XV Complex Cardiovascular Catheter Therapies Meeting

June 23th to -26th 2019

Bone Creek Orlando Florida USA

- ***The Elective PCI is not Dead: How to take ORBITAOut of Orbit***

Alfredo E Rodriguez MD, PhD, FACC, FSCAI, IAGS

Founder Cardiovascular Research Center (CECI)

Head Cardiac Unit

Director Cardiology Training Program

Otamendi Hospital, Buenos Aires School of Medicine

Associate Editor

EuroIntervention Journal

Percutaneous coronary intervention in stable angina (ORBITA

Rasha Al-Lamee, D
Raffi Kaprielian, Iq
Andrew Sharp, Ro
Justin E Davies, Da

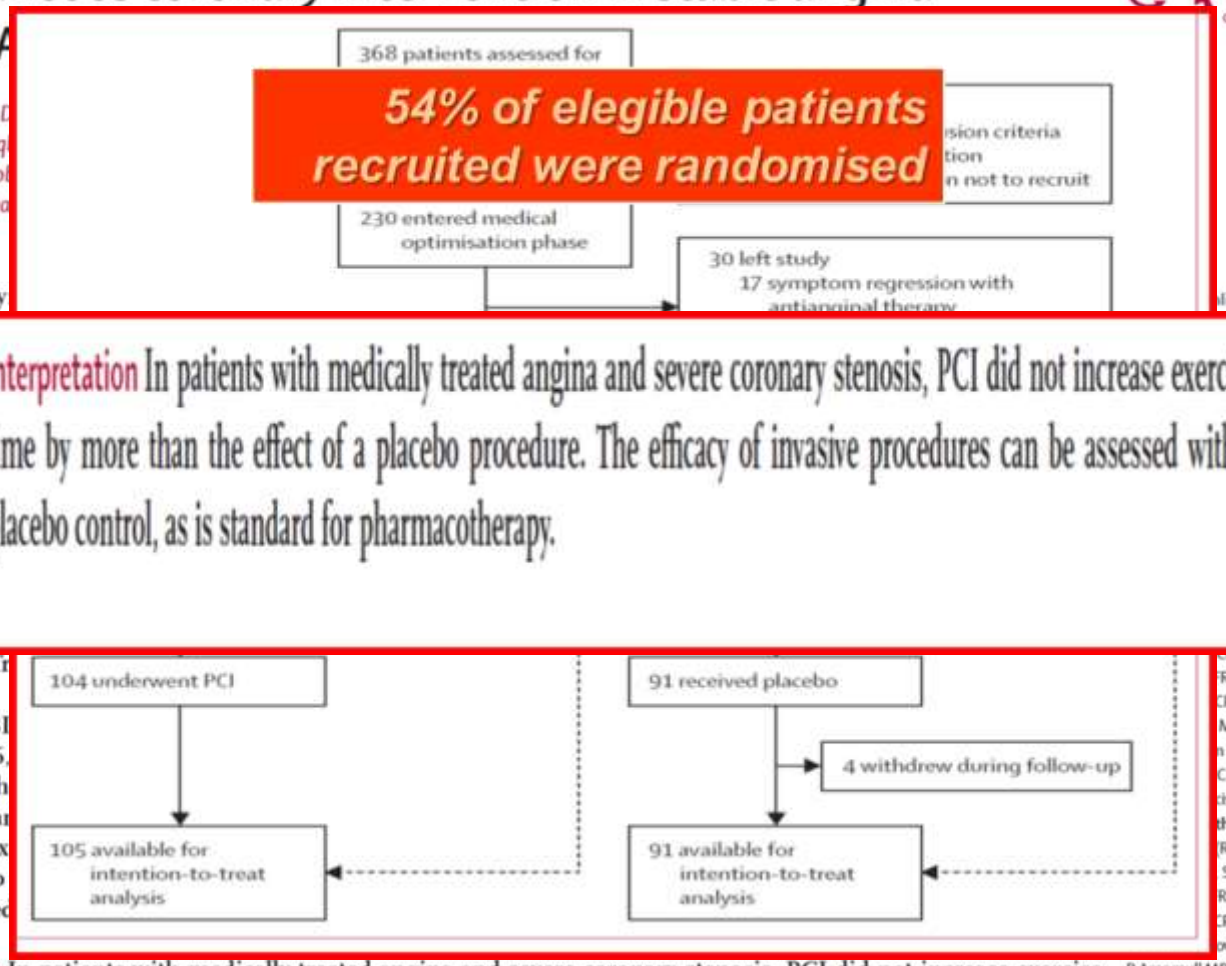
Summary

Background Sy
is commo
show its e

Methods
was done
patients
cardiopul
randomis
6 weeks o
endpoint
principle
with Clinical Tr

