

HOSPITAL UNIVERSITARIO CENTRAL DE ASTURIAS



La mejor revascularización en el diabético en 2011

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sec EL CONGRESO DE
LAS ENFERMEDADES
CARDIOVASCULARES
20/22 OCTUBRE
MASPALOMAS
GRAN CANARIA **2011**



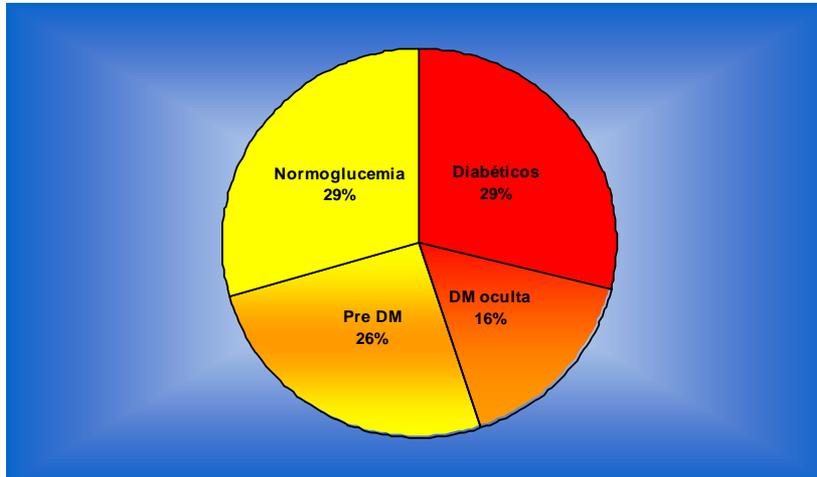
CONFLICTO DE INTERESES

No existen



Introducción: Revascularización en el diabético

Es relevante el problema?



De la Hera JM et al. Eur Heart J 2009; 30: 2614

Por qué es diferente?

- ✓ Hiperagregabilidad plaquetaria, inflamación, ateromatosis “acelerada”, mayor restenosis
- ✓ Enfermedad coronaria más extensa y compleja
- ✓ Comorbilidad asociada: Edad, HTA, Insuficiencia renal, enfermedad vascular

Cuando debemos revascularizar? Hay papel para el tratamiento médico?

Extent of CAD	Prognostic Weight (0-100)	5-Year Survival Rate (%)*
1-vessel disease, 75%	23	93
>1-vessel disease, 50% to 74%	23	93
1-vessel disease, $\geq 95\%$	32	91
2-vessel disease	37	88
2-vessel disease, both $\geq 95\%$	42	86
1-vessel disease, $\geq 95\%$ proximal LAD	48	83
2-vessel disease $\geq 95\%$ LAD	48	83
2-vessel disease, $\geq 95\%$ proximal LAD	56	79
3-vessel disease	56	79
3-vessel disease, $\geq 95\%$ in at least 1	63	73
3-vessel disease, 75% proximal LAD	67	67
2-vessel disease, $\geq 95\%$ proximal LAD	74	59

Table A2. Noninvasive Risk Stratification

High-Risk (greater than 3% annual mortality rate)

1. Severe resting left ventricular dysfunction (LVEF less than 35%)
2. High-risk treadmill score (score less than or equal to -11)
3. Severe exercise left ventricular dysfunction (exercise LVEF less than 35%)
4. Stress-induced large perfusion defect (particularly if anterior)
5. Stress-induced multiple perfusion defects of moderate size
6. Large, fixed perfusion defect with LV dilation or increased lung uptake (thallium-201)
7. Stress-induced moderate perfusion defect with LV dilation or increased lung uptake (thallium-201)
8. Echocardiographic wall motion abnormality (involving greater than two segments) developing at low dose of dobutamine (less than or equal to 10 mg/kg/min) or at a low heart rate (less than 120 beats/min)
9. Stress echocardiographic evidence of extensive ischemia

Intermediate-Risk (1% to 3% annual mortality rate)

1. Mild/moderate resting left ventricular dysfunction (LVEF equal to 35% to 49%)
2. Intermediate-risk treadmill score (-11 less than score less than 5)
3. Stress-induced moderate perfusion defect without LV dilation or increased lung intake (thallium-201)
4. Limited stress echocardiographic ischemia with a wall motion abnormality only at higher doses of dobutamine involving less than or equal to two segments

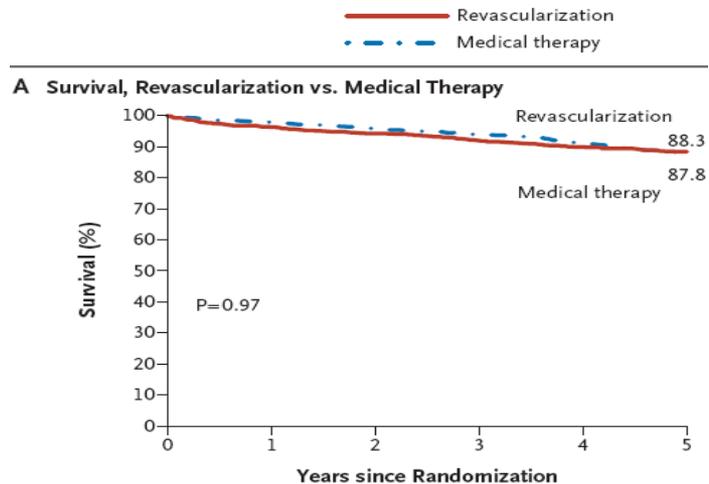
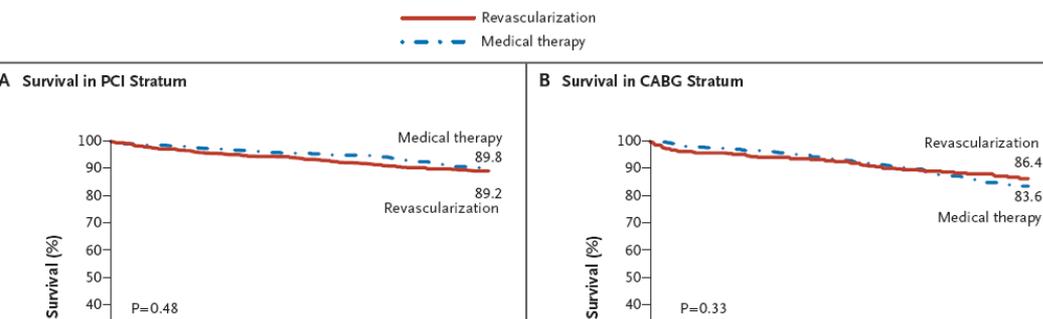
Low-Risk (less than 1% annual mortality rate)

1. Low-risk treadmill score (score greater than or equal to 5)
2. Normal or small myocardial perfusion defect at rest or with stress*
3. Normal stress echocardiographic wall motion or no change of limited resting wall motion abnormalities during stress*

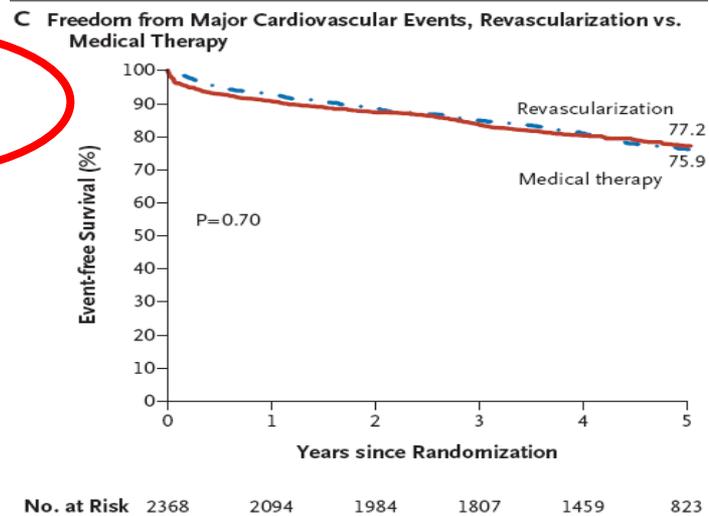
APPROPRIATENESS CRITERIA

ACCF/SCAI/STS/AATS/AHA/ASNC 2009 Appropriateness Criteria for Coronary Revascularization

Cuando debemos revascularizar? Hay papel para el tratamiento médico?



