

ANOCA / MINOCA: ALGORITMO- ÍNDICES

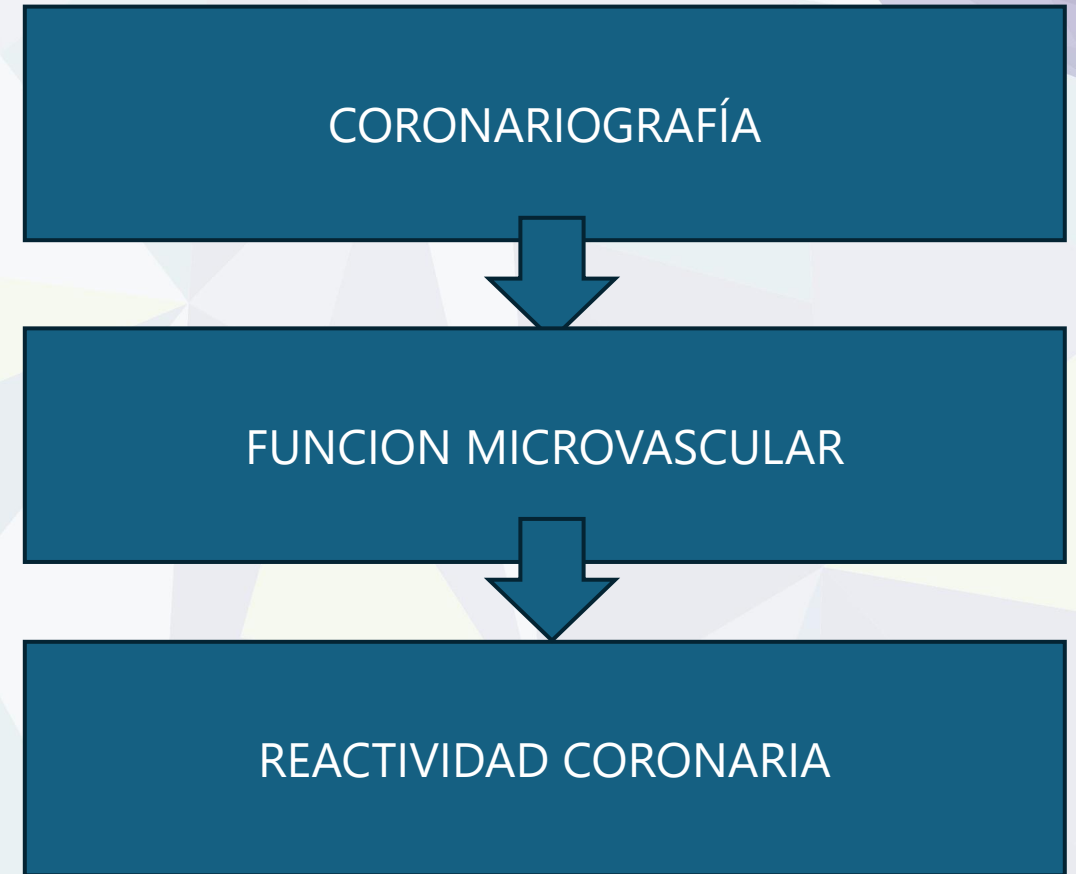
Enrique Gutiérrez Ibañes

Hospital General Universitario Gregorio

Marañón

Empecemos con ANOCA

- 50% de los pacientes que vienen a cateterismo por SCC
- Dos preguntas a contestar:
 - 1) Hay mecanismo de isquemia?
 - 2)Cuál(es)



RESERVA CORONARIA DE FLUJO (CFR)

- Cociente entre flujo máximo y flujo basal
- Hiperemia con vasodilatadores directos:
 - Adenosina iv / ic
 - Nitroprusiato
 - Papaverina
- Valor normal $>2-2,5$

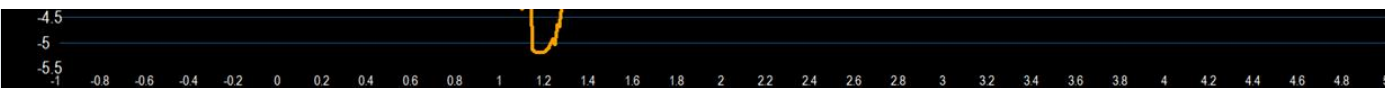
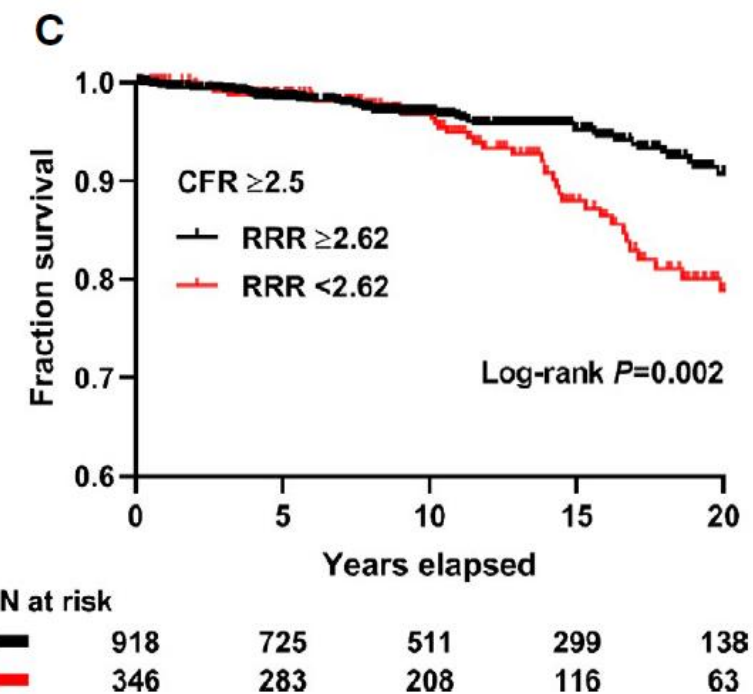
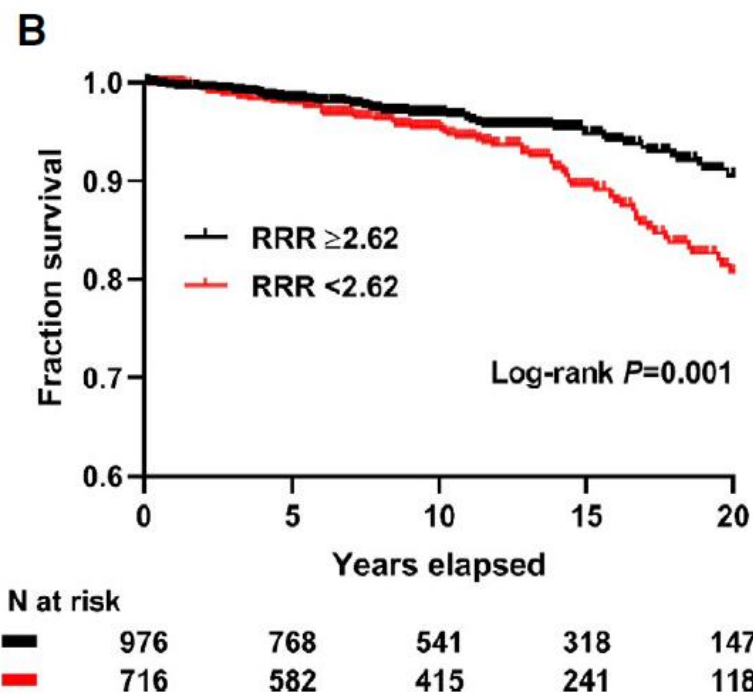
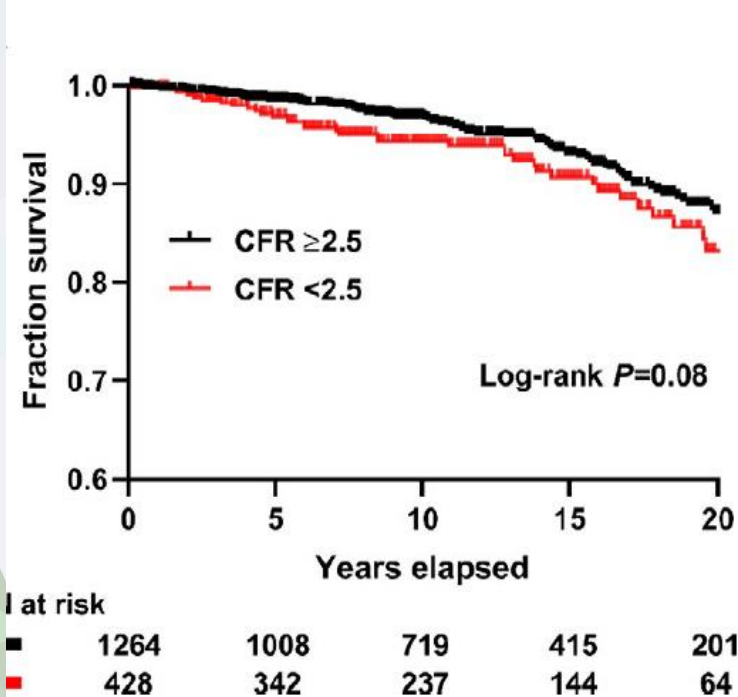


INDICES DE RESISTENCIA



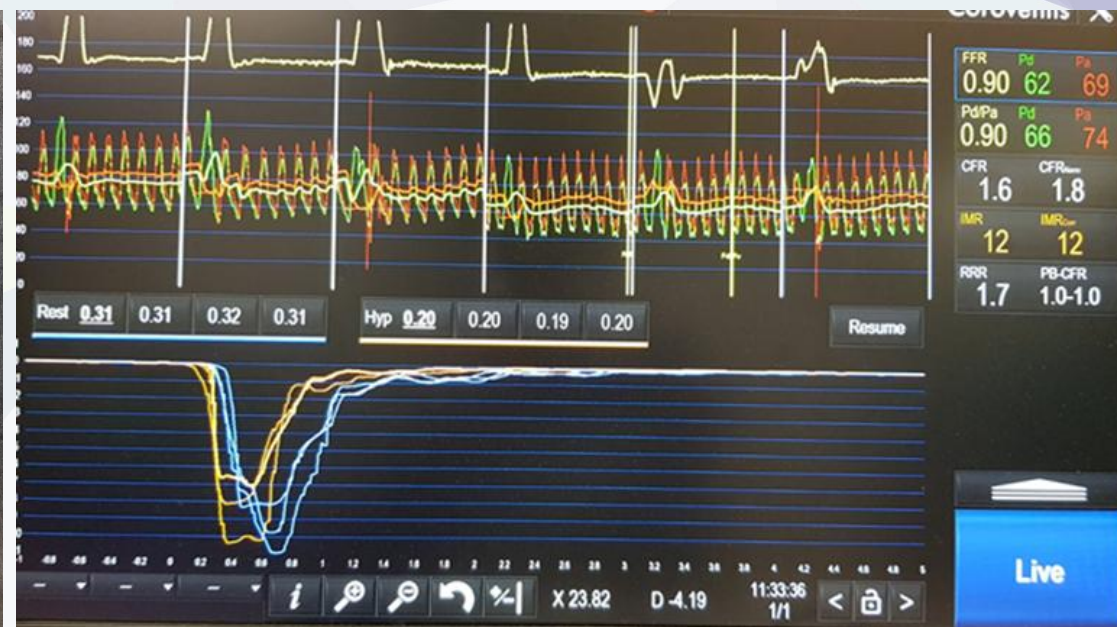
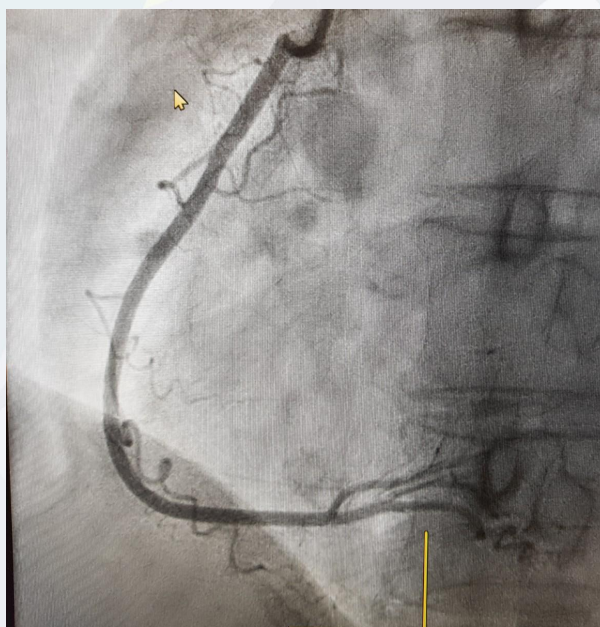
IMR: se obtiene de $Pd_{Hyp} \times Tmn_{Hyp}$. Punto de corte 25.