Findings ORBI
between Jan 6,
95 assigned th
0·69 (0·16), a
endpoint of ex
There were no
which required

Interpretation In patients with medically treated angina and severe coronary stenosis, PCI did not increase exercise time by more than the effect of a placebo procedure. The efficacy of invasive procedures can be assessed with a placebo control, as is standard for pharmacotherapy.



Interpretation In patients with medically treated angina and severe coronary stenosis, PCI did not increase exercise time by more than the effect of a placebo procedure. The efficacy of invasive procedures can be assessed with a placebo control, as is standard for pharmacotherapy.

R Assomull MRCP, Prof J Mayet, M Shun-Shin, Prof S Thom, J E Davies, and Prof D P Francis FRCP); **Cancer Research UK & UCL Cancer Trials**

Trial design

Table A3: Details of medical therapy protocol

Risk factor modification	Dose
Aspirin	75mg OD
Atorvastatin	≥ 40mg OD
Clopidogrel (Or equivalent antiplatelet therapy)	75mg OD
Perindopril (if known hypertension) (Or equivalent ACEI or ARB)	≥ 4mg OD
Anti-anginal therapy At least 2 anti-anginals from the following:	**Dose**
Bisoprolol (Or equivalent β-blocker)	≥ 5mg OD
Amlodipine (Or equivalent Ca-channel antagonist)	≥ 5mg OD
Isosorbide mononitrate slow-release (Or equivalent long acting oral nitrate)	25mg OD
Nicorandil	10mg BD
Ivabradine	7.5mg BD
Ranolazine	500mg BD

RESULTS

ORBITA

	PCI	Placebo
Exercise time (s)		
Patients assessed	104	90
Pre-randomisation	528·0 (178·7)	490·0 (195·0)
Follow-up	556·3 (178·7)	501·8 (190·9)
Increment (pre-randomisation to follow-up)	28·4 (95% CI 11·6 to 45·1)	11·8 (95% CI −7·8 to 31·3)
Difference in increment between groups	16·6 (95% CI −8·9 to 42·0)	..
p value	0·200	..
Time to 1 mm ST depression (s)		
Pre-randomisation	479·7 (141·4)	471·1 (128·7)
Patients assessed	27	18
Follow-up	472·7 (129·1)	470·1 (176·0)
Patients assessed	23	21
p value between groups	0·164	..

Al-Lamee et al. Lancet. 2018 Jan 6;391(10115):31-40

RESULTS

ORBITA

SAQ-physical limitation		
Patients assessed	100	88
Pre-randomisation	71·3 (22·5)	69·1 (24·7)
Follow-up	78·6 (24·0)	74·1 (24·7)
Increment (pre-randomisation to follow-up)	7·4 (19·7; 95% CI 3·5 to 11·3)	5·0 (21·2; 95% CI 0·5 to 9·5)
Difference in increment between groups	2·4 (95% CI −3·5 to 8·3)	..
p value	0·420	..
SAQ-angina frequency		
Patients assessed	103	90
Pre-randomisation	79·0 (25·5)	75·0 (31·4)
Follow-up	93·0 (26·8)	84·6 (27·7)
Increment (prerandomisation to follow-up)	14·0 (25·4; 95% CI 9·0 to 18·9)	9·6 (28·4; 95% CI 3·6 to 15·5)
Difference in increment between groups	4·4 (95% CI −3·3 to 12·0)	..
p value	0·260	..
SAQ-angina stability		
Patients assessed	102	89
Pre-randomisation	64·7 (25·5)	68·5 (24·3)
Follow-up	60·5 (23·7)	63·5 (25·6)
Increment (Pre-randomisation to follow-up)	−4·2 (33·4; 95% CI −10·7 to 2·4)	−5·1 (31·6; 95% CI −11·7 to 1·6)
Difference in increment between groups	0·9 (95% CI −8·4 to 10·2)	..
p value	0·851	..