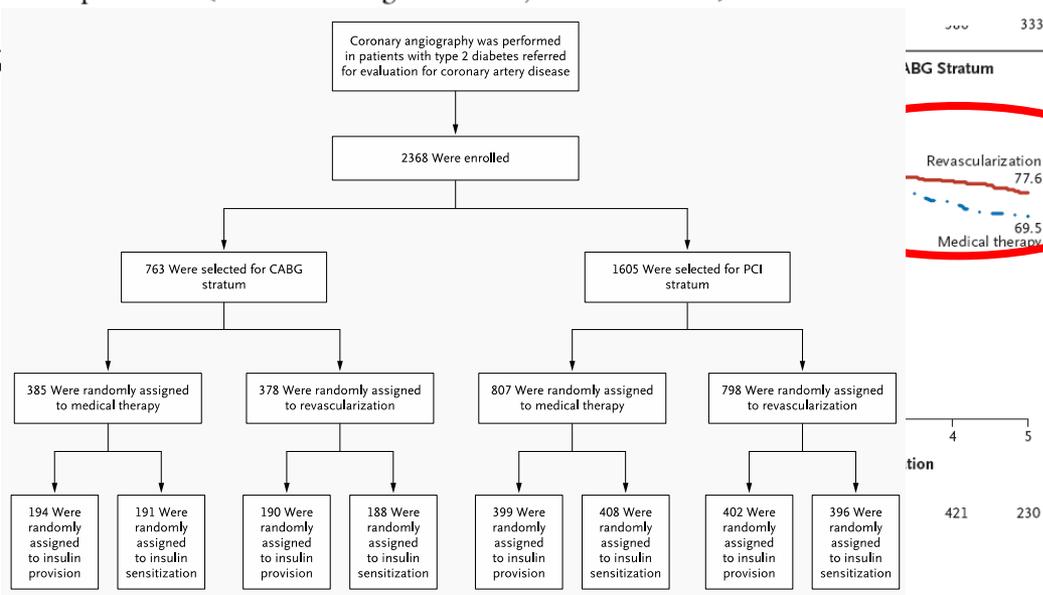
No. at Risk	2368	2296	2247	2197	1892	1196
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No. at Risk	2368	2094	1984	1807	1459	823
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CONCLUSIONS

Overall, there was no significant difference in the rates of death and major cardiovascular events between patients undergoing prompt revascularization and those undergoing medical therapy or between strategies of insulin sensitization and insulin provision. (ClinicalTrials.gov number, NCT00006305.)



Quando debemos revascularizar? Hay papel para el tratamiento médico?

Bajo riesgo!!

The NEW ENGLAND JOURNAL of MEDICINE

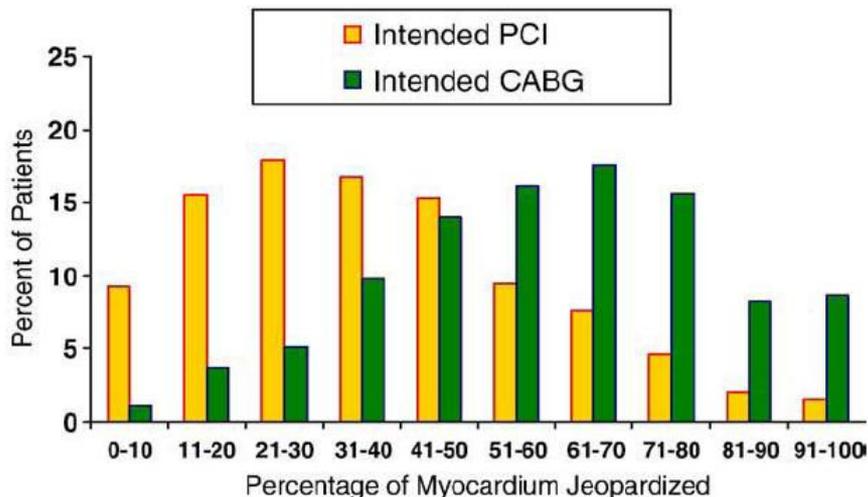
ESTABLISHED IN 1812 JUNE 11, 2009 VOL. 360 NO. 24

A Randomized Trial of Therapies for Type 2 Diabetic and Coronary Artery Disease

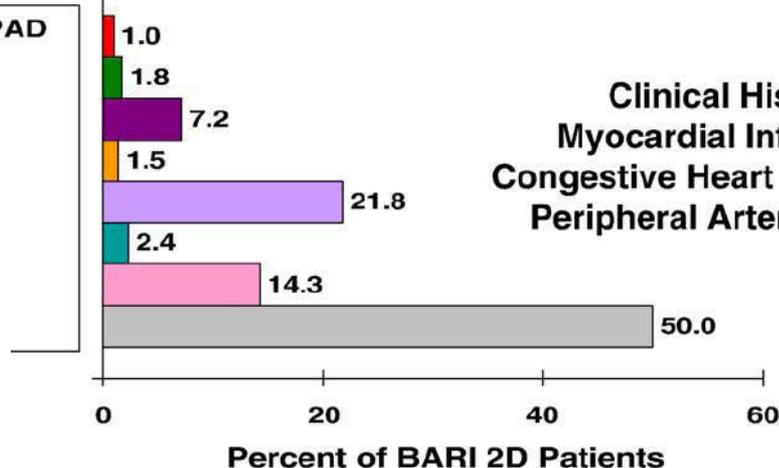
The BARI 2D Study Group*

- MI, CHF and PAD
- MI and CHF
- MI and PAD
- CHF and PAD
- MI

Distribution of Percent Myocardium Jeopardized Stratified By Randomization Strata



Clinical History:
Myocardial Infarction,
Congestive Heart Failure, and
Peripheral Artery Disease



Diferente carga isquémica!!

Qué dicen las guías?

ACCF/SCAI/STS/AATS/AHA/ASNC 2009 Appropriateness Criteria for Coronary Revascularization

Intermediate Risk Findings on Noninvasive Study						CCS Class I or II Angina						High Risk Findings on Noninvasive Study						CCS Class III or IV Angina					
Symptoms						Stress Test Med. Rx						Symptoms						Stress Test Med. Rx					
Med. Rx												Med. Rx											
Class III or IV Max Rx	A	A	A	A	A	High Risk Max Rx	A	A	A	A	A	Class III or IV Max Rx	A	A	A	A	A	High Risk Max Rx	A	A	A	A	A
Class I or II Max Rx	U	A	A	A	A	High Risk No/min Rx	U	A	A	A	A	Class I or II Max Rx	A	A	A	A	A	High Risk No/min Rx	A	A	A	A	A
Asymptomatic Max Rx	U	U	U	U	A	Int. Risk Max Rx	U	A	A	A	A	Asymptomatic Max Rx	U	A	A	A	A	Int. Risk Max Rx	A	A	A	A	A
Class III or IV No/min Rx	U	U	A	A	A	Int. Risk No/min Rx	U	U	U	A	A	Class III or IV No/min Rx	A	A	A	A	A	Int. Risk No/min Rx	U	U	A	A	A
Class I or II No/min Rx	U	U	U	A	A	Low Risk Max Rx	U	U	A	A	A	Class I or II No/min Rx	U	A	A	A	A	Low Risk Max Rx	U	A	A	A	A
Asymptomatic No/min Rx	I	I	U	U	A	Low Risk No/min Rx	I	I	U	U	U	Asymptomatic No/min Rx	U	U	A	A	A	Low Risk No/min Rx	I	U	A	A	A
Coronary Anatomy	CTO of 1 vz.; no other disease	1-2 vz. disease; no Prox. LAD	1 vz. disease of Prox. LAD	2 vz. disease with Prox. LAD	3 vz. disease; no Left Main	Coronary Anatomy	CTO of 1 vz.; no other disease	1-2 vz. disease; no Prox. LAD	1 vz. disease of Prox. LAD	2 vz. disease with Prox. LAD	3 vz. disease; no Left Main	Coronary Anatomy	CTO of 1 vz.; no other disease	1-2 vz. disease; no Prox. LAD	1 vz. disease of Prox. LAD	2 vz. disease with Prox. LAD	3 vz. disease; no Left Main	Coronary Anatomy	CTO of 1 vz.; no other disease	1-2 vz. disease; no Prox. LAD	1 vz. disease of Prox. LAD	2 vz. disease with Prox. LAD	3 vz. disease; no Left Main

	CABG			PCI		
	No diabetes and normal LVEF	Diabetes	Depressed LVEF	No diabetes and normal LVEF	Diabetes	Depressed LVEF
Two vessel coronary artery disease with proximal LAD stenosis	A	A	A	A	A	A
Three vessel coronary artery disease	A	A	A	U	U	U
Isolated left main stenosis	A	A	A	I	I	I
Left main stenosis and additional coronary artery disease	A	A	A	I	I	I

Method of Revascularization of Advanced Coronary Artery Disease



The Task Force on Myocardial Revascularization of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

Qué dicen las guías?