RESISTIVE RESERVE RATIO



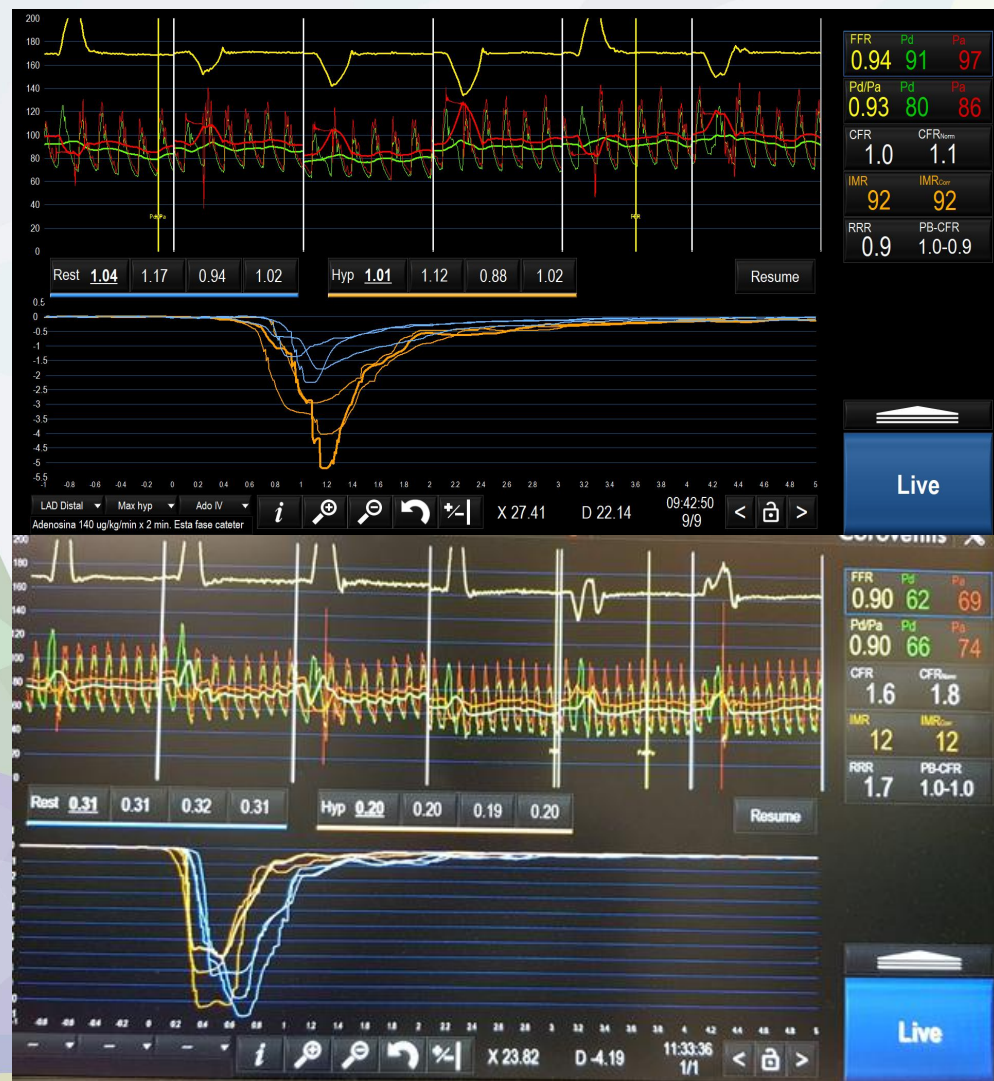
Live

Un caso de todos los días.



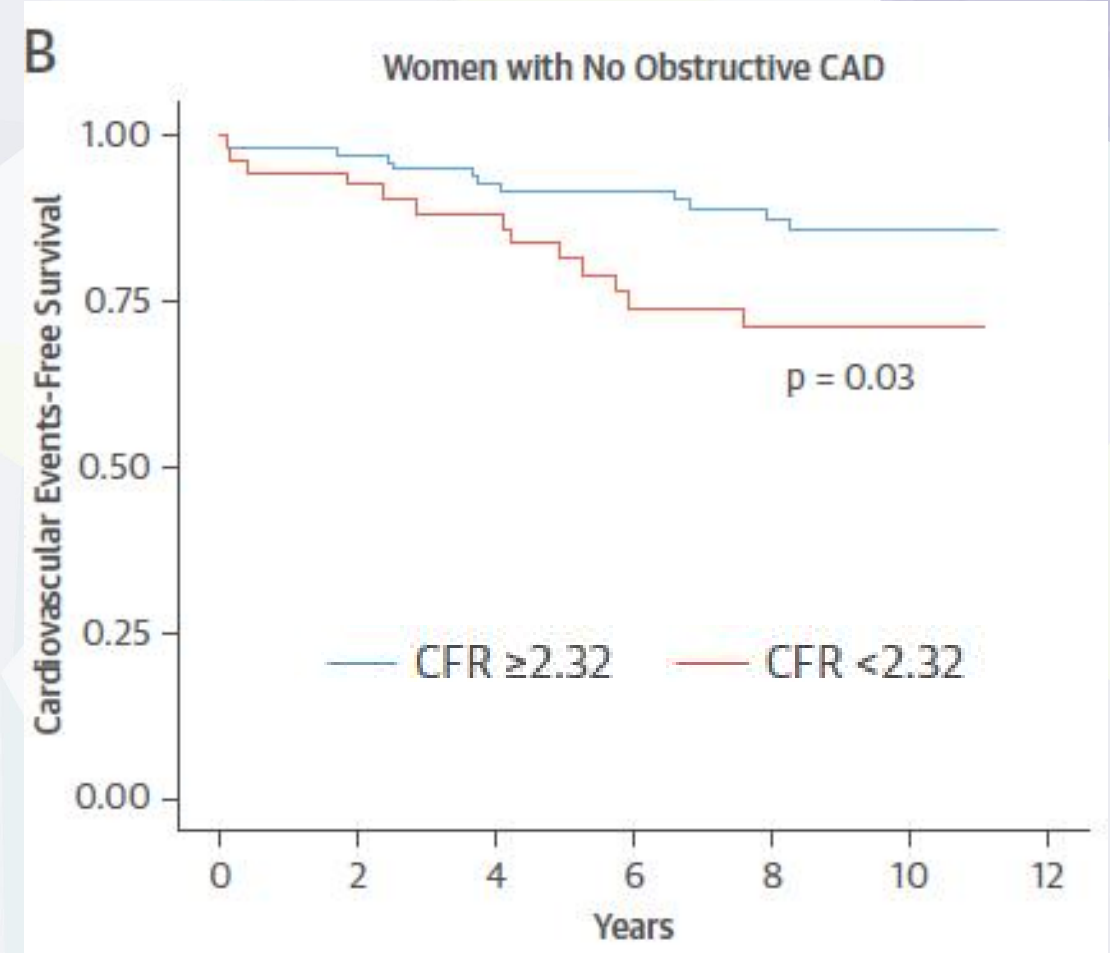
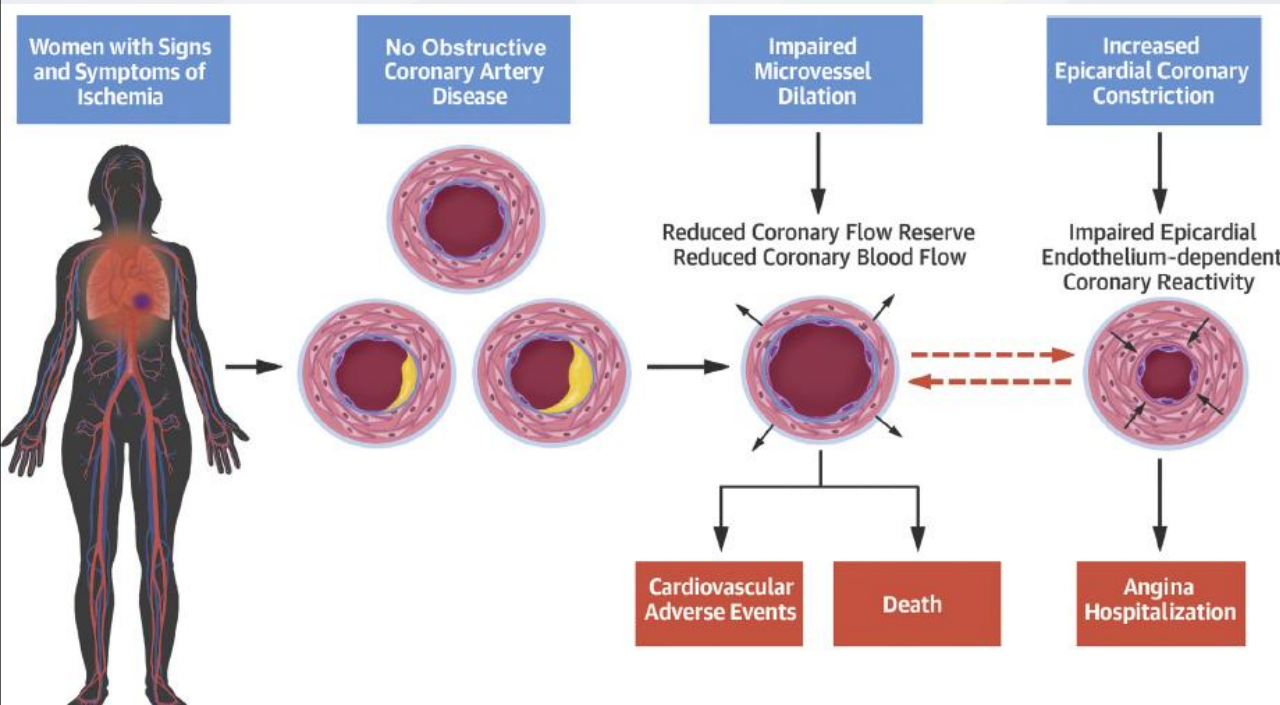
Mujer de 55 años con angina de esfuerzo típica, 4 meses de edad. Prueba de esfuerzo positiva, tanto clínica como ECG. Eco normal.

¿Disfunción microvascular funcional?



Mechanism	Systemic Vasculature			Myocardium		
	Nitric Oxide Synthase Activity	Acetylcholine Dilatation	Exercise Blood Pressure	NT-proBNP	Exercise Coronary Perfusion Efficiency	Inducible Ischemia
Reference Group (n = 40)	Normal 	Normal	Normal 	34 pgml ⁻¹	65% 	22%
Functional CMD (n = 28)	Increased 	Normal	Normal 	69 pgml ⁻¹	46% 	77%
Structural CMD (n = 18)	Increased 	Reduced	High 	132 pgml ⁻¹	41% 	88%

Pronóstico a más de 10 años (WISE)

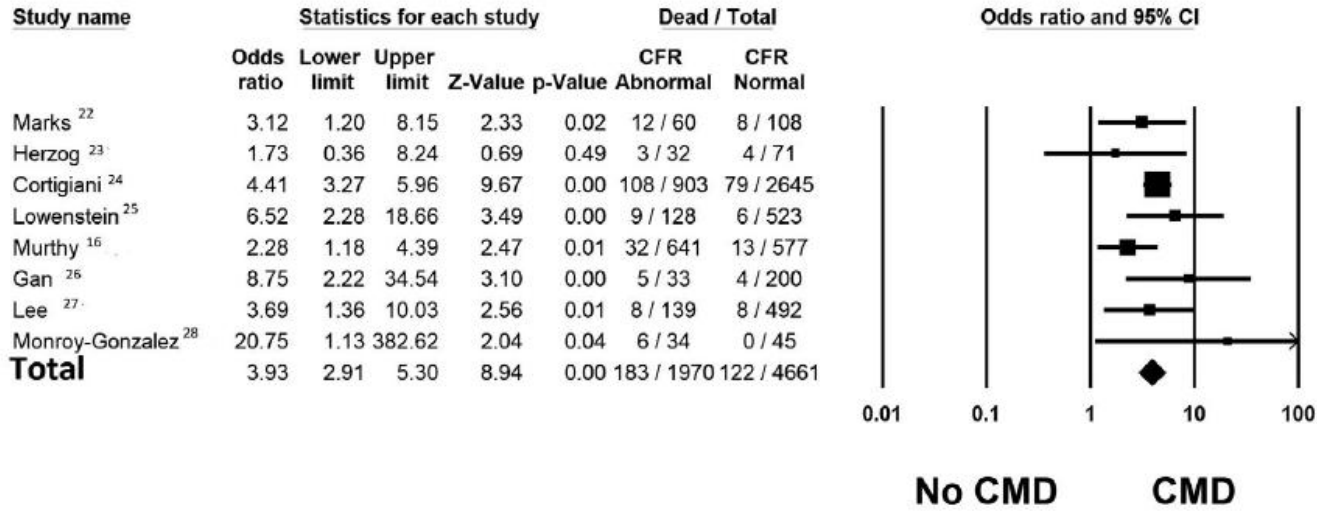


DISFUNCIÓN MICROVASCULAR CORONARIA Y MORTALIDAD

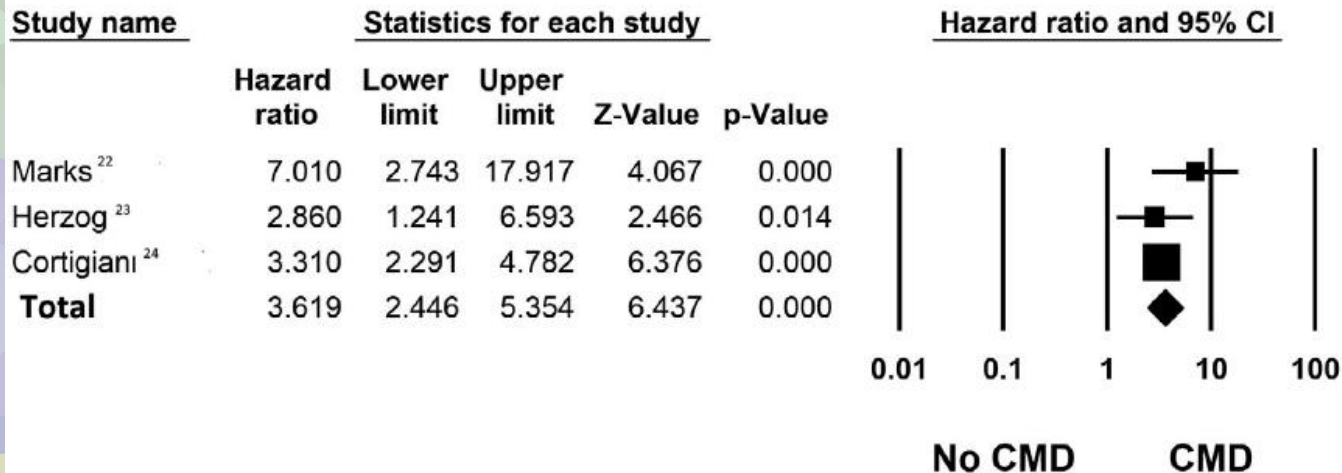
Journal of the American Heart Association

SYSTEMATIC REVIEW AND META-ANALYSIS

Association of Isolated Coronary Microvascular Dysfunction With Mortality and Major Adverse Cardiac Events: A Systematic Review and Meta-Analysis of Aggregate Data