Al-Lamee et al. Lancet. 2018 Jan 6;391(10115):31-40

ORBITA

EQ-5D-5L QoL		
Patients assessed	103	89
Pre-randomisation	0·80 (0·21)	0·79 (0·22)
Follow-up	0·83 (0·21)	0·82 (0·20)
Increment (pre-randomisation to follow-up)	0·03 (0·14; 95% CI 0·00 to 0·06)	0·03 (0·17; 95% CI 0·00 to 0·07)
Difference in increment between groups	0·00 (95% CI −0·04 to 0·04)	..
p value	0·994	..
Peak stress wall motion index score		
Patients assessed	80	57
Pre-randomisation	1·11 (0·18)	1·11 (0·18)
Follow-up	1·03 (0·06)	1·13 (0·19)
Increment (pre-randomisation to follow-up)	−0·08 (0·17; 95% CI −0·11 to −0·04)	0·02 (0·16; 95% CI −0·03 to 0·06)
Difference in increment between groups	−0·09 (95% CI −0·15 to −0·04)	..
p value	0·0011	..
Duke treadmill score		
Patients assessed	104	90
Pre-randomisation	4·24 (4·82)	4·18 (4·65)
Follow-up	5·46 (4·79)	4·28 (4·98)
Increment (pre-randomisation to follow-up)	1·22 (4·36; 95% CI 0·37 to 2·07)	0·10 (5·20; 95% CI −0·99 to 1·19)
Difference in increment between groups	1·12 (95% CI −0·23 to 2·47)	..
p value	0·104	..

Al-Lamee et al. Lancet. 2018 Jan 6;391(10115):31-40

Optimal Medical Therapy With or Without Percutaneous Coronary Intervention to Reduce Ischemic Burden

Results From the Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) Trial Nuclear Substudy

Leslee J. Shaw, PhD; Daniel S. Berman, MD; David J. Maron, MD; G.B. John Mancini, MD; Sean W. Hayes, MD; Pamela M. Hartigan, PhD; William S. Weintraub, MD; Robert A. O'Rourke, MD; Marcin Dada, MD; John A. Spertus, MD, MPH; Bernard R. Chaitman, MD; John Friedman, MD; Piotr Slomka, PhD; Gary V. Heller, MD, PhD; Guido Germano, PhD; Gilbert Gosselin, MD; Peter Berger, MD; William J. Kostuk, MD; Ronald G. Schwartz, MD; Merill Knudtson, MD; Emir Veledar, PhD; Eric R. Bates, MD; Benjamin McCallister, MD; Koon K. Teo, MD; William E. Boden, MD; for the COURAGE Investigators

Background—Extent and severity of myocardial ischemia are determinants of risk for patients with coronary artery disease, and ischemia reduction is an important therapeutic goal. The Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) nuclear substudy compared the effectiveness of percutaneous coronary intervention (PCI) for ischemia reduction added to optimal medical therapy (OMT) with the use of myocardial perfusion single photon emission computed tomography (MPS).

Methods and Results—Of the 2287 COURAGE patients, 314 were enrolled in this substudy of serial rest/stress MPS performed before treatment and 6 to 18 months (mean=374±50 days) after randomization using paired exercise (n=84) or vasodilator stress (n=230). A blinded core laboratory analyzed quantitative MPS measures of percent ischemic myocardium. Moderate to severe ischemia encumbered ≥10% myocardium. The primary end point was ≥5% reduction

Conclusions—In COURAGE patients who underwent serial MPS, adding PCI to OMT resulted in greater reduction in ischemia compared with OMT alone. Our findings suggest a treatment target of ≥5% ischemia reduction with OMT with or without coronary revascularization. (*Circulation*. 2008;117:1283-1291.)

Conclusions—In COURAGE patients who underwent serial MPS, adding PCI to OMT resulted in greater reduction in ischemia compared with OMT alone. Our findings suggest a treatment target of ≥5% ischemia reduction with OMT with or without coronary revascularization. (*Circulation*. 2008;117:1283-1291.)