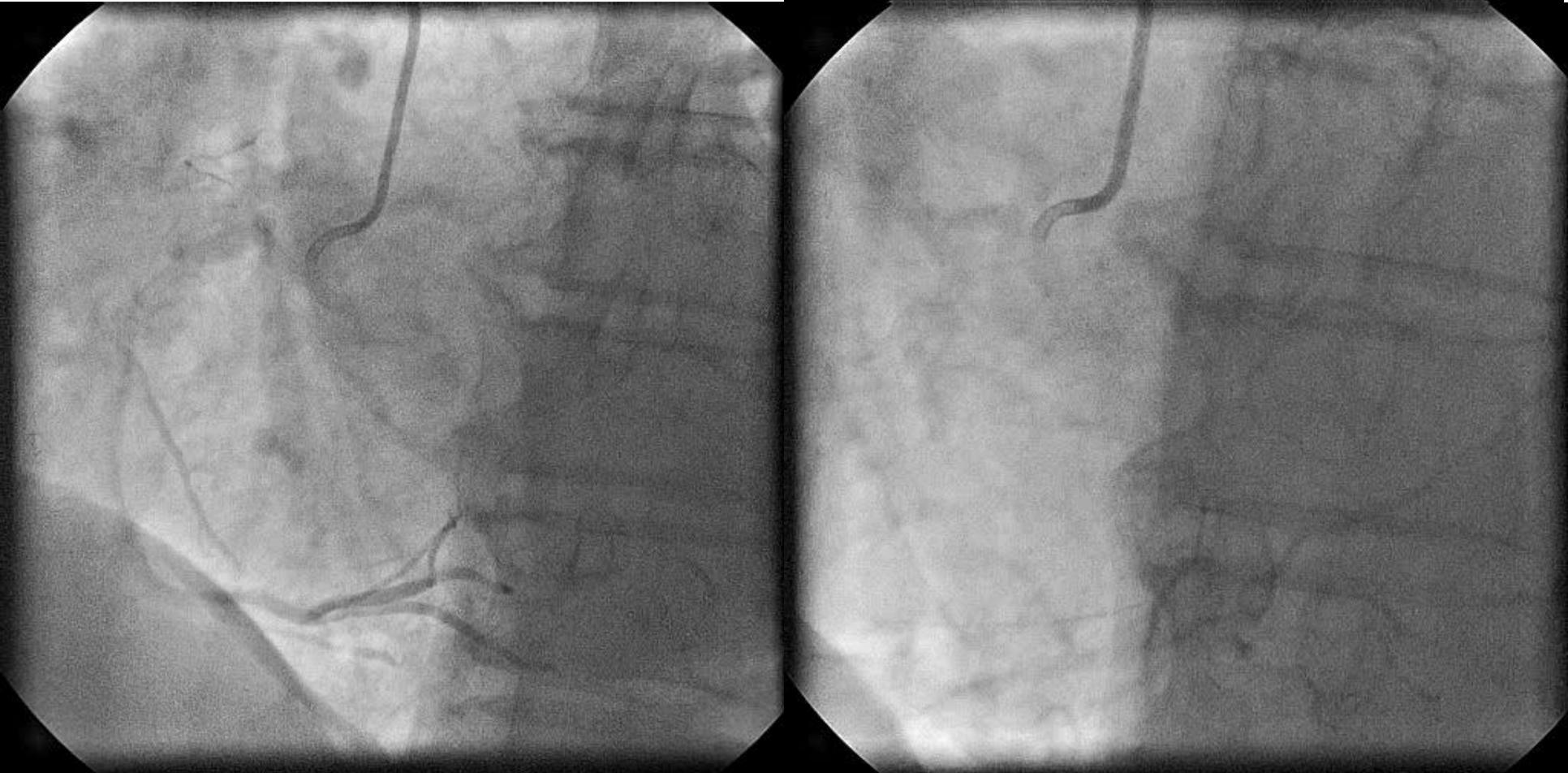
Table 16 Specific recommendations for diabetic patients

	Class ^a	Level ^b	Ref.	Score	Calculation	Number of variables used to calculate risk		Validated outcomes	Class ^a /level ^b	
						Clinical	Angiographic		PCI	CABG
In patients presenting with STEMI, primary PCI is preferred over fibrinolysis if it can be performed within recommended time limits.	I	A	112	EuroSCORE	www.euroscore.org/calc.html	17	0	Short- and long-term mortality	IIb B	I B
				SYNTAX score	www.syntaxscore.com	0	11 (per lesion)	Quantify coronary artery disease complexity	IIa B	III B
				Mayo Clinic Risk Score	(7, 8)	7	0	MACE and procedural death	IIb C	III C
In stable patients with extensive CAD, revascularization is indicated in order to improve MACCE-free survival.	I	A	111	NCDR CathPCI	(5)	8	0	In-hospital mortality	IIb B	—
Use of DES is recommended in order to reduce restenosis and repeat TVR.	I	A	115	Parsonnet score	(9)	16	0	30-day mortality	—	III B
In patients on metformin, renal function should be carefully monitored after coronary angiography/PCI.	I	C	—	STS score ^d	http://209.220.160.181/STSWebRiskCalc261/	40	2	Operative mortality, stroke, renal failure, prolonged ventilation, deep sternal infection, re-operation, morbidity, length of stay <6 or >14 days	—	I B
CABG should be considered, rather than PCI, when the extent of the CAD justifies a surgical approach (especially MVD), and the patient's risk profile is acceptable.	IIa	B	29, 34, 113, 116	ACEF score	[Age/ejection fraction (%) + 1 (if creatinine >2 mg/dL)](11)	2	0	Mortality in elective CABG	—	IIb C
In patients with known renal failure undergoing PCI, metformin may be stopped 48 h before the procedure.	IIb	C	—							
Systematic use of GIK in diabetic patients undergoing revascularization is not indicated.	III	B	117, 118, 122							



Qué hacemos con esta paciente?

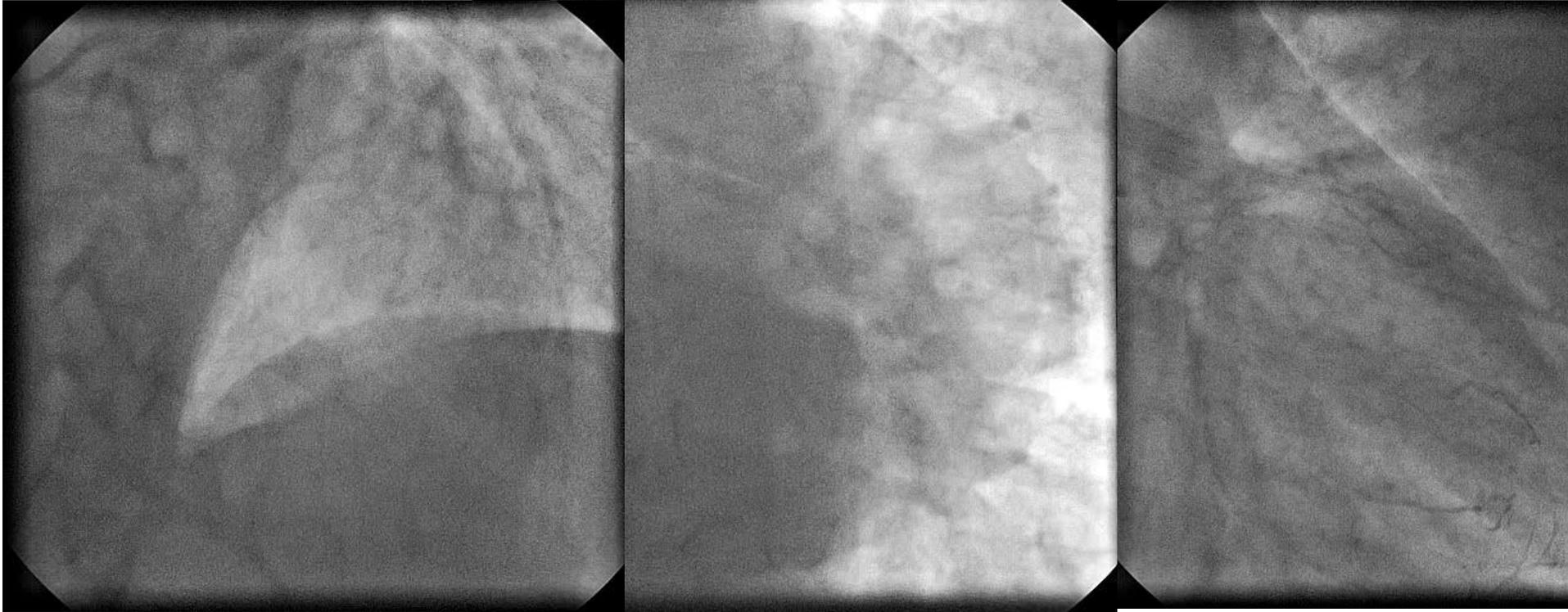
Mujer. 70 años. HTA. Hipercolesterolemia. Angina de esfuerzo progresiva II-III/IV, Ergo +, FEVI normal