B



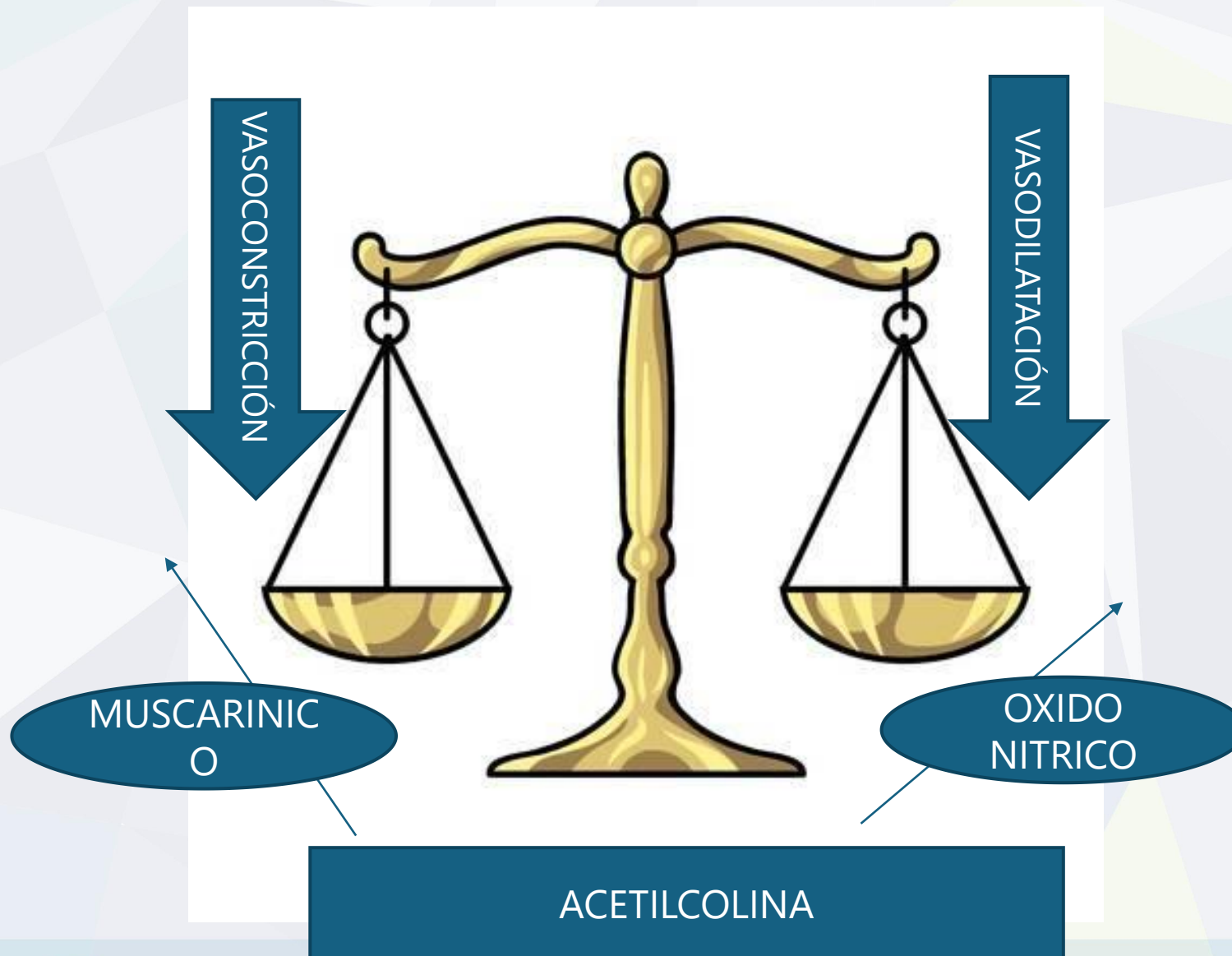
30%

**3.6
HR**

Gdowski MA et al. JAHA

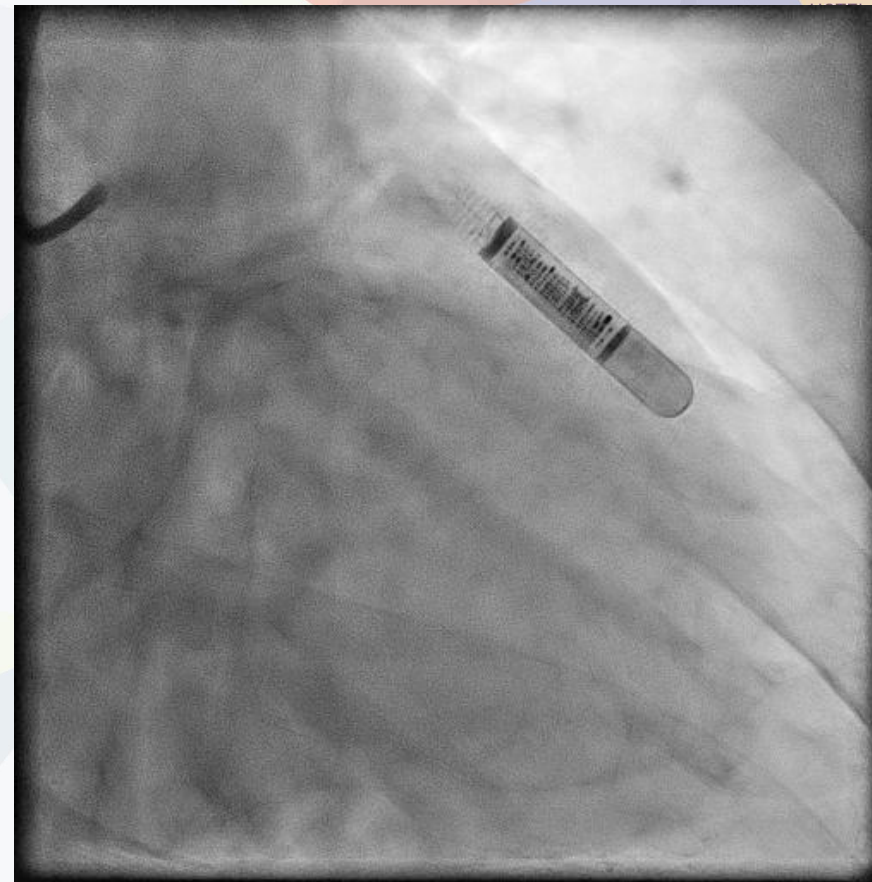
2020

PRUEBA DE ACETILCOLINA. CONCEPTO



PRUEBA DE ACETILCOLINA

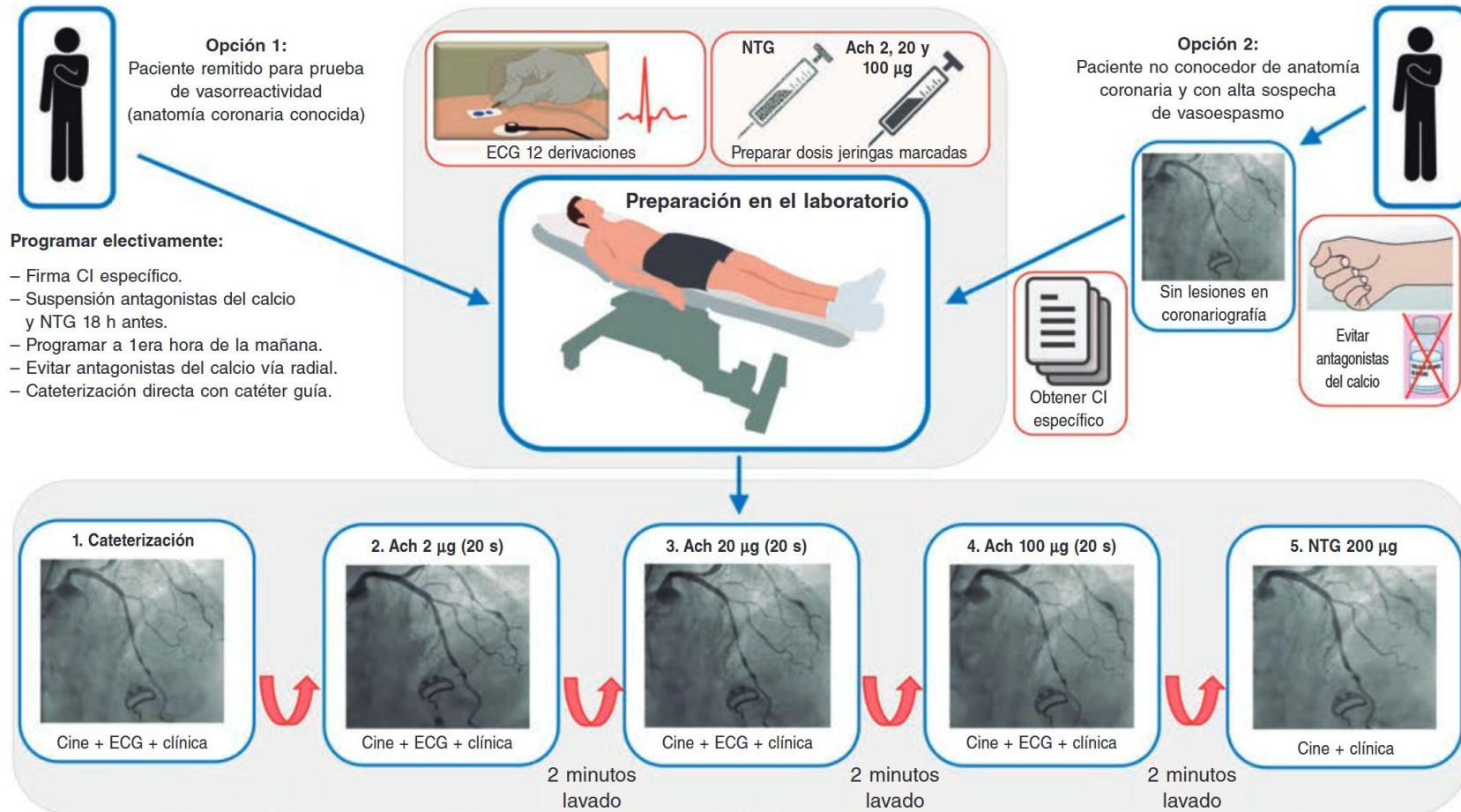
- Varón 55 años, exfumador
- Desde hace meses, dolores de esfuerzo, sobre todo al subir cuestas en bici
- Dos síncope con la bici
- Holter normal. Ergometría dudosa, con extrasistolia
- Cateterismo: lesión moderada en DA. Se solicita repetirlo



FFR de 0.83
CFR de 7.8
IMR de 6

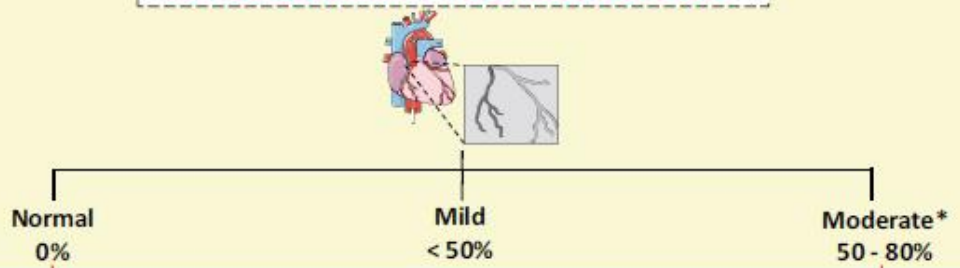
Valoración de la función endotelial y provocación de vasoespasmo coronario mediante infusión intracoronaria de acetilcolina. Documento técnico de la ACI-SEC

Enrique Gutiérrez^{a,b}, Josep Gómez-Lara^{c,d,*}, Javier Escaned^e, Ignacio Cruz^f, Soledad Ojeda^{g,h}, Rafael Romaguera^{c,d} y Raúl Morenoⁱ



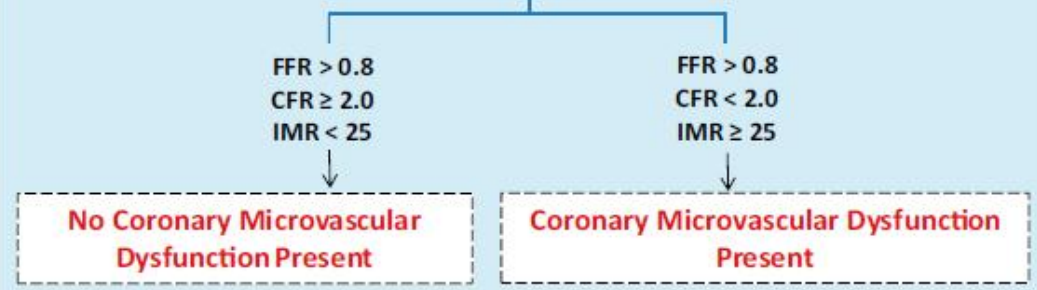
An EAPCI Expert Consensus Document on Ischaemia with Non-Obstructive Coronary Arteries in Collaboration with European Society of Cardiology Working Group on Coronary Pathophysiology & Microcirculation Endorsed by Coronary Vasomotor Disorders International Study Group