Recibidos (207) - mrodri | Recibidos (172) - mrodri | Sham surgeries: A tale of

Es seguro | https://www.healthnewsreview.org/2017/12/sham-surgery-medical-reversals-media/#.Wi54kYSsjGc.twitter

Aplicaciones | Bookmarks | Medicina | Vacaciones | Filosofia & Politica | Descargas | Musica | Vinos & Comidas | Navegar | R&D&IDeas | Deportes | Colegio | Otros

DECEMBER 6, 2017

Sham surgeries: A tale of medical reversals & the role of the media

POSTED BY

CATEGORIES

Evidence-based medicine, overtreatment

TAGS

Adam Cifu MD, burden of proof, Julie Switzer MD, medical reversal, sham

Blog

Opinions on other issues in news, journals, PR, advertising, marketing

Last month was a good example as the publication of three separate studies — all using sham surgeries in their design — brought into question the benefits of two expensive and widely used treatments, as well as one very controversial treatment. Here are those studies:

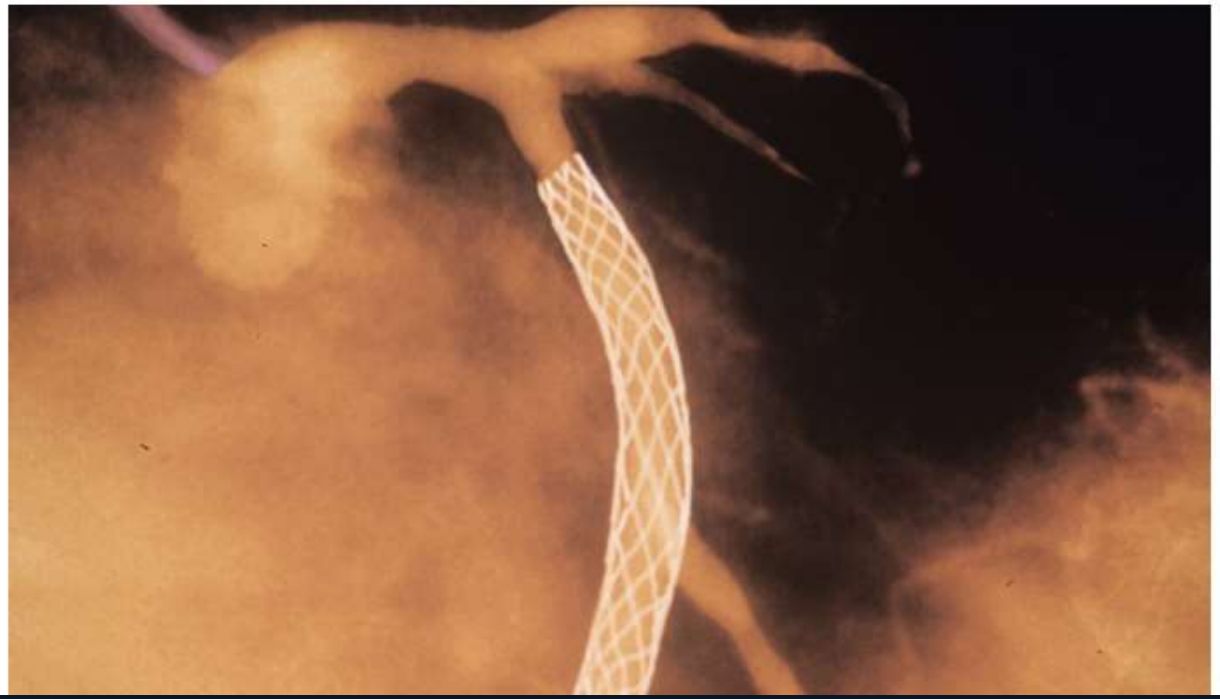
1. The ORBITA Trial – showed that placing stents in blocked coronary arteries did not improve chest pain (angina) symptoms, exercise capacity, or quality of life in non-emergency patients