Qué hacemos con esta paciente?

Mujer. 70 años. HTA. Hipercolesterolemia. Angina de esfuerzo progresiva II-III/IV, Ergo +, FEVI normal



Enf 3 vasos, FEVI 63%, Euroscore 2,5%, Syntax score 28

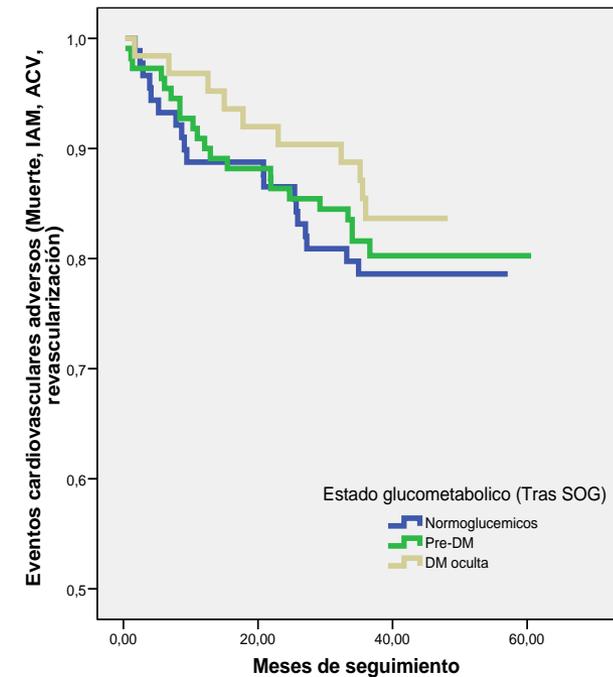
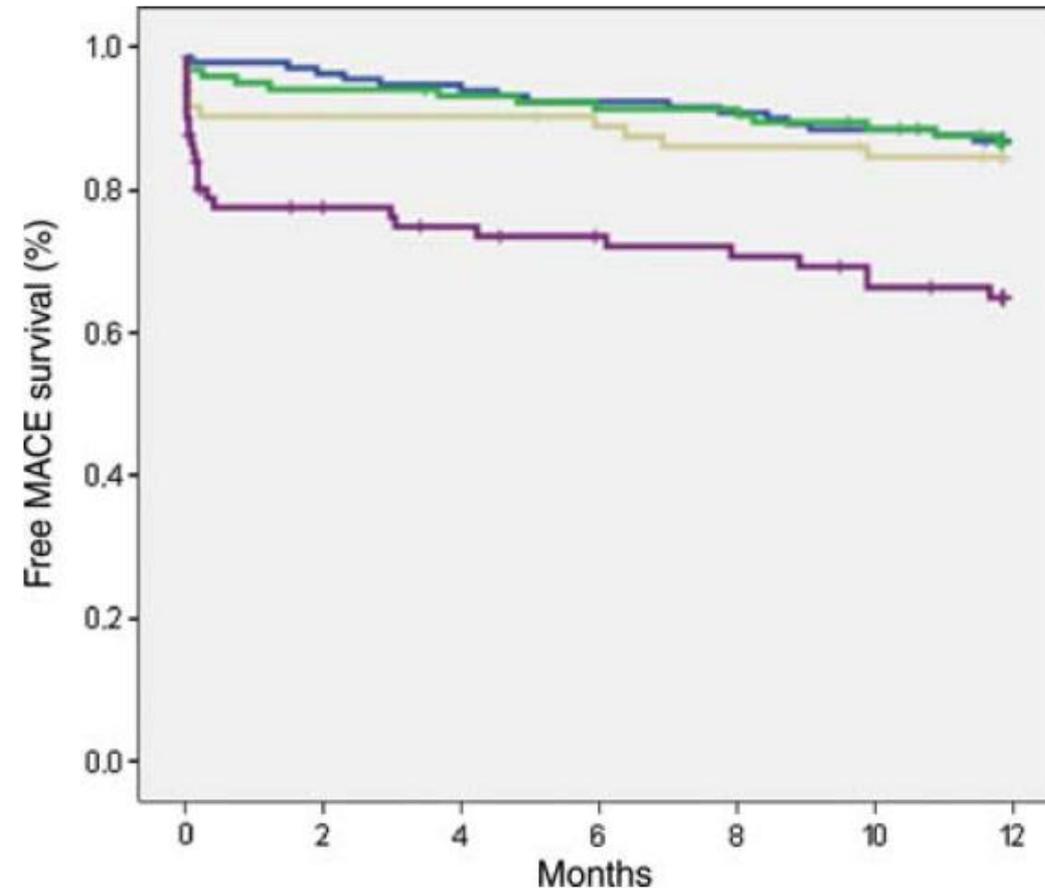
DM nuevo dgo

GB 110, SOG 220, HbA1c 6%

DMID



Qué hacemos con esta paciente? Nueva diabetes



De la Hera JM et al. Abstract SEC 2010

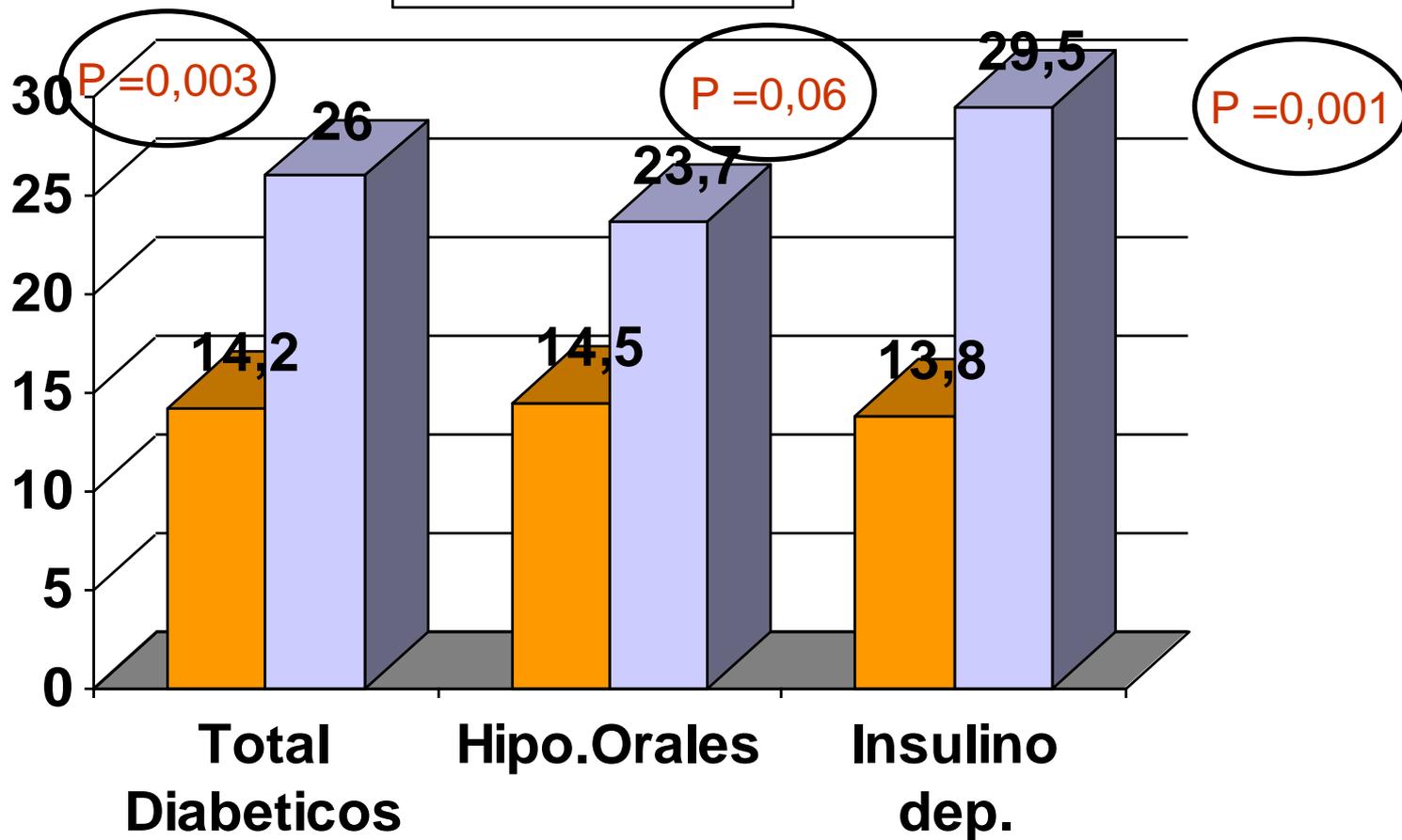
De la Hera JM et al. Eur Heart J 2009; 30: 2614