Step 1: Coronary angiography & LVEDP

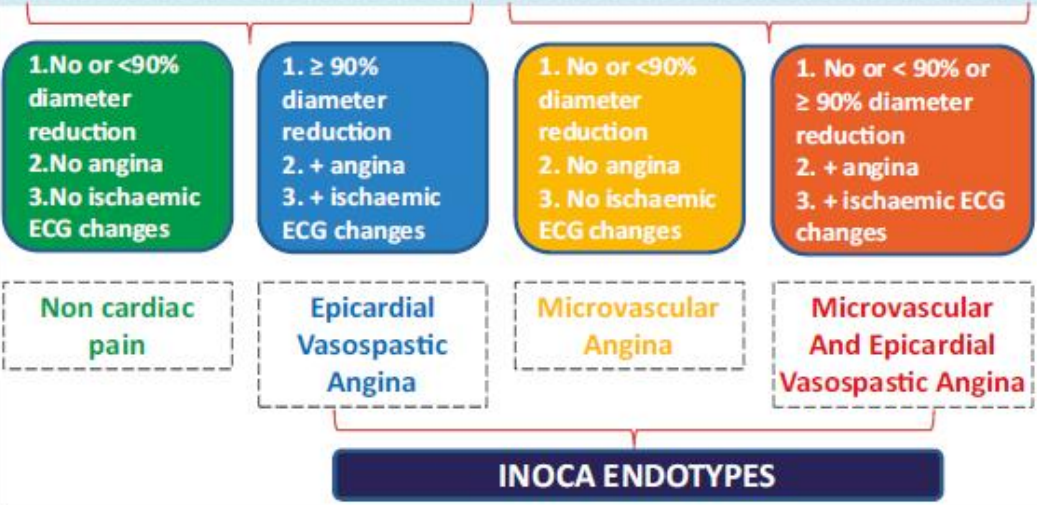


Step 2: Diagnostic guidewire and Adenosine test

FFR + CFR + IMR*



Step 3: Vasoreactivity (Acetylcholine test)

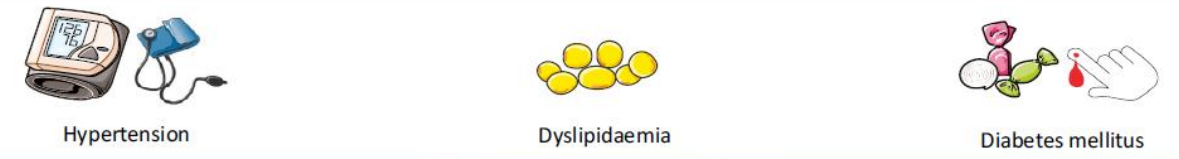


Management of INOCA

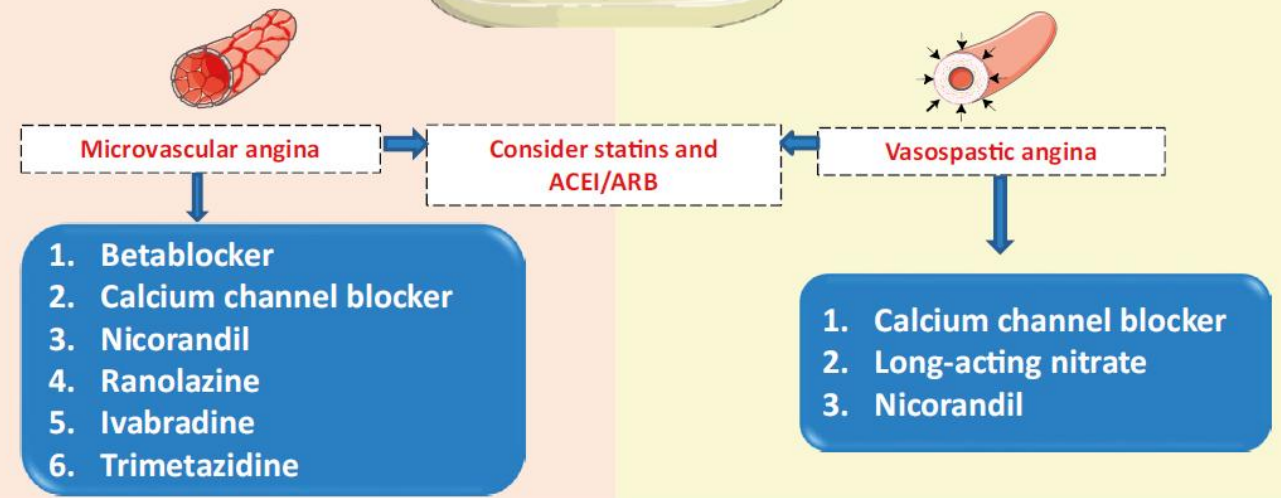
1. Lifestyle factors



2. Risk factor management



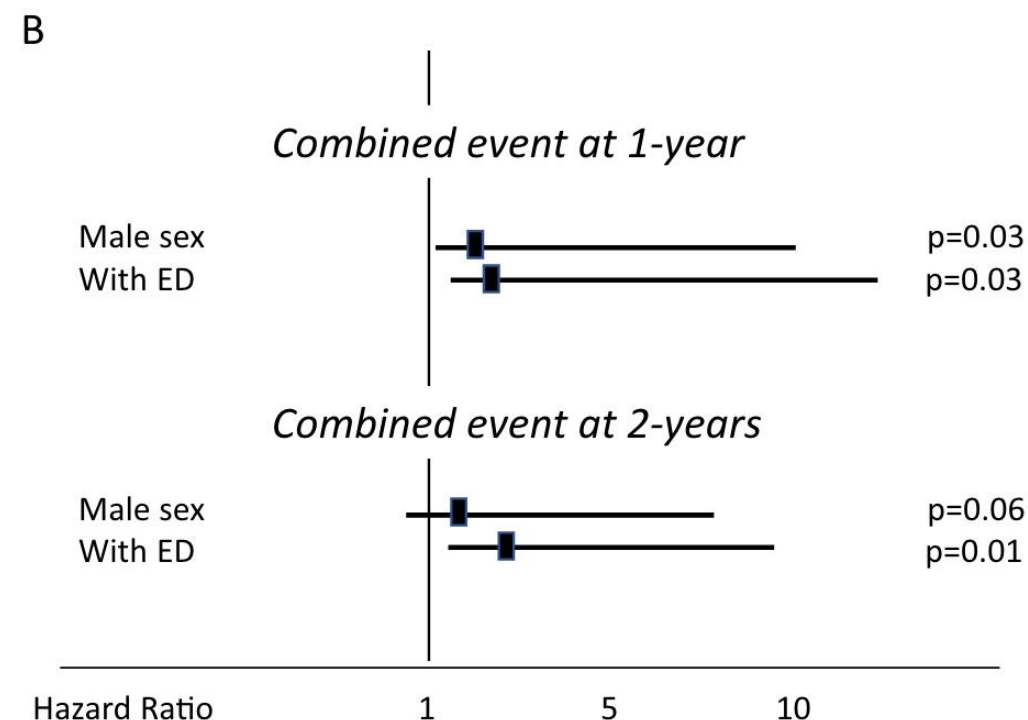
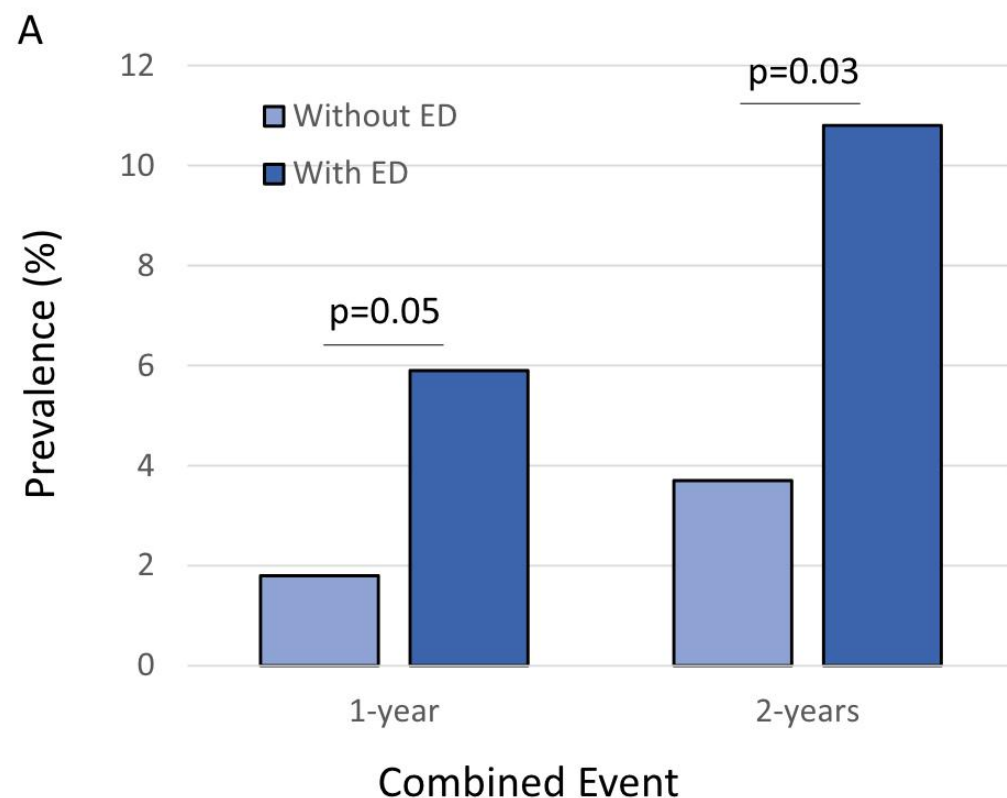
3. Antianginal medication



No te obsesiones con los endotipos



Disfunción endotelial sin criterios de espasmo



Inva

- Review
- Intra
- Consider
- LV Gr
- IVUS,
- Press
- Provo

Type
Pla
Dis
Tak
Epi
Cor



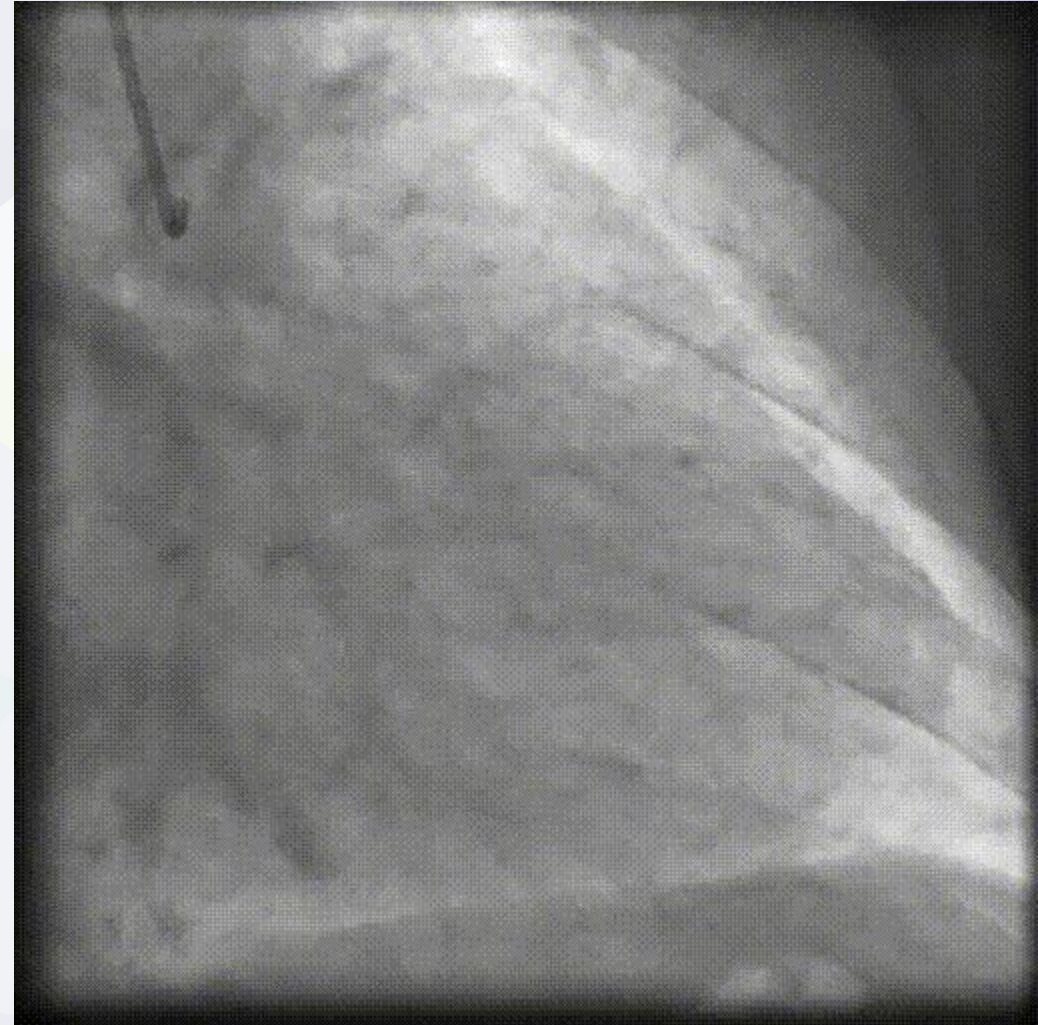
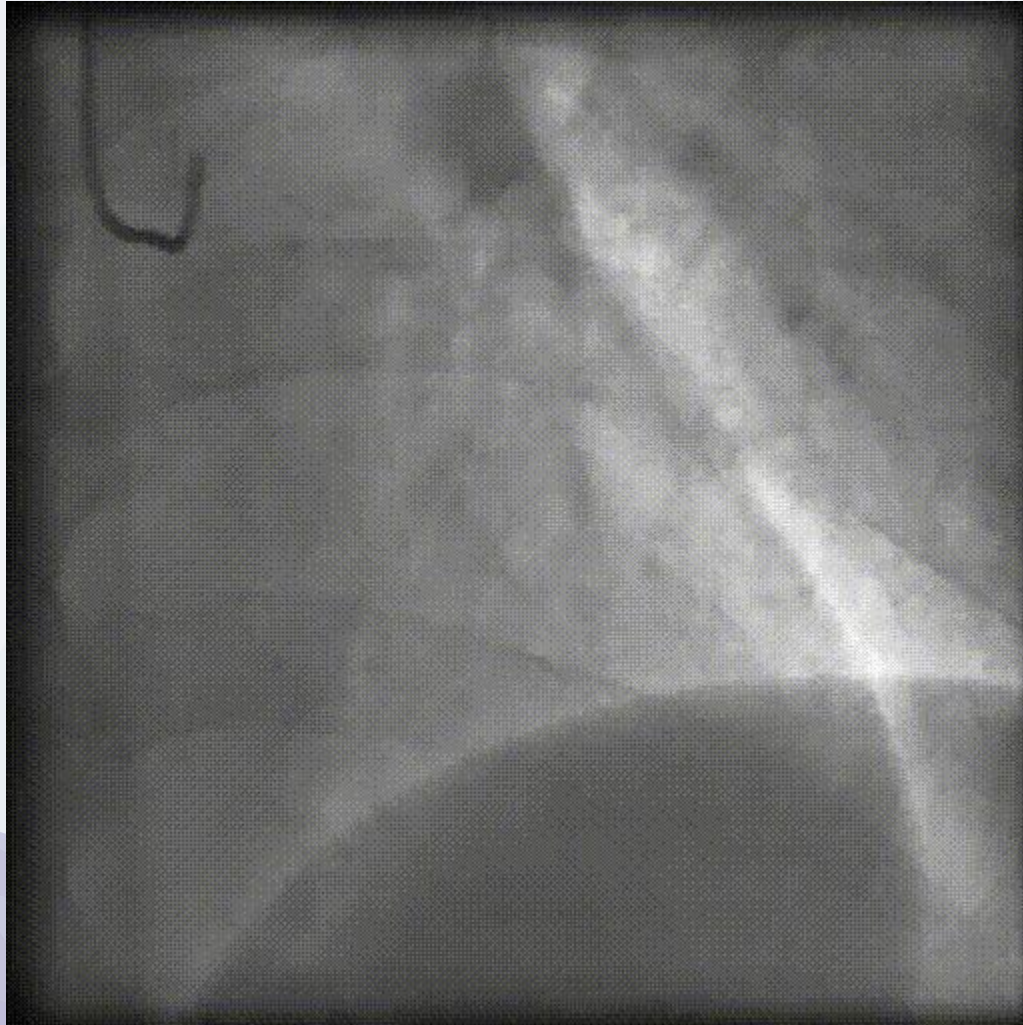
02)
m)