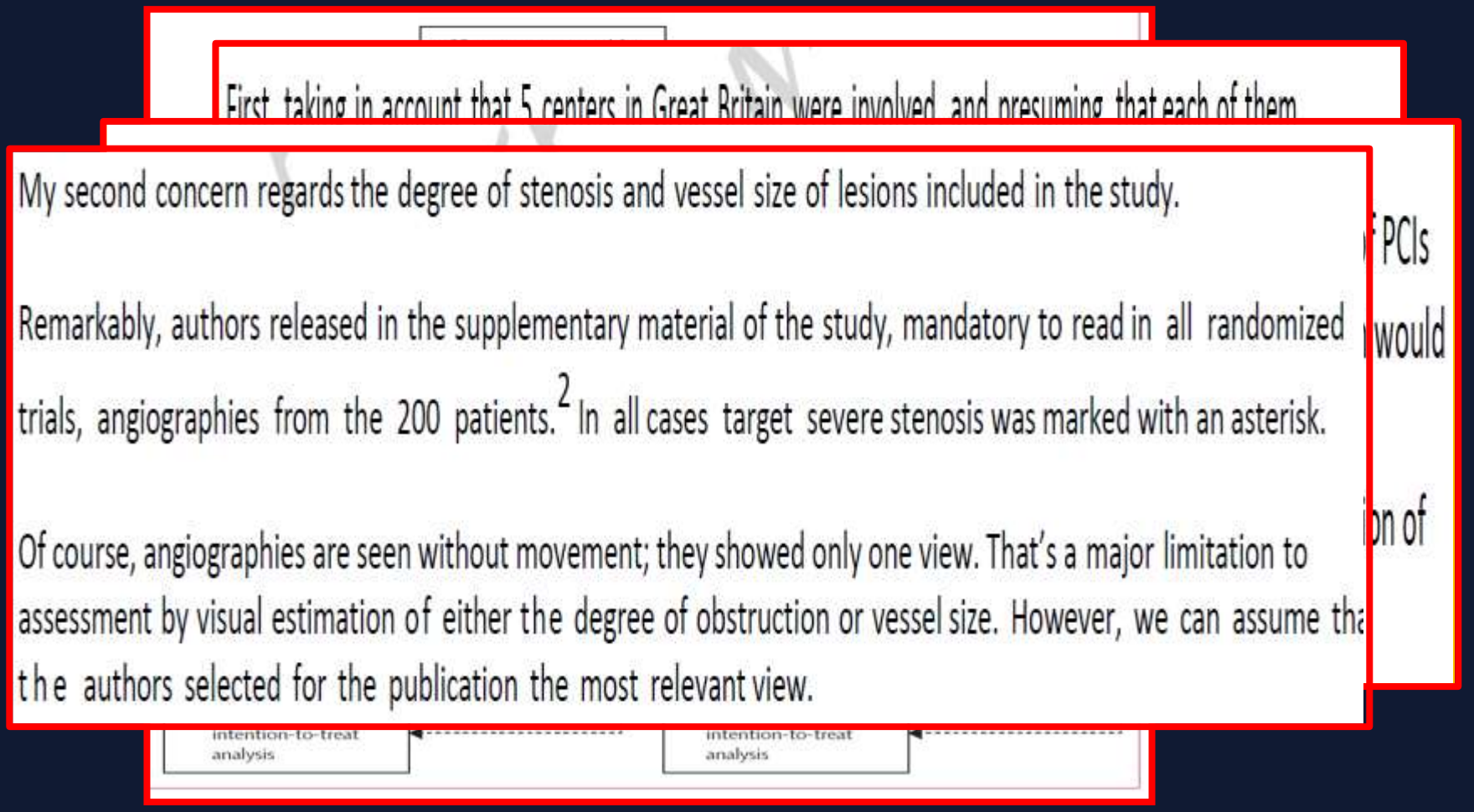

Recibidos (207) - mro
Recibidos (172) - mro
Sham surgeries: A tale
stents bad for angina
Stent operations 'are
When Evidence Says
www.dailymail.co.uk/health/article-5043857/Stent-operations-waste-time-angina.html
Aplicaciones
Bookmarks
Medicina
Vacaciones
Filosofia & Politica
Descargas
Musica
Vinos & Comidas
Navegar
R&D&IDeas
Deportes
Colegio
Like 13.6M
Monday, Dec 11th 2017
5-Day Forecast
Mail Online
health
Home | News | U.S. | Sport | TV&Showbiz | Australia | Femail | Health | Science | Money | Video | Travel | Fashion Finder
Login
Latest Headlines | Health | Health Directory | Discounts
Be more human.
CONOCE MÁS
Reebok
Medscape
Edición en Español
Reciba las principales noticias médicas directamente en su correo electrónico.
Stent operations 'are a waste of time' for people with angina: Study warns the procedure carries huge risks and few benefits
Millions of people with angina get a stent put in to widen their arteries
A study by Imperial College London found the operation has a huge risk of damaging the arteries but does not improve quality of life
The results add to growing evidence that procedures including keyhole knee surgery and arthritis operations only work because of a 'placebo effect'
By VICTORIA ALLEN SCIENCE CORRESPONDENT FOR THE DAILY MAIL
Site
Web
Enter your search
Search
Like Daily Mail
Follow @MailOnline
Follow Daily Mail
+1 Daily Mail
DON'T MISS
'I will be back - but not for a bit yet, I'm so sorry': Heartbreaking final tweet by Keith Chegwin as he dies aged 60 in a hospice after lung condition