Qué hacemos con esta paciente? **DMID**

MACE a 12 meses

Syntax – Diabéticos

■ CABG ■ TAXUS





Qué hacemos con esta paciente? **Cómo revascularizo?**

The Final 10-Year Follow-Up Re



CABG (77.3)
PTCA (77.0)
CABG (57.9)
PTCA (45.5)

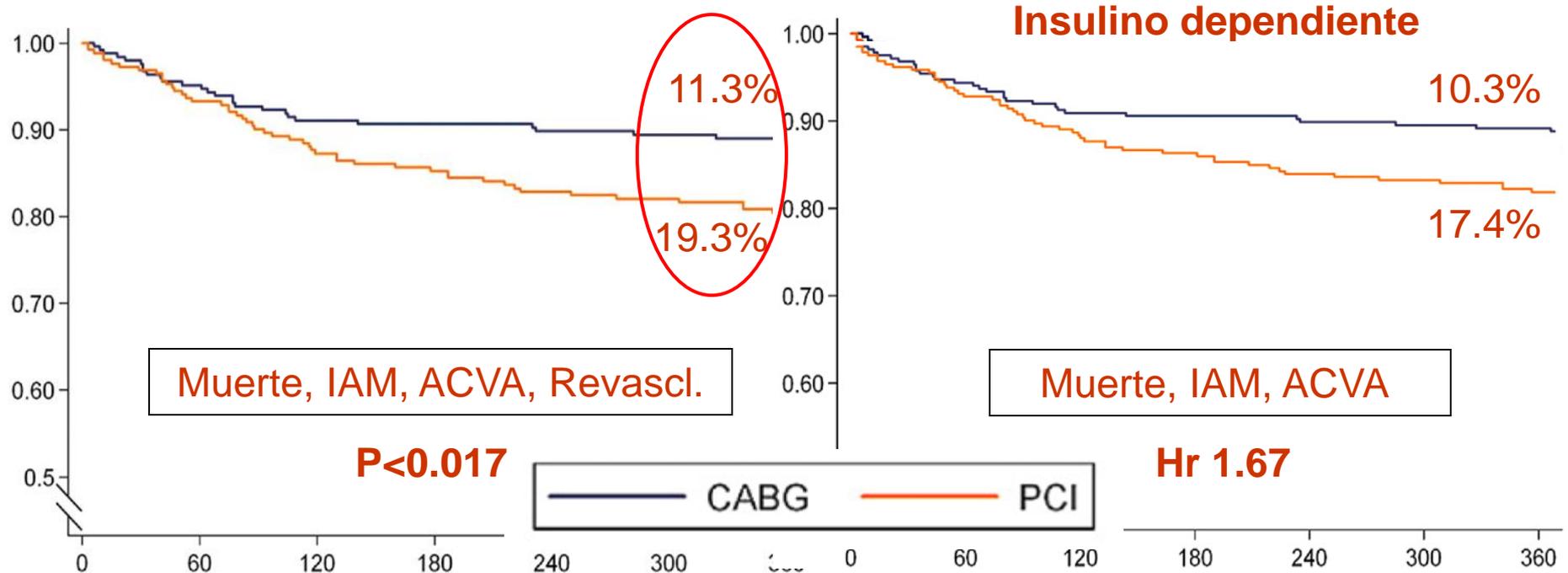
(J Am Coll Cardiol 2007;49:1600-6)

Qué hacemos con esta paciente? PCI vs CABG?

Cardia – Diabéticos 1 año

Nº 502 pacientes 70% DES, 30% BMS

Revascularización completa CABG 90% vs 88% ACTP.



DES Mortalidad: CABG 2% vs 9% ACTP
Morte, IAM, ACVA: CABG 12.4% vs 11.6% ACTP



Qué hacemos con esta paciente? **Uso sistemático DES?**

Meta-Analysis of Studies Comparing Coronary Artery Bypass Grafting With Drug-Eluting Stenting in Patients With Diabetes Mellitus and Multivessel Coronary Artery Disease

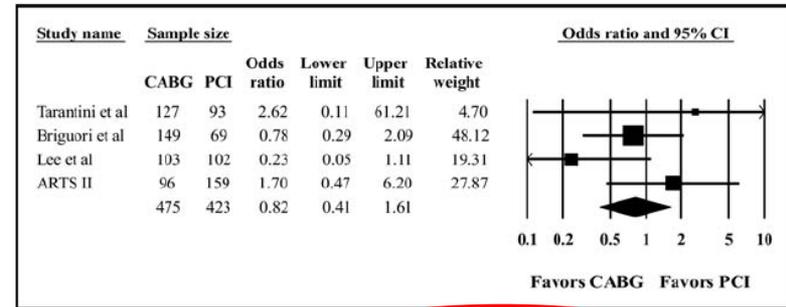


Figure 3. OR and conclusions plot of myocardial infarction associated with CABG versus DES.

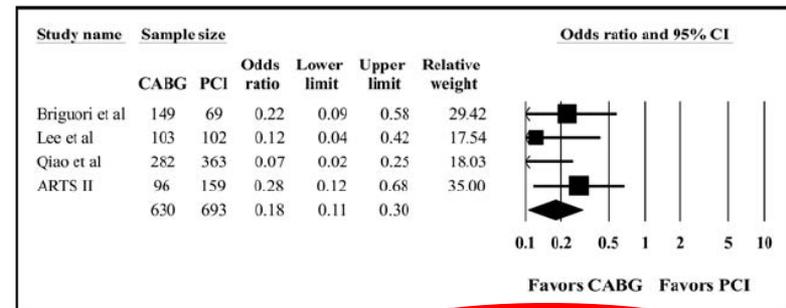


Figure 4. OR and conclusions plot of repeat revascularization associated with CABG versus DES.

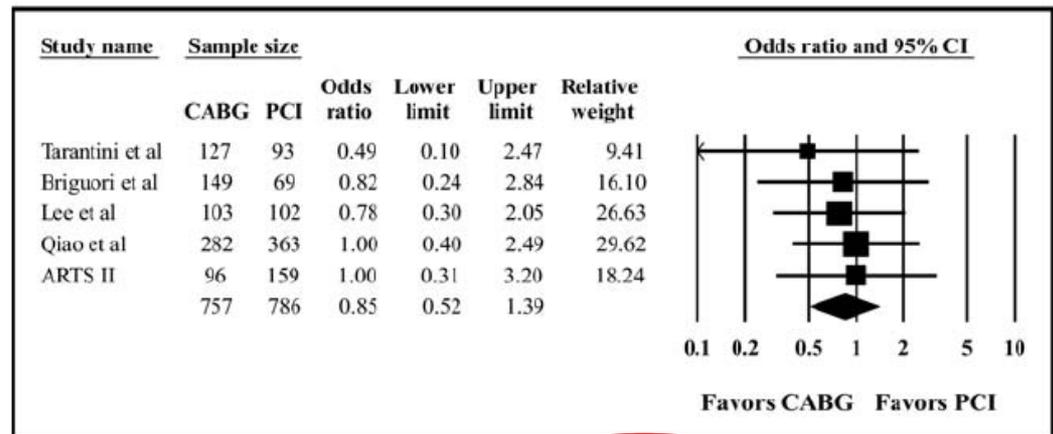


Figure 2. OR and conclusions plot of mortality associated with CABG versus DES.