EL MINOCA ES UNA HISTORIA DIFERENTE

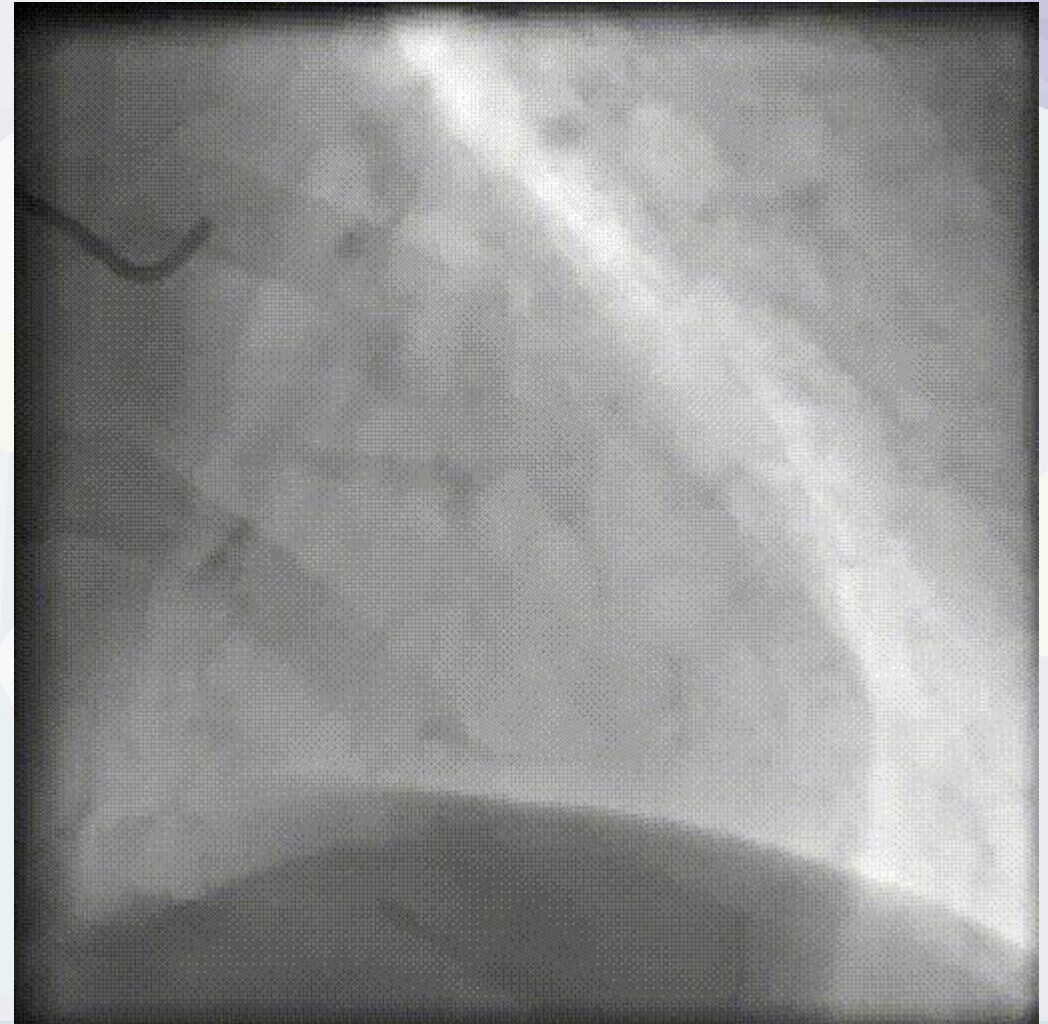
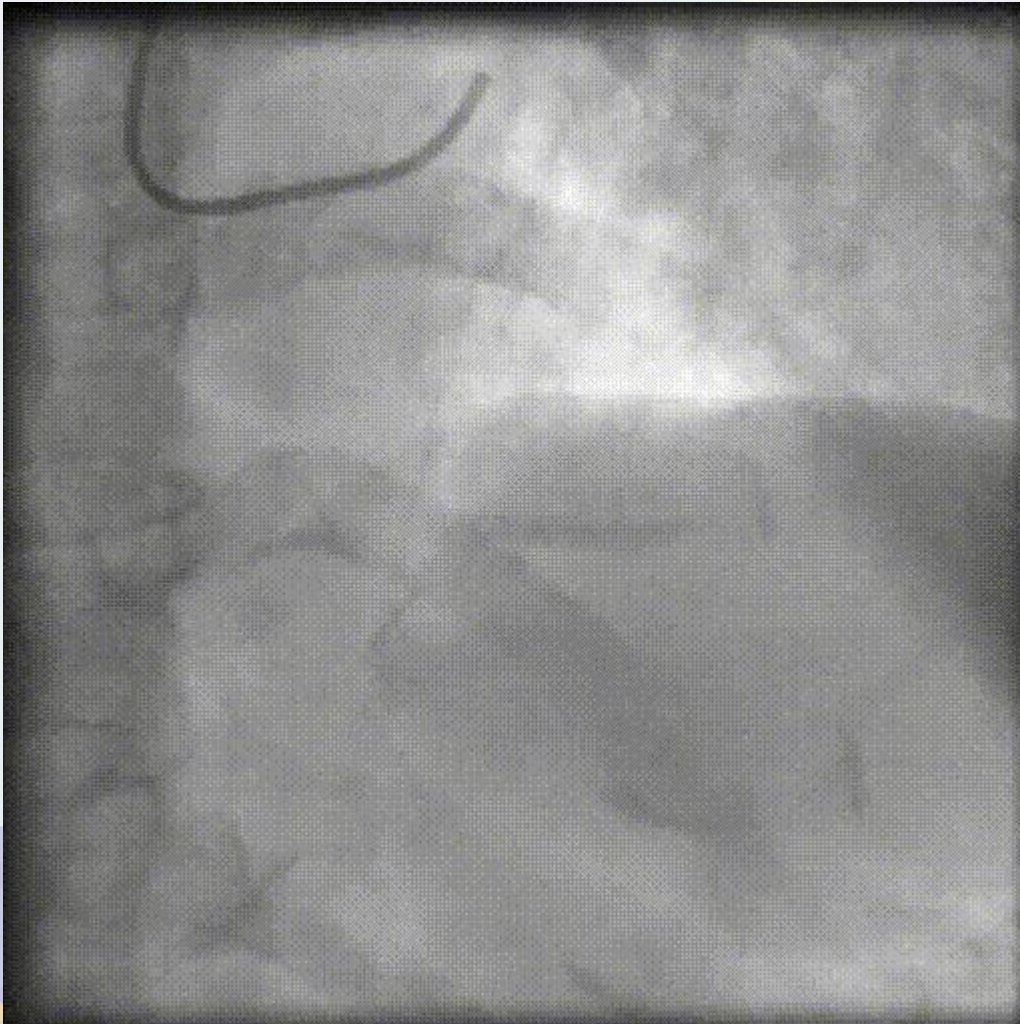
- Punto de partida: daño miocárdico (Tn) y coronarias "normales"
- 5 % de los pacientes que entran a la sala como infarto
- Muchas posibilidades diagnósticas. Tres fases:
 - Mirar las arterias epicárdicas
 - Mirar el miocardio
 - Mirar otras cosas



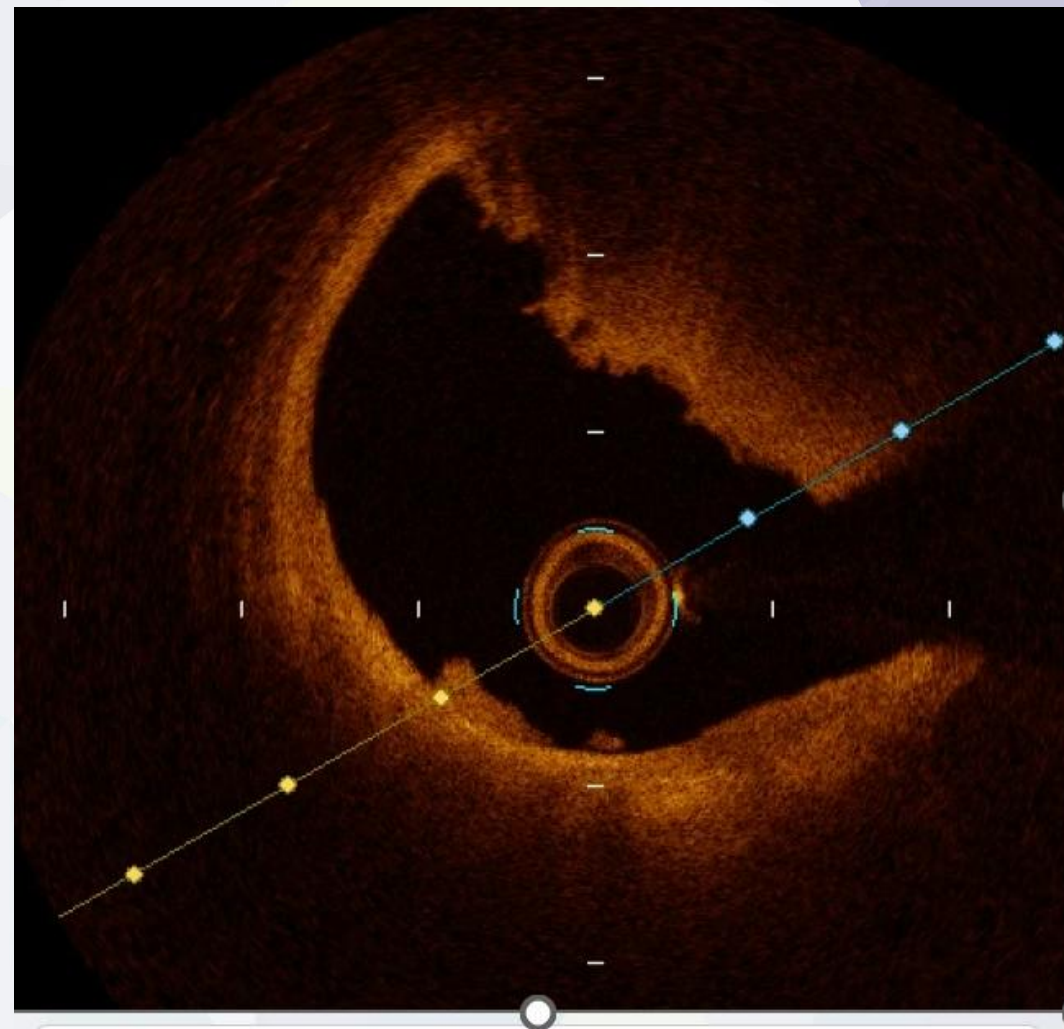
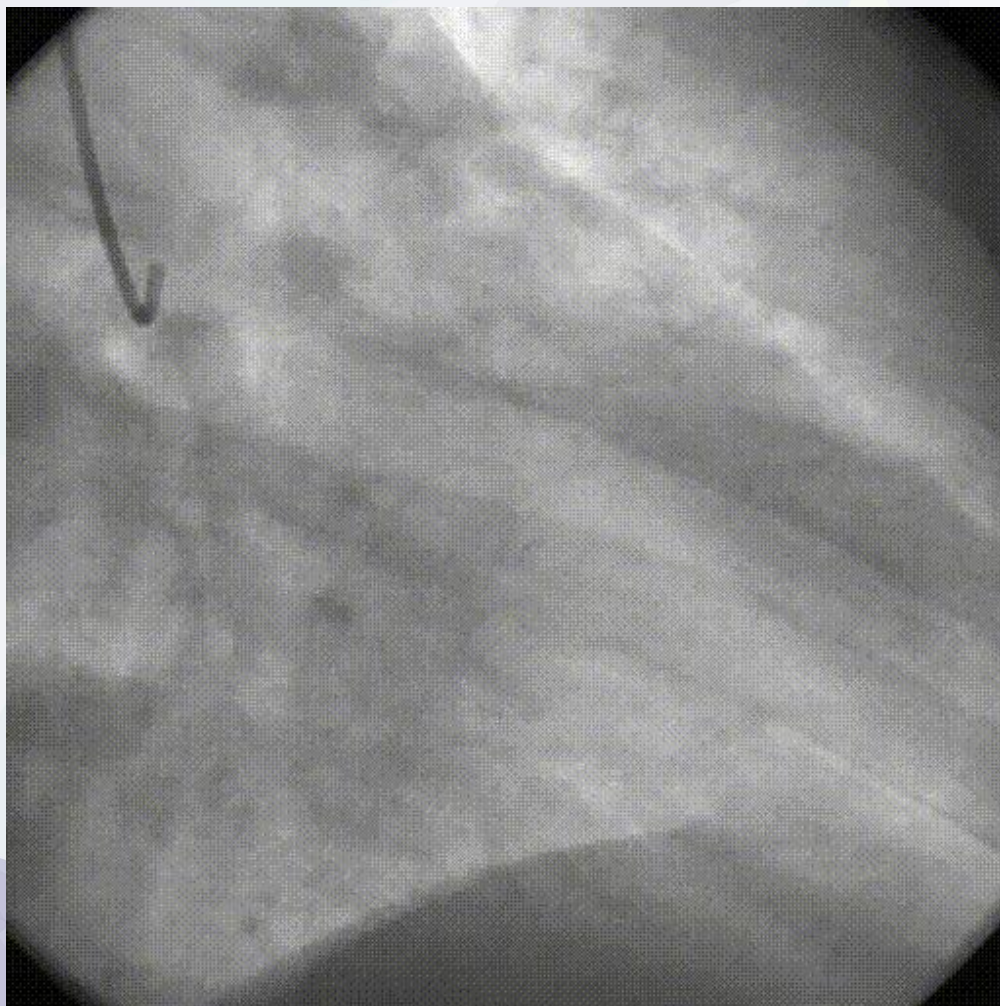
Causas epicárdicas. Mirar!



