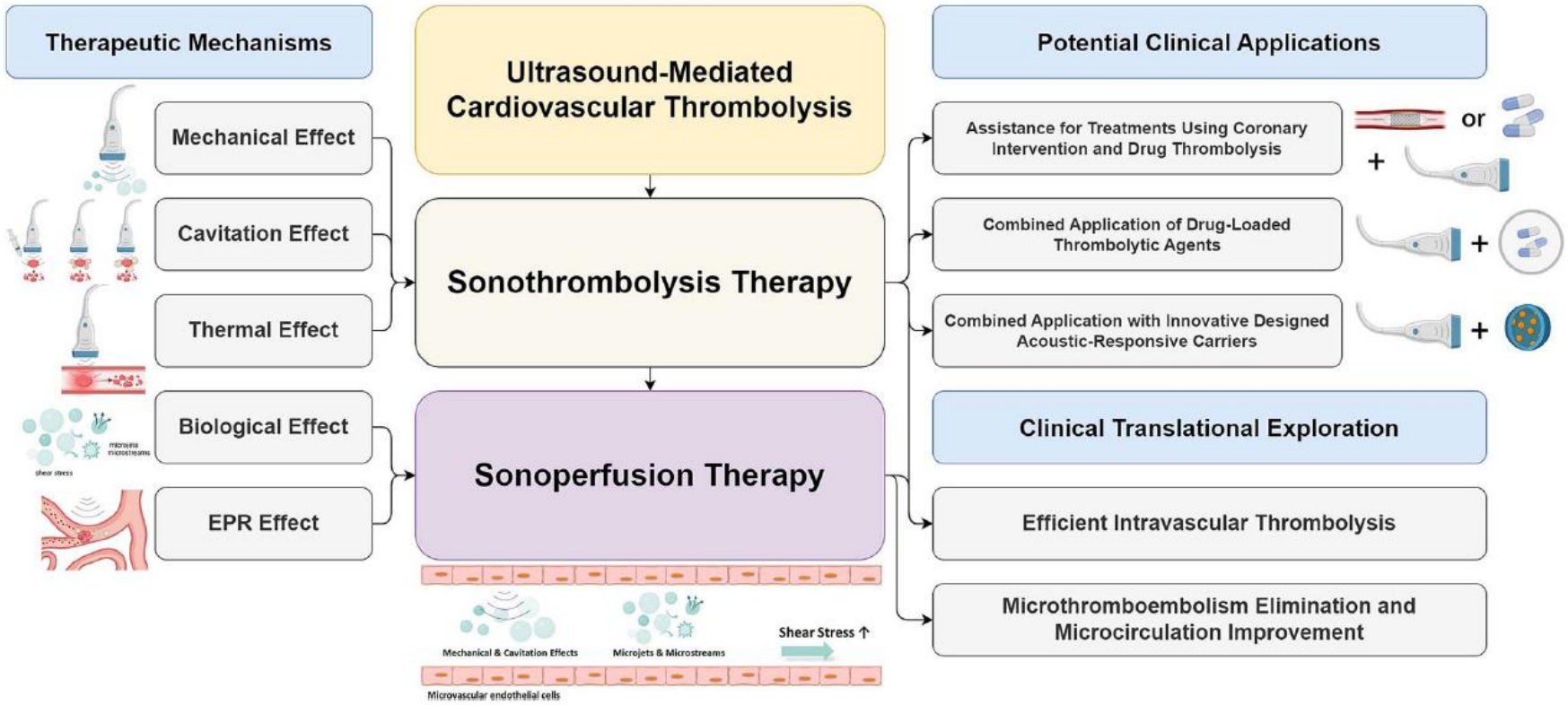
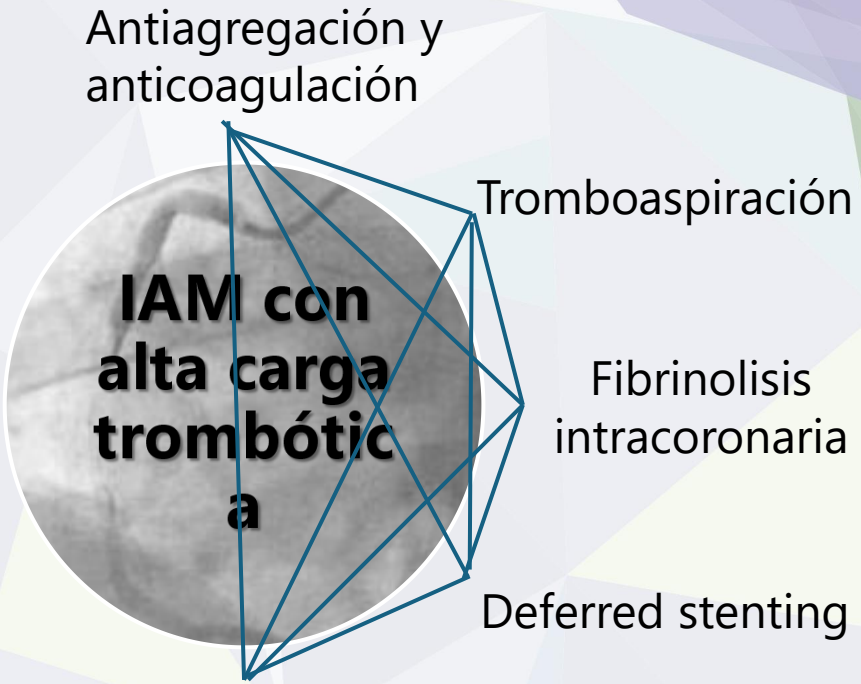


Figure 1 Sonothrombolysis and Sonoperfusion Therapies for Cardiovascular Thrombolysis. This illustration encapsulates the essence of the article, providing an in-depth review of sonothrombolysis and sonoperfusion therapies for ultrasound-mediated cardiovascular thrombolysis. It covers the therapeutic mechanisms, potential clinical applications, and clinical translational exploration.