NOTICIAS | CIENCIA

Si te recomiendan un estent, piénsalo dos veces

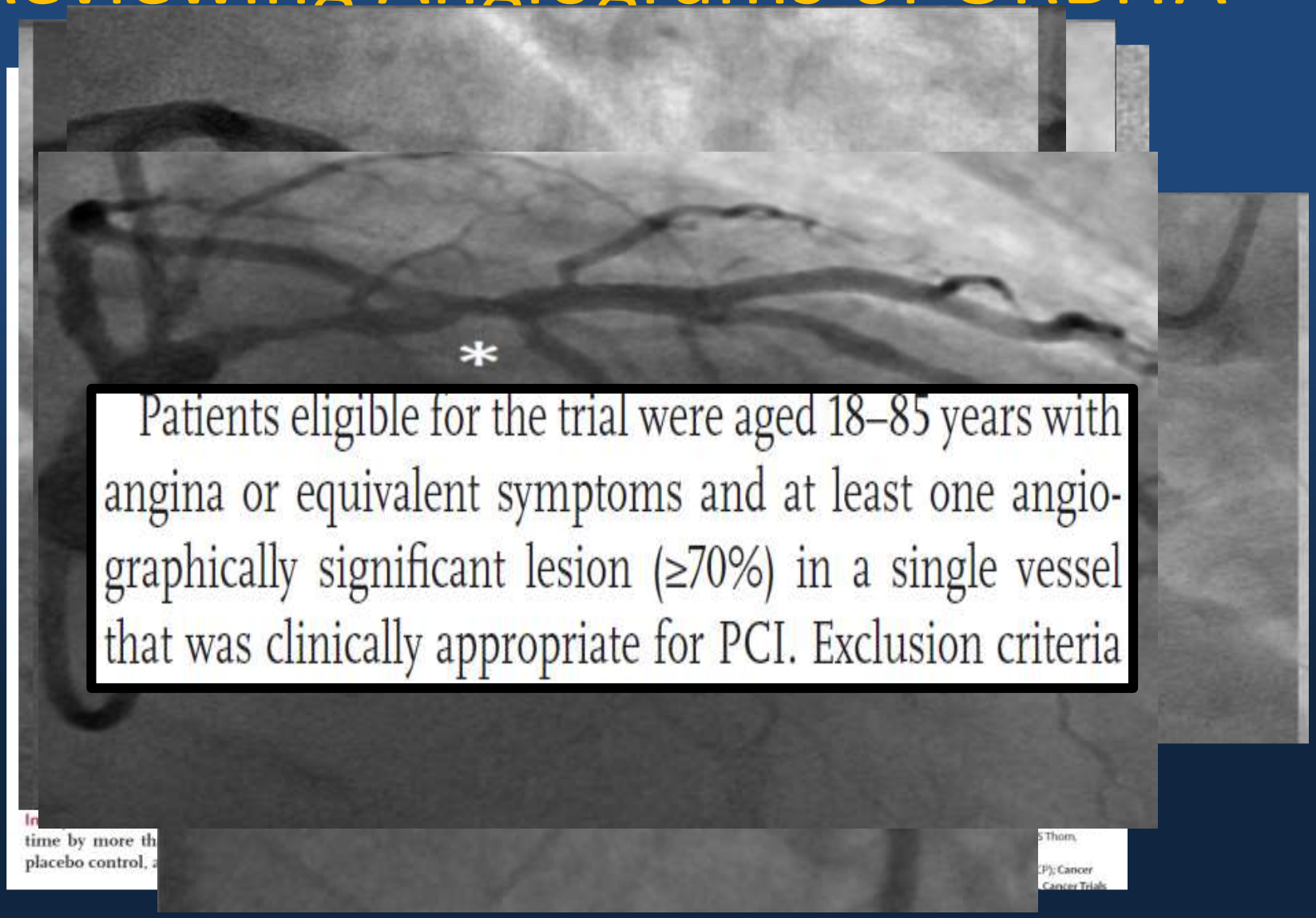
Por **GINA KOLATA** 3 de noviembre de 2017





Rodriguez AE Cardiovasc Revasc Medicine 2018.