Causas epicárdicas. Mirar!

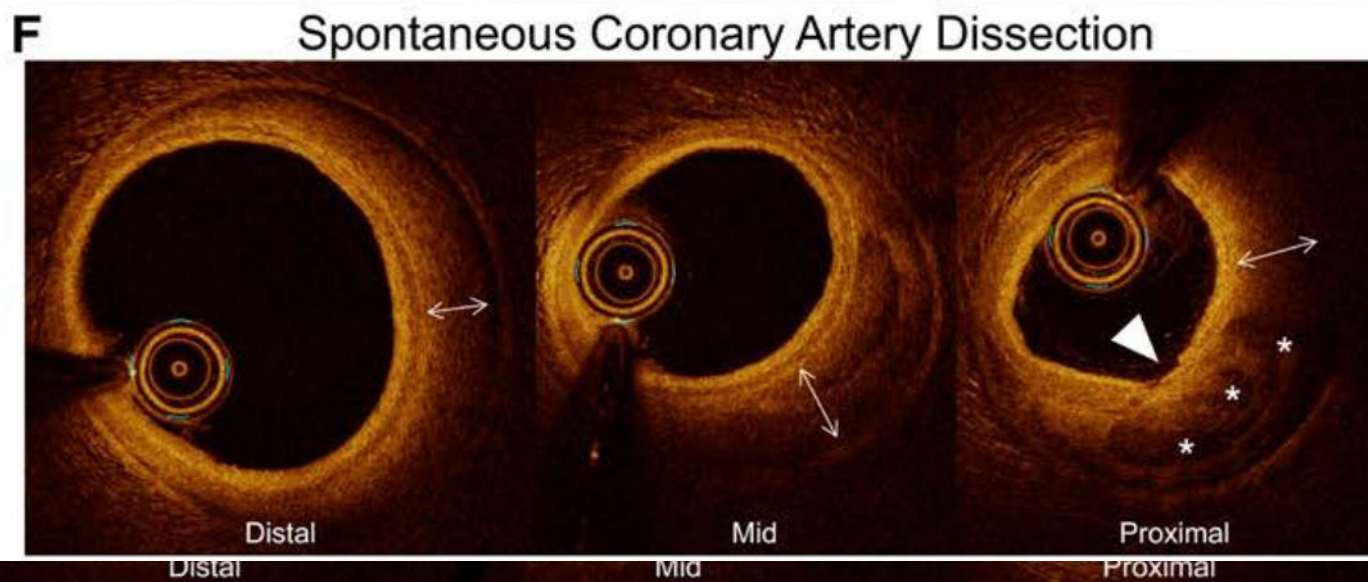
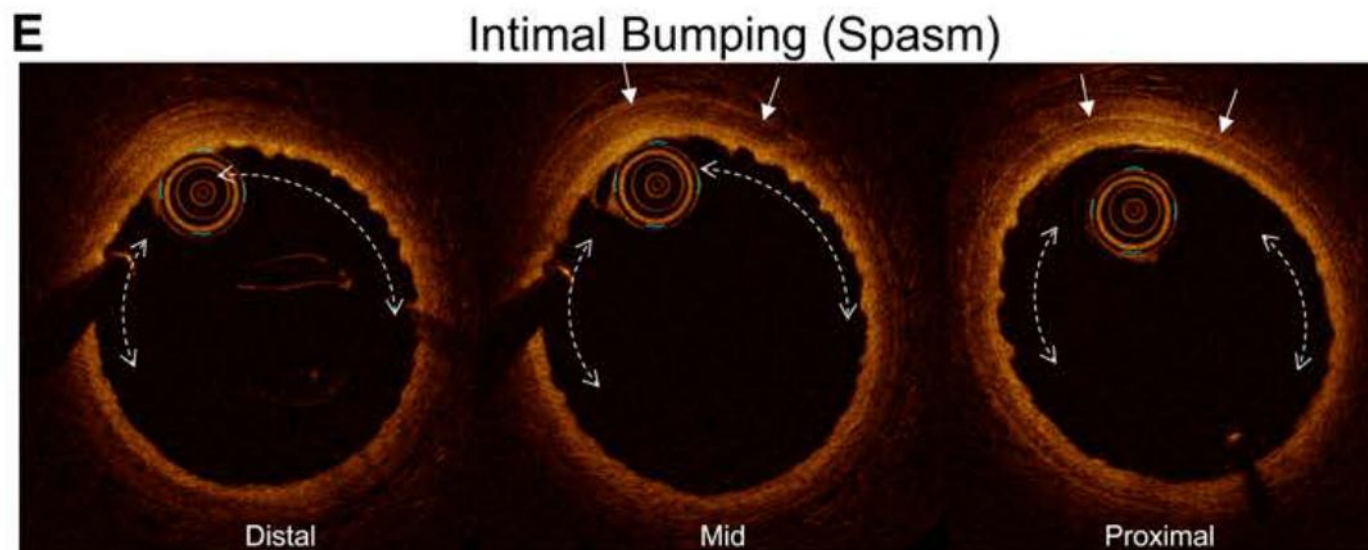


Mirar por fuera, mirar por dentro.

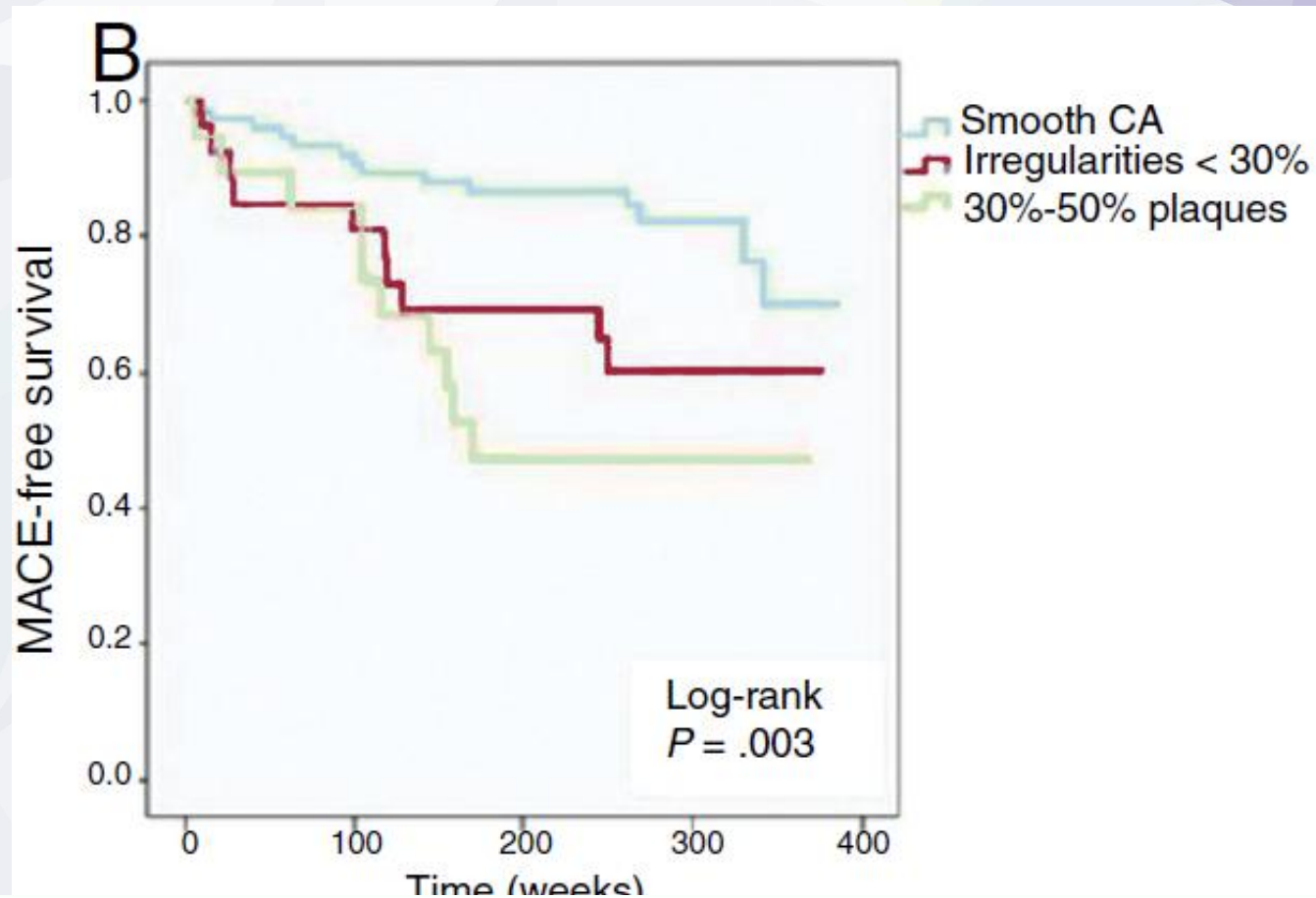


Mujer de 55 años, fumadora. Dolor torácico, bloqueo de rama derecha, elevación tropo.

Lesiones epicárdicas

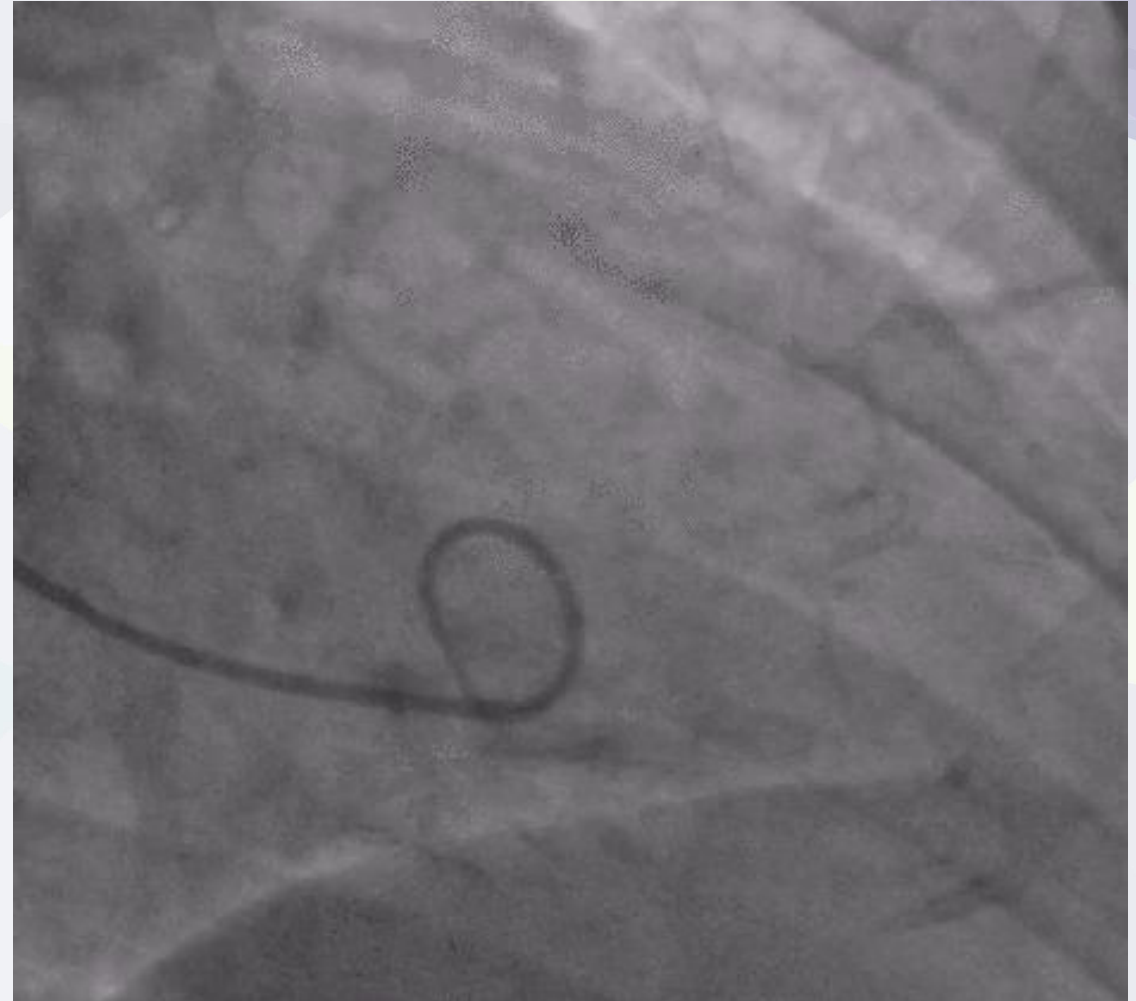
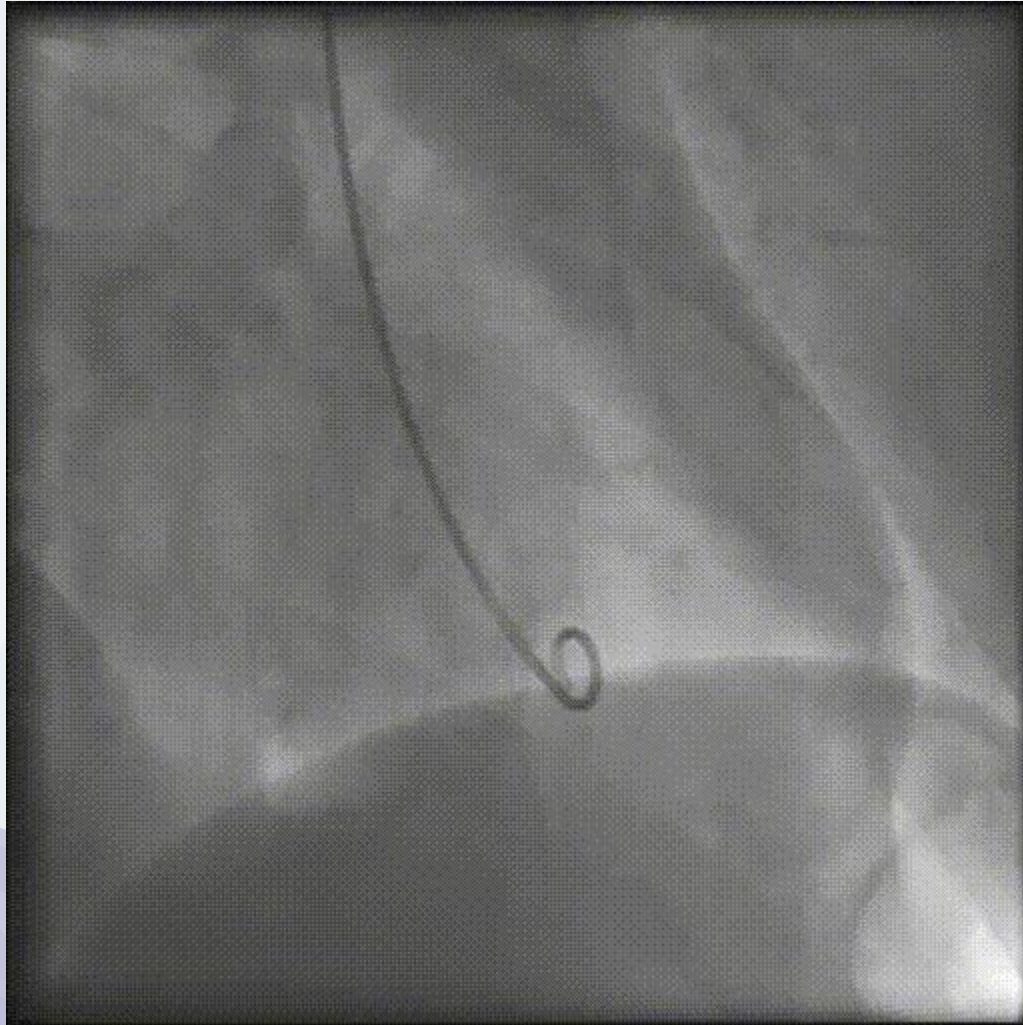