Freedom trial

(Am J Cardiol 2010;105:1540-1544)



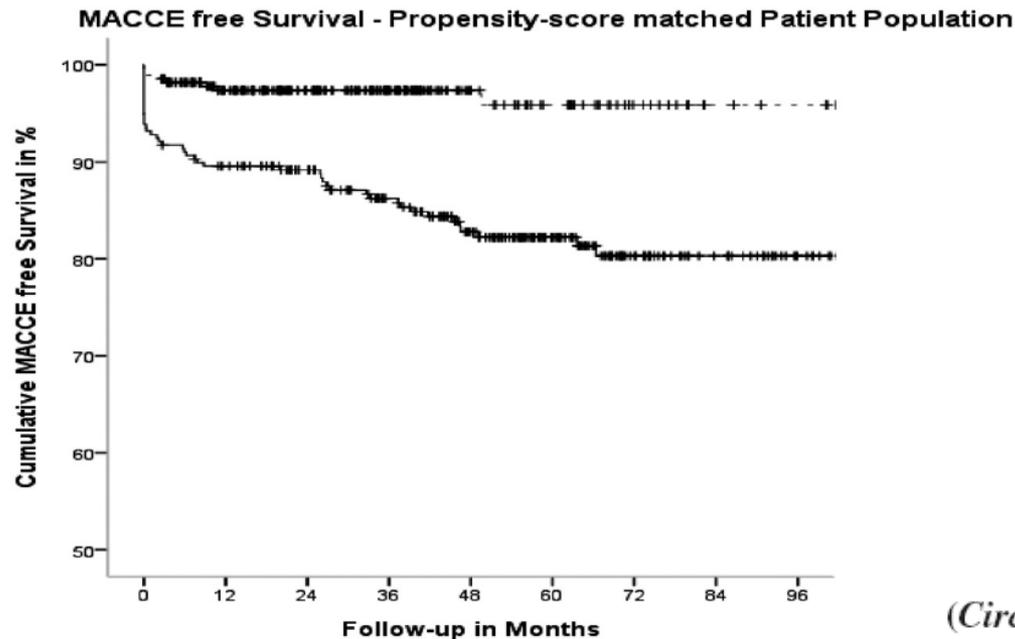
Qué hacemos con esta paciente? **Uso conductos arteriales**

Disminución de mortalidad a 10 años con uso de AMI a DA vs safena

Loop FD et al. NEJM 1986; 314: 1-6

Second Internal Thoracic Artery Versus Radial Artery in Coronary Artery Bypass Grafting

A Long-Term, Propensity Score–Matched Follow-Up Study



(*Circulation*. 2011;124:1321-1329.)



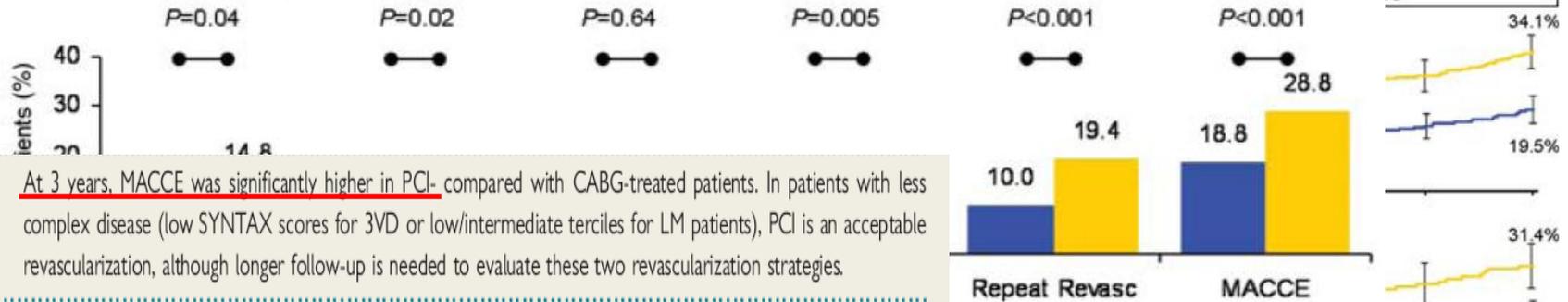
Qué hacemos con esta paciente? **A largo plazo?**



European Heart Journal (2011) 32, 2125–2134
doi:10.1093/eurheartj/ehr213

Comparison of coronary bypass surgery with drug-eluting stenting for the treatment of left main and/or three-vessel disease: 3-year follow-up of the SYNTAX trial

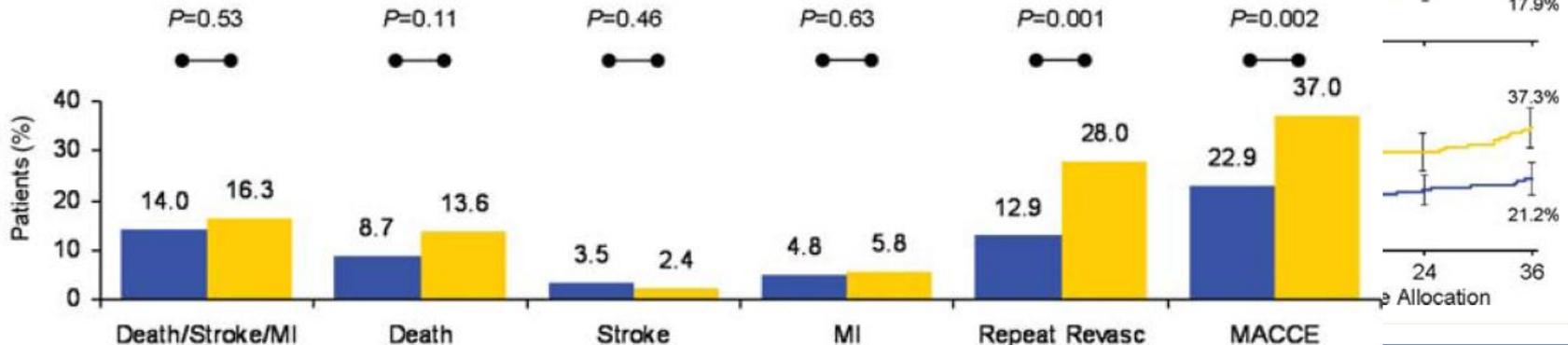
A 3-vessel Disease (n=1095)