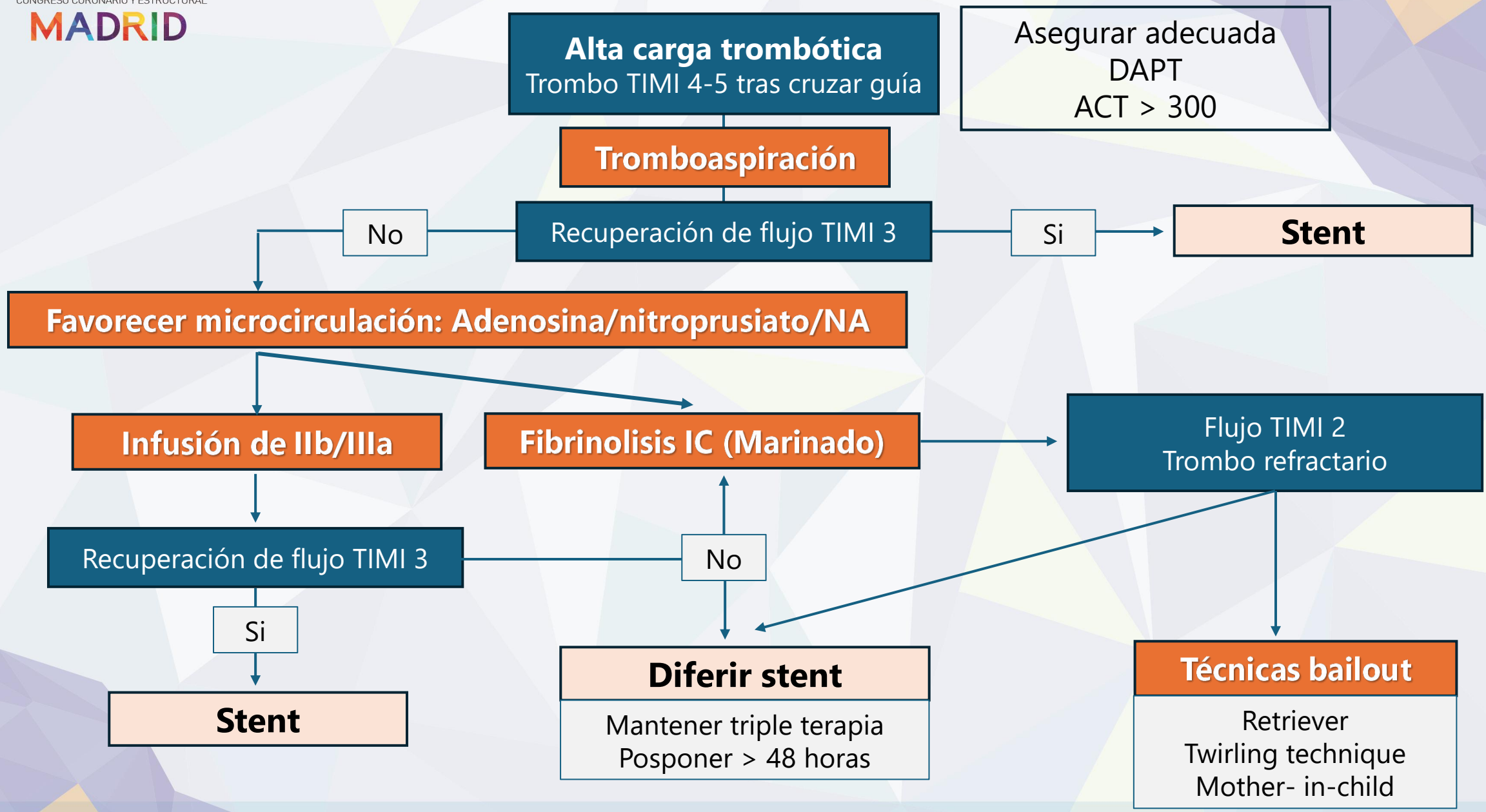
Jiang Z et al. Postgraduate Medical Journal 2025; Brush et al JACC case reports 2025

Manejo del trombo en el IAM
Take home messages

- La alta carga trombótica es un escenario particular dentro de la ACTP.
- No hay una única estrategia.
- Es necesario individualizar y optimizar al máximo el resultado angiográfico.
- Siempre DAPT y ACT > 250s.
- La tromboaspiración debe ser cuidadosa para evitar ACV
- En caso de fibrinolisis, mejor intracoronaria y mejor agentes no específicos. Valorar marinado IC.
- Plantear diferir stent si flujo TIMI 2 o riesgo de embolización.



Favorecer la microcirculación:
Adenosina, nitroprusiato,...


Alta carga trombótica
Trombo TIMI 4-5 tras cruzar guía
Asegurar adecuada
DAPT
ACT > 300
Tromboaspiración
Recuperación de flujo TIMI 3
No
Si
Stent
Favorecer microcirculación: Adenosina/nitroprusiato/NA
Infusión de IIb/IIIa
Fibrinolisis IC (Marinado)
Flujo TIMI 2
Trombo refractario
Recuperación de flujo TIMI 3
No
Si
Stent
Diferir stent
Mantener triple terapia
Posponer > 48 horas
Técnicas bailout
Retriever
Twirling technique
Mother- in-child