Las plaquitas en MINOCA importan mucho



	MACE (n = 34)	HR
Smooth CA (n = 75)	18.7	reference
Mild irregularities < 30% (n = 27)	37.0	2.45
Plaques 30%-50% (n = 19)	52.6	3.64

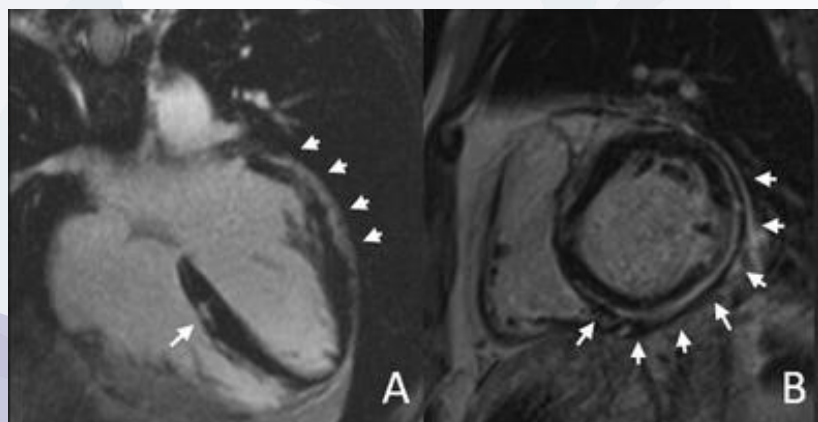
FASE 2: MIRAR EL MIOCARDIO



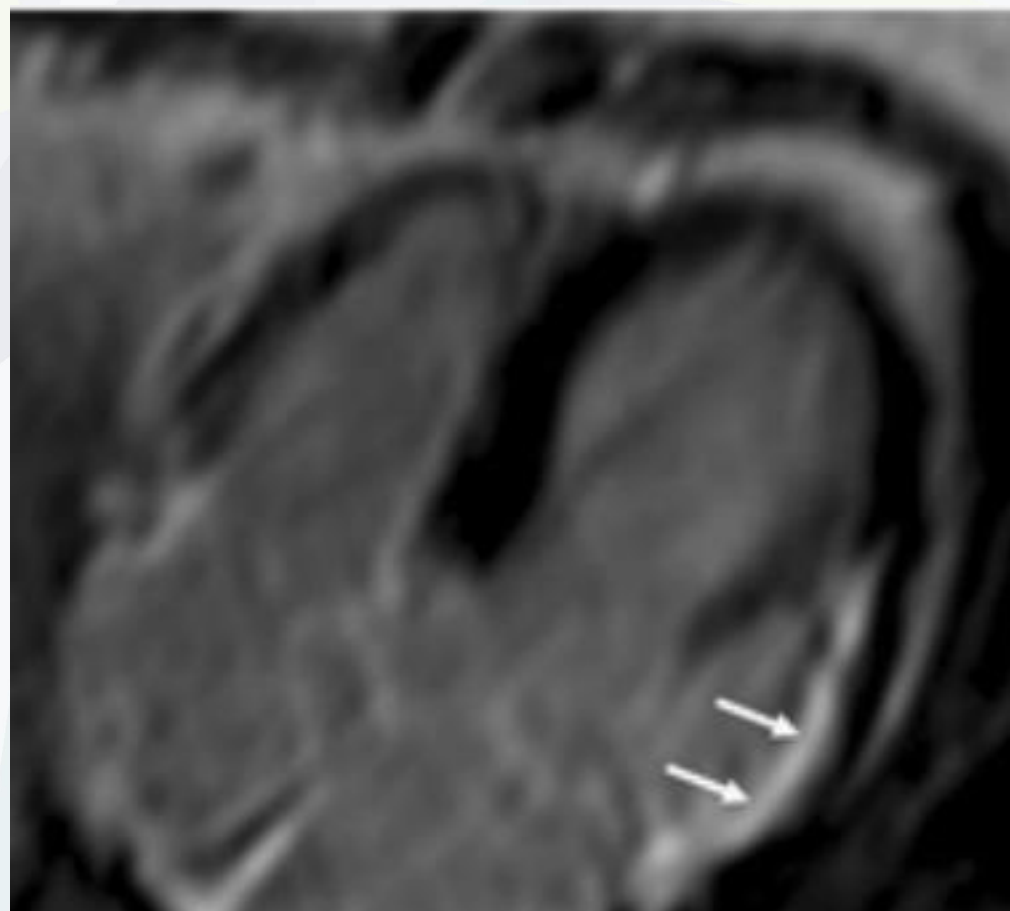
MIRAR EL MIOCARDIO



TAKOTSUBO



MIOCARDITIS



INFARTO TIPO 1

“MINOCARDITIS” y sus predictores

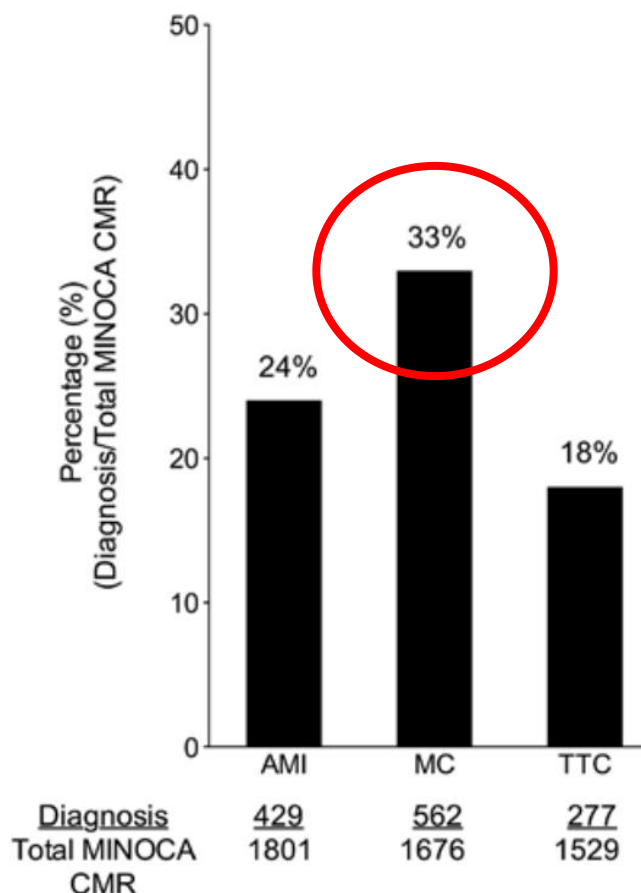
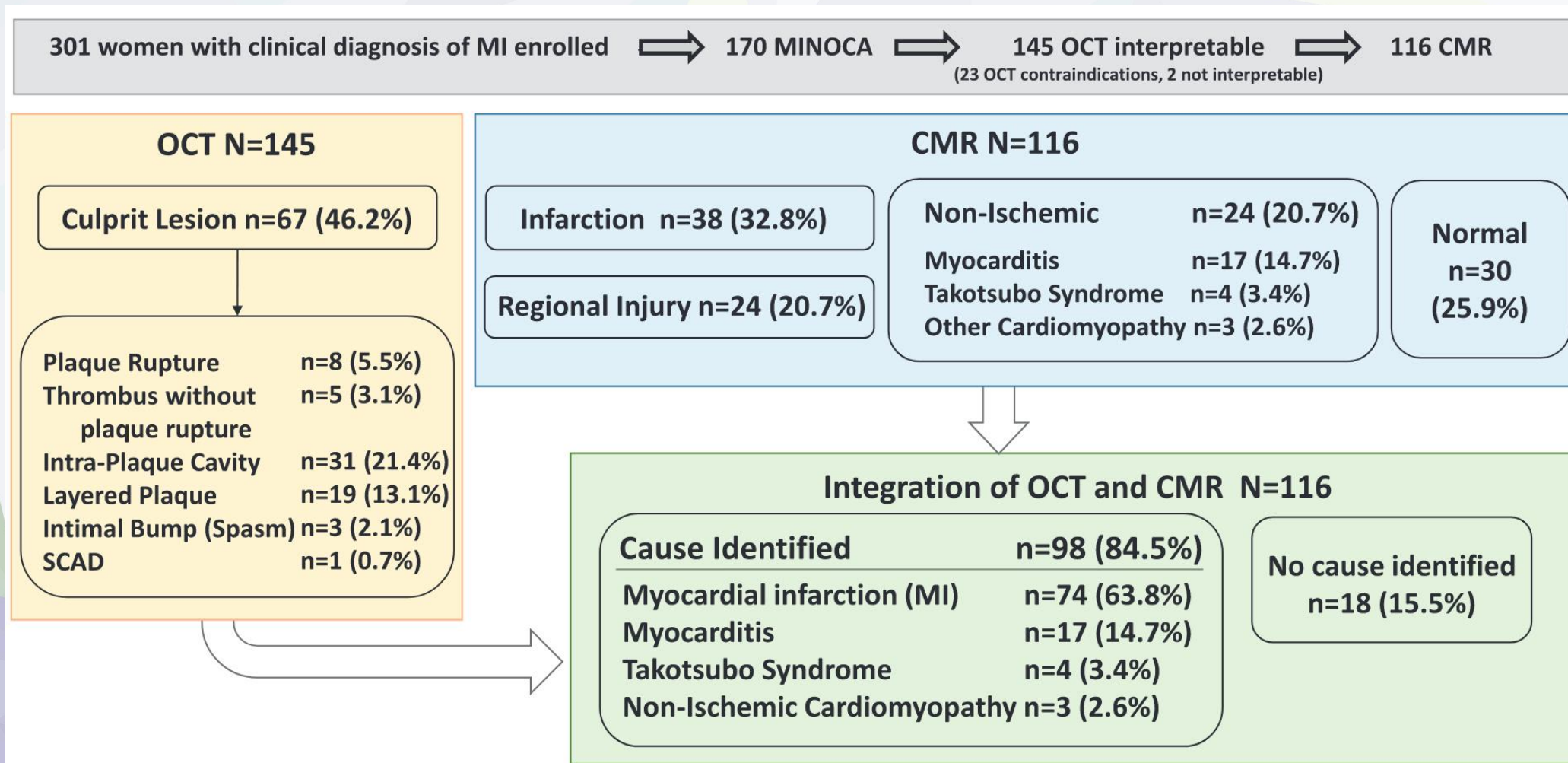


TABLE 1 Characteristics Independently Associated With CMR-Confirmed Myocarditis in Patients With a Provisional Diagnosis of MINOCA in a Meta-Analysis of Individual Patient Data

	OR (95% CI)	p Value
Angiographically normal coronaries	2.30 (1.12-4.71)	0.023
Female	0.32 (0.16-0.63)	<0.001
Older age (per yr)	0.96 (0.95-0.97)	<0.001