Conclusions

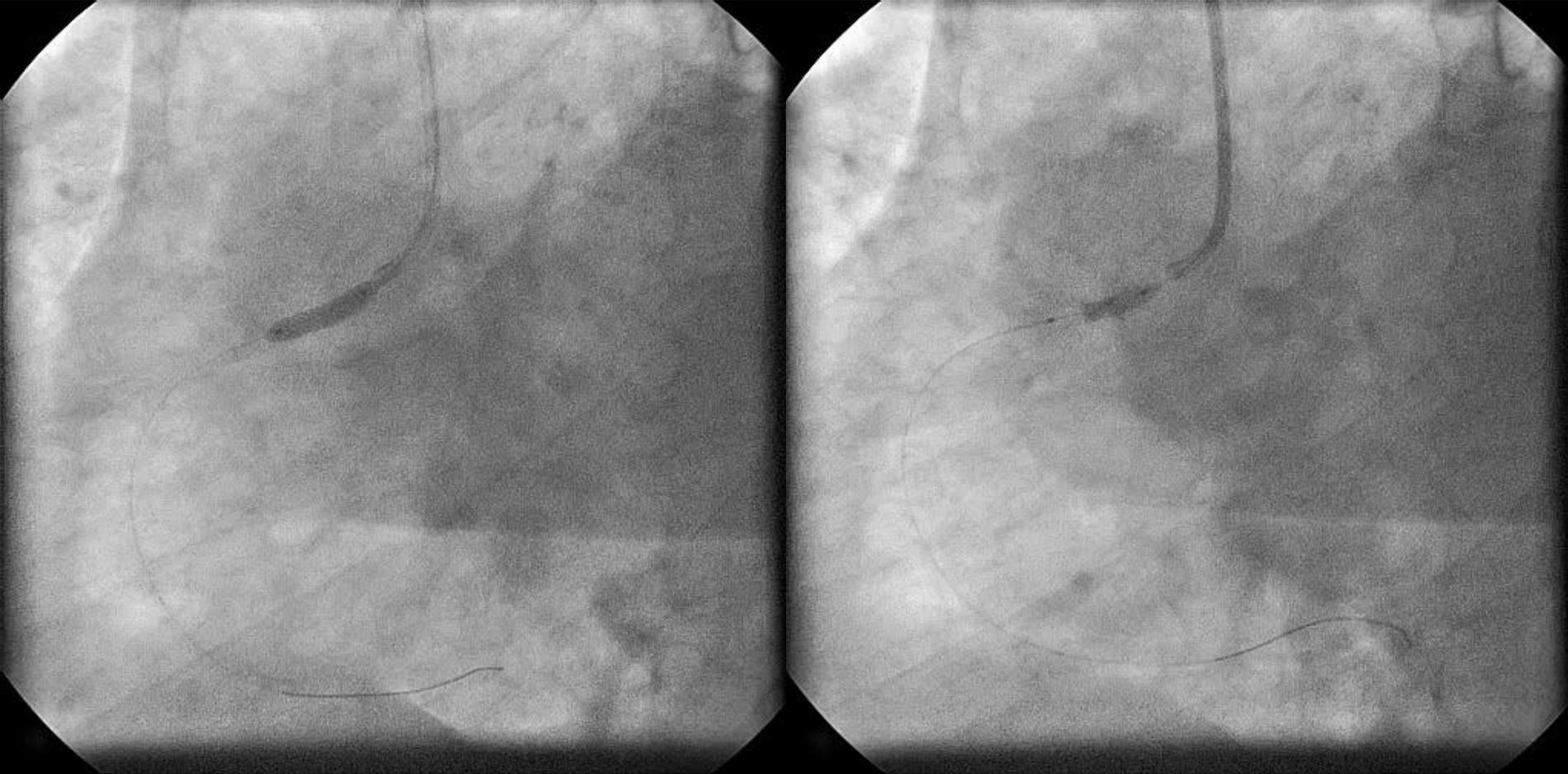
At 3 years, MACCE was significantly higher in PCI- compared with CABG-treated patients. In patients with less complex disease (low SYNTAX scores for 3VD or low/intermediate tertiles for LM patients), PCI is an acceptable revascularization, although longer follow-up is needed to evaluate these two revascularization strategies.

C Diabetes (n=452)



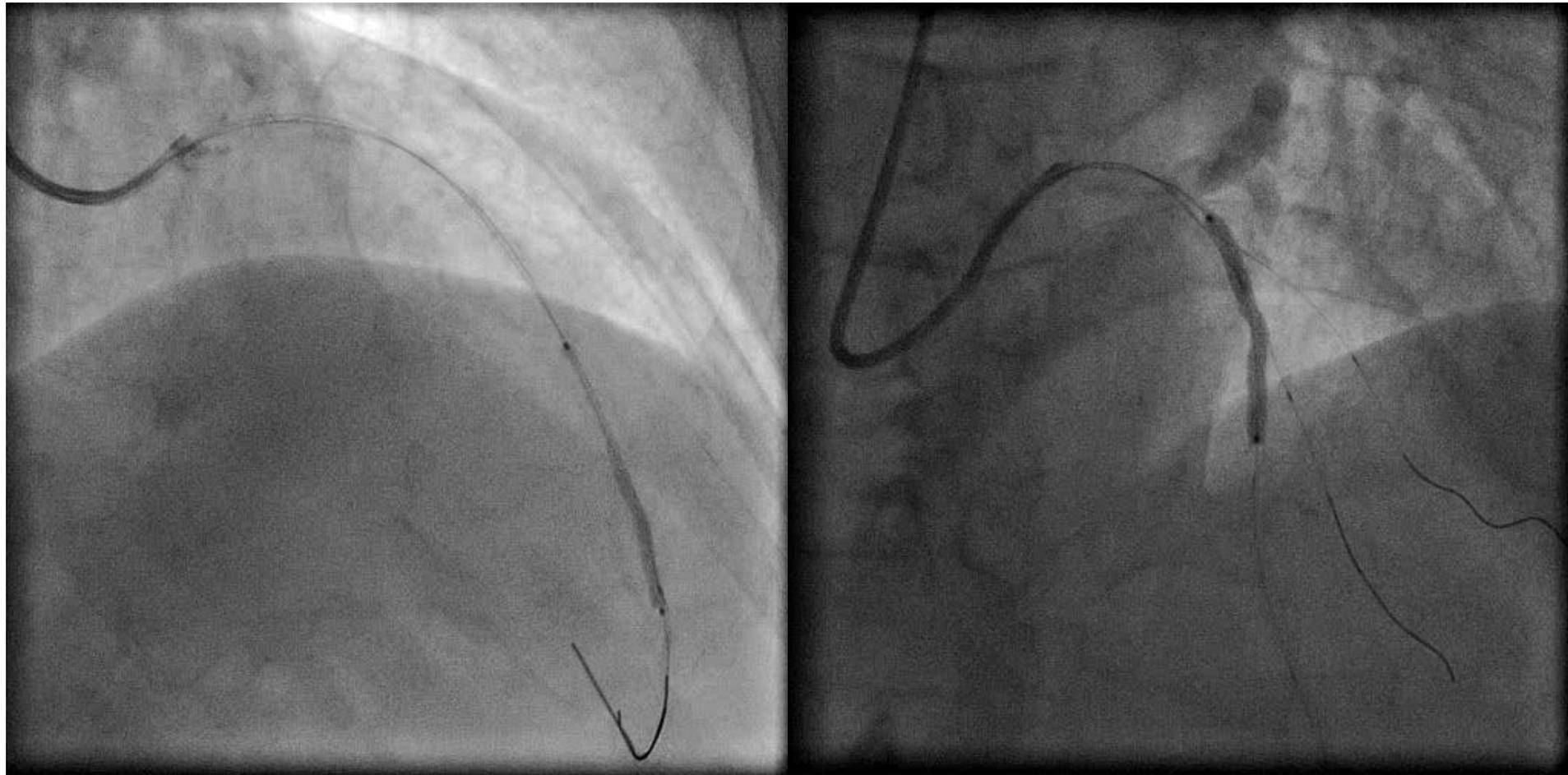


Qué pasó con la paciente?