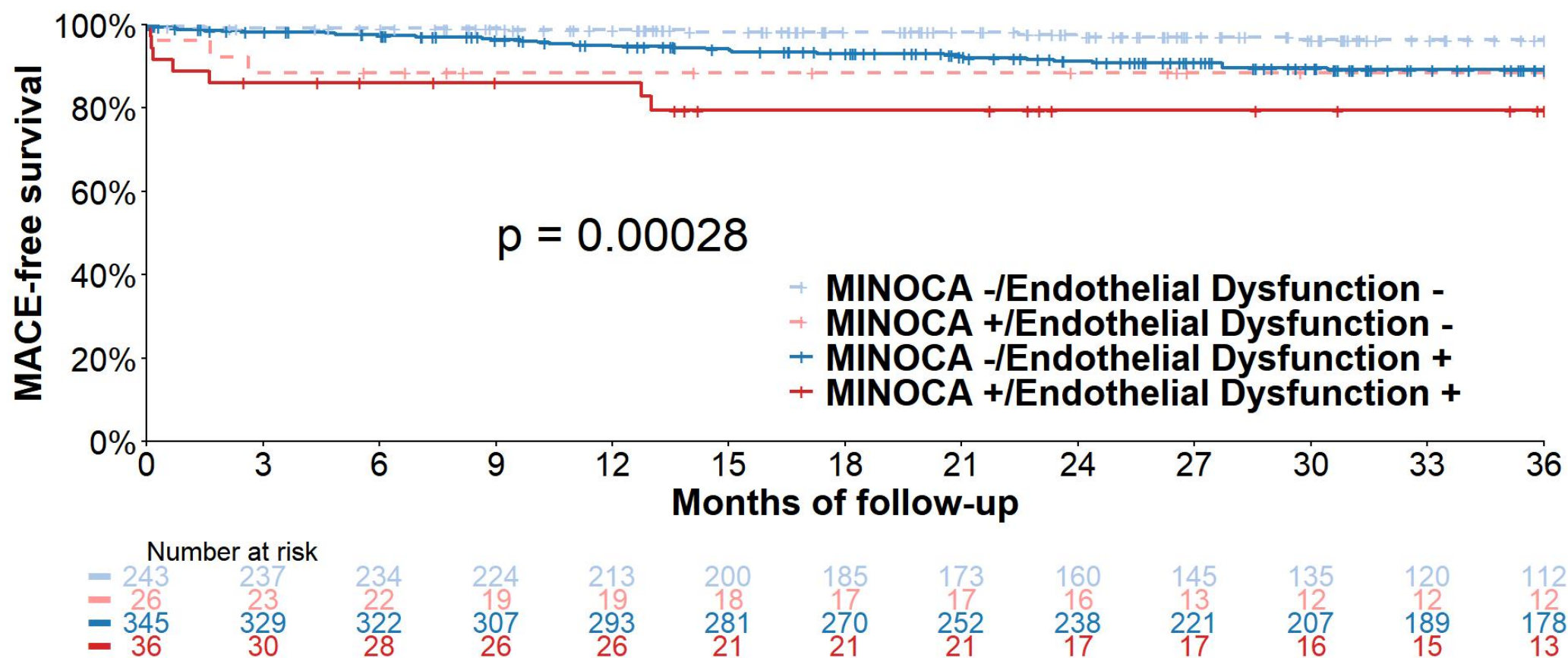
Hausvater. JACC: Cardiovascular Imaging. 2020;13:1906–1913. 2.
Pasupathy. Circulation. 2015;131:861–870.

La mayoría de los MINOCA son lesiones epicárdicas complicadas o miocarditis

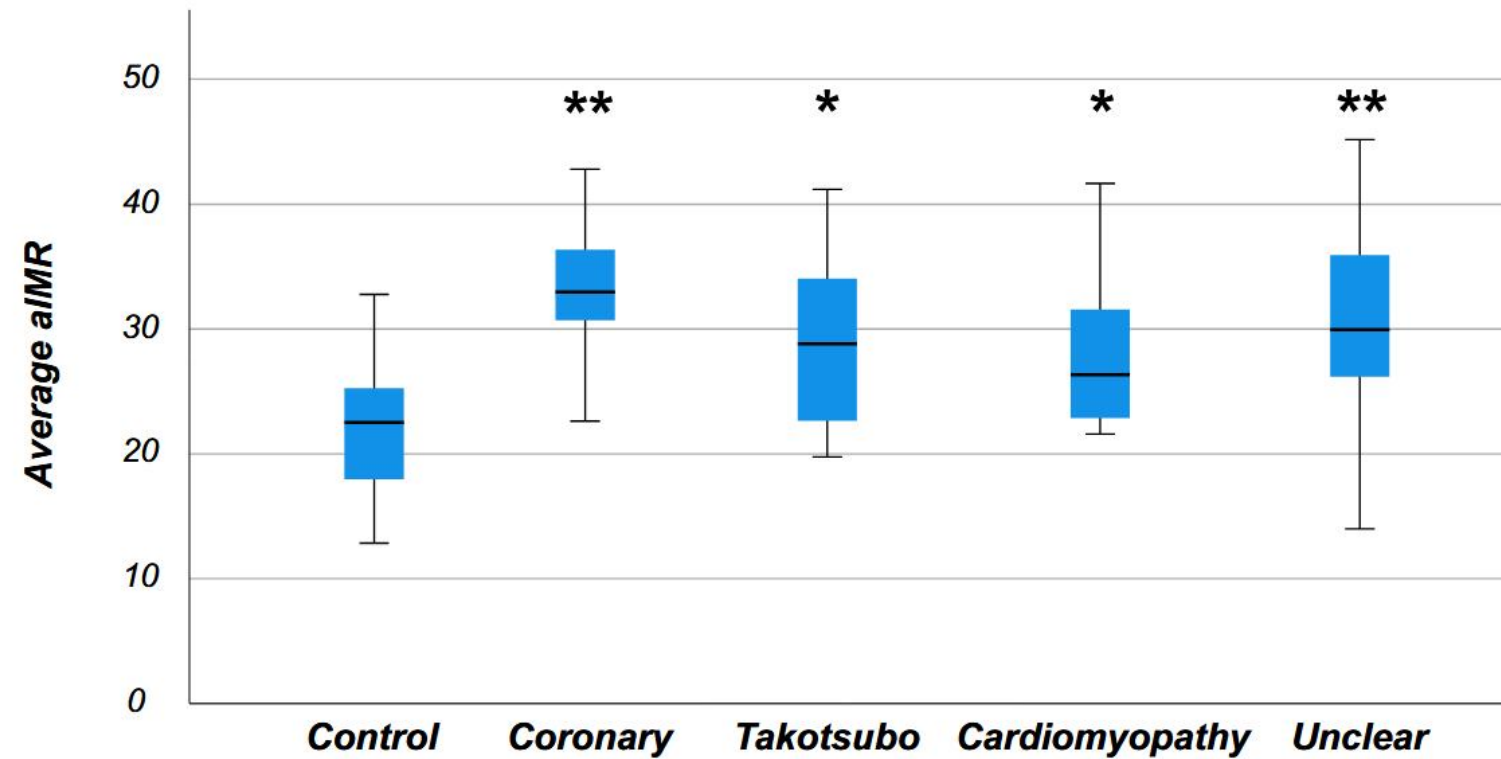
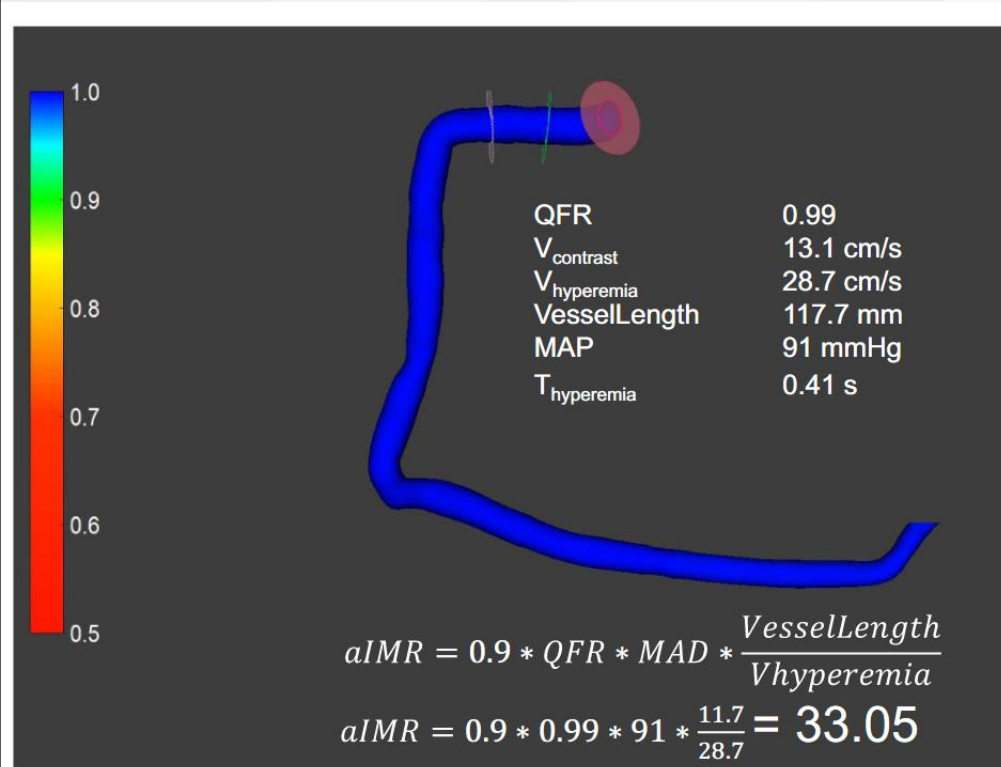


ACETILCOLINA EN EL MINOCA?

Figure 5. Kaplan-Meier curve for MACE according to diagnosis of MINOCA and Endothelial Dysfunction

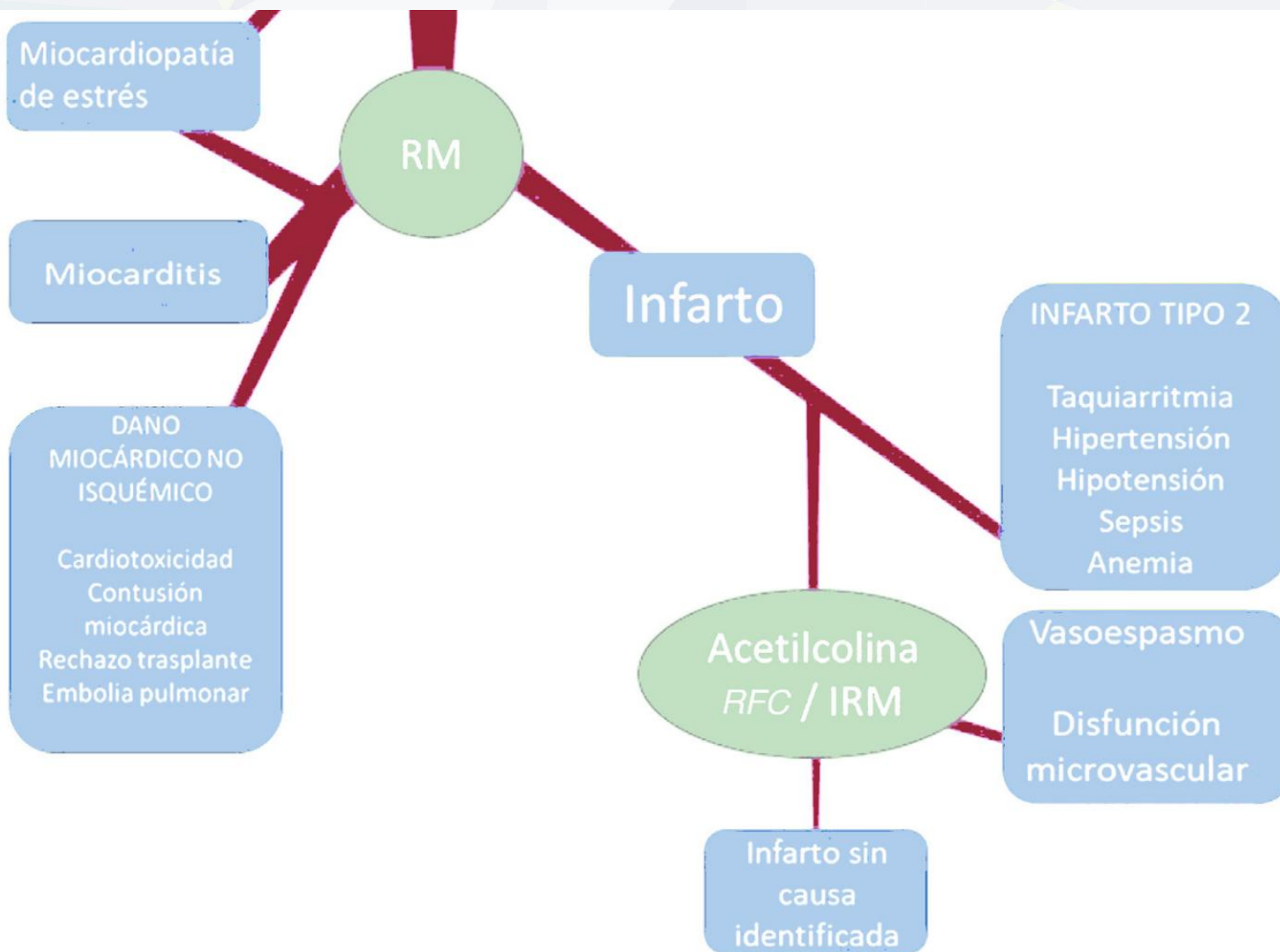


¿Función microvascular en el MINOCA?





¿Qué hago yo, entonces?



SCHWARZENEGGER DEVITO
TWINS



Only their
mother can
tell them
apart.

AN
IVAN
REITMAN
FILM



ROUND UP THE USUAL SUSPECTS.