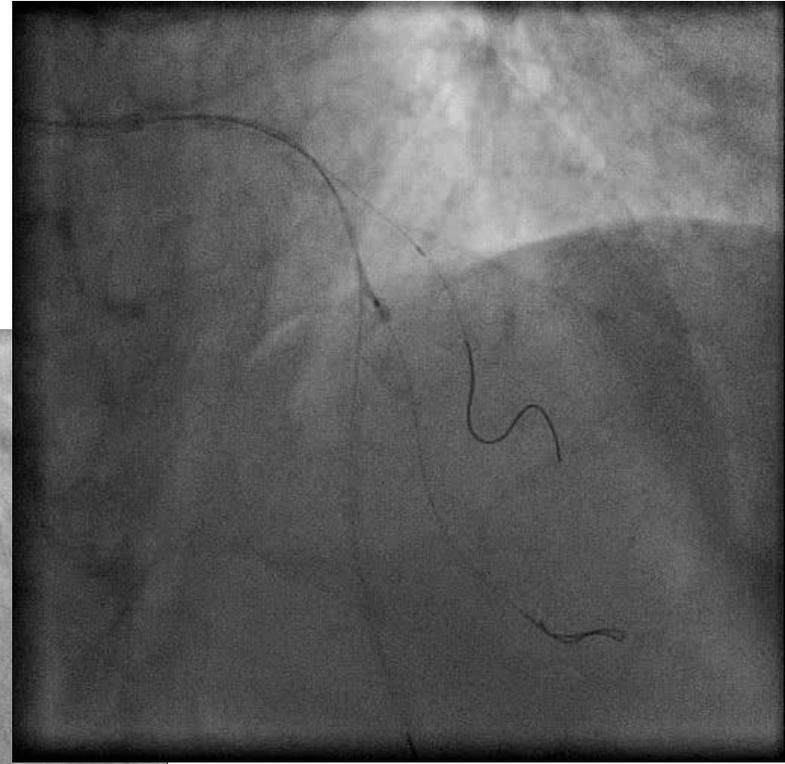
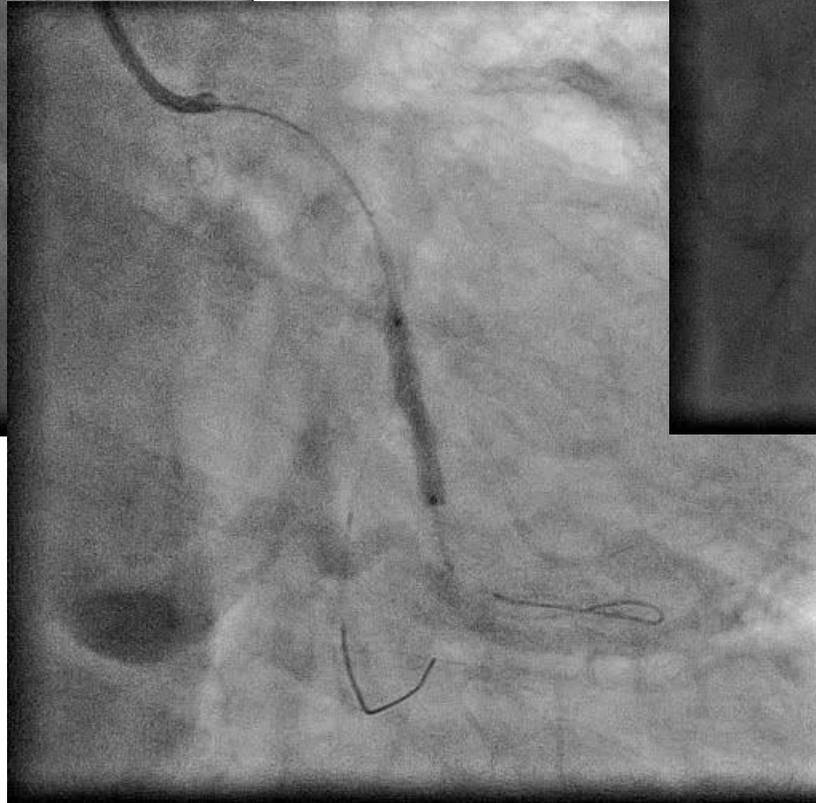
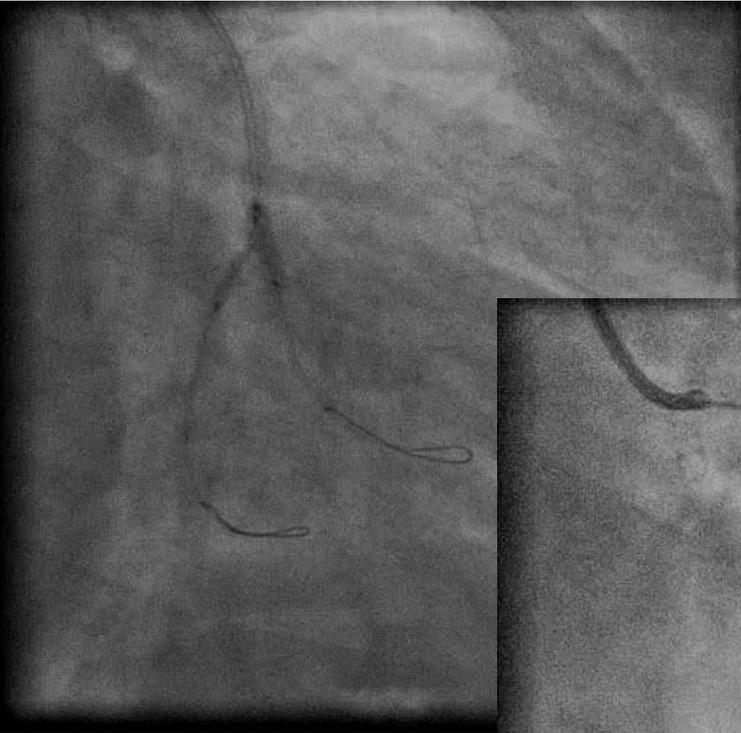


Qué pasó con la paciente?



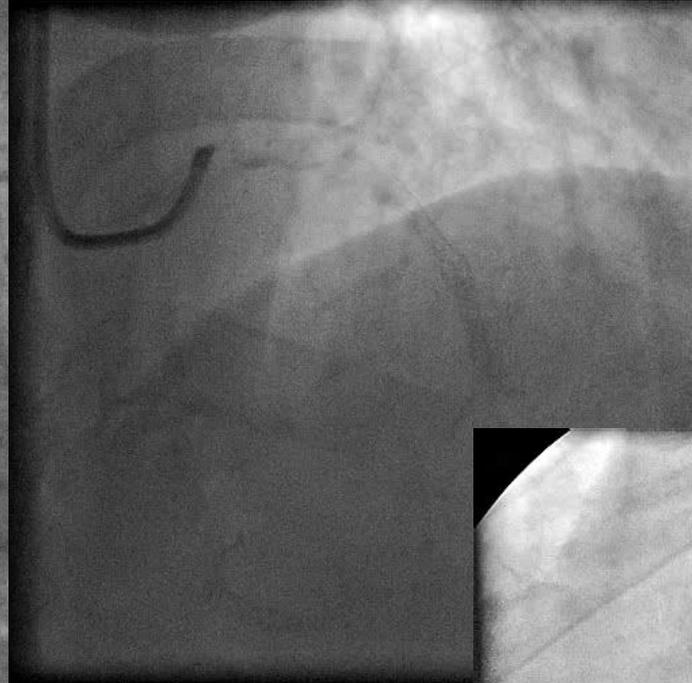
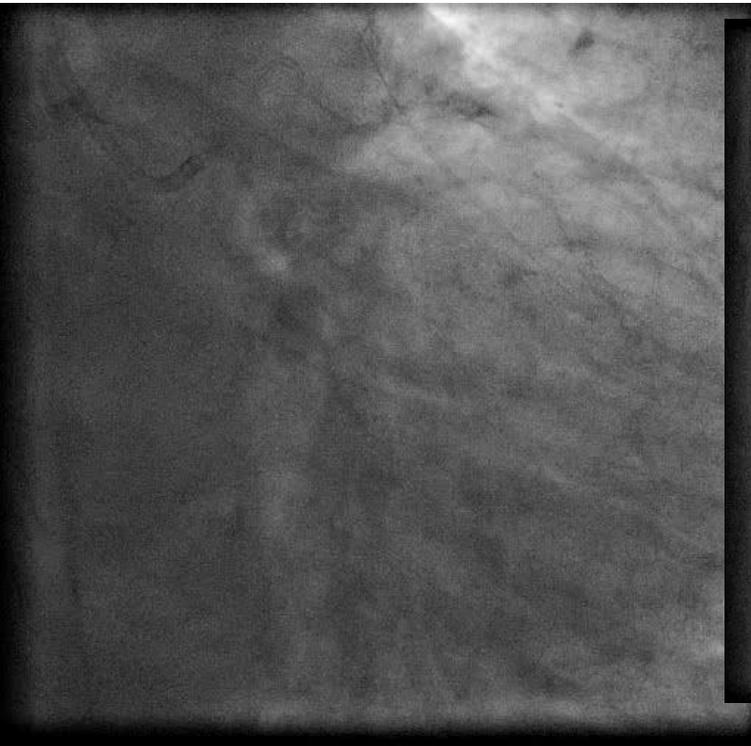


Qué pasó con la paciente?





Qué pasó con la paciente?



Mujer, 70 a
DMID
Enf 3v sin DAp
FEVI 63%
Euroscore 2,5%
Syntax 28





CONCLUSIONES

La mejor revascularización en el diabético es...

✓ La que aporta valor añadido

¿Tratamiento médico?

✓ La que prolonga la vida

✓ TCI, Enf 3 vasos con DA prox, disfunción VI: **CABG**

✓ Resto de situaciones: **Ambas, PCI y CABG**

✓ La que alivia síntomas

Ambas, PCI y CABG

✓ La que es duradera

CABG (valorar SYNTAX, evolución de diabetes)



Gracias por la atención