Reviewing Angiograms of ORBITA



Al-Lamee et al. Lancet. 2018 Jan 6;391(10115):31-40

The ORBITA trial: Why is it not the last nail for coronary angioplasty in stable

However this does not end here and we recently noticed from unplublished data that 85% of patients non initially treated with PCI were ultimately treated with PCI for unknown reasons

ORBITA

	PCI (n=105)	Placebo (n=95)	All (n=200)
Age (years)	65·9 (9·5)	66·1 (8·4)	66·0 (9·0)
Male	74 (70%)	72 (76%)	146 (73%)
BMI (kg/m²)	28·0 (4·7)	29·5 (5·1)	28·7 (5·0)
Diabetes	15 (14%)	21 (22%)	36 (18%)
Hypertension	72 (69%)	66 (69%)	138 (69%)
Hyperlipidaemia	81 (77%)	62 (65%)	143 (72%)
Current smoker	11 (10%)	15 (16%)	26 (13%)
Previous myocardial infarction	5 (5%)	7 (7%)	12 (6%)
Previous PCI	10 (10%)	15 (16%)	25 (13%)
Left ventricle systolic function			
Normal	98 (93%)	85 (89%)	183 (92%)
Mild impairment	3 (3%)	7 (7%)	10 (5%)
Moderate impairment	4 (4%)	3 (3%)	7 (4%)
CCS class			
I	2 (2%)	3 (3%)	5 (3%)
II	64 (61%)	54 (57%)	118 (59%)
III	39 (37%)	38 (40%)	77 (39%)
Angina duration (months)	9·5 (15·7)	8·4 (7·5)	9·0 (12·5)

Baseline Characteristics

	Percutaneous Coronary Intervention (n=103)	Placebo (n=93)	Complete Group (n=196)
Vessel			
Left anterior descending	72 (69.9)	65 (70.0)	137 (69.9)
Ostial/proximal	46 (44.7)	30 (32.3)	76 (38.8)
Mid	33 (32.0)	38 (40.9)	71 (36.2)
Distal	4 (3.9)	8 (8.6)	12 (6.1)
Right coronary	16 (15.5)	15 (16.1)	31 (15.8)
Circumflex	9 (8.7)	9 (9.7)	18 (9.1)
First obtuse marginal	3 (2.9)	–	3 (1.5)
First diagonal	2 (1.9)	2 (2.2)	4 (2.0)
Intermediate	1 (1.0)	2 (2.1)	3 (1.5)
Serial lesions	17 (16.5)	12 (12.9)	29 (14.8)
No. of patients with diameter stenosis ≥50% by quantitative coronary angiography	87 (84.4)	79 (85.0)	166 (84.7)
Diameter stenosis by quantitative coronary angiography	64.1±13.7	63.7±13.6	63.9±13.6
Area stenosis by quantitative coronary angiography	84.4±10.1	84.0±10.2	84.2±10.1
FFR Median (IQR)	0.69±0.16 0.72 (0.25)	0.69±0.16 0.73 (0.21) (n=91)	0.69±0.16 0.72 (0.24) (n=194)
iFR Median (IQR)	0.76±0.22 0.85 (0.24)	0.76±0.21 0.85 (0.21)	0.76±0.22 0.83 (0.22)
No. of patients with FFR ≤0.80	76 (73.8)	69 (75.8)	145 (74.7)
No. of patients with iFR ≤0.89	68 (66.0)	68 (73.1)	136 (69.4)

Al-Lamee et al. Circulation. 2018 May 22, ahead of print

Al-Lamee et al. Lancet. 2018 Jan 6;391(10115):31-40

Background
The ERACI SCORE

The ERACI lesion risk score is calculated by grading 12 types of lesions

PCI strategy

- **Stent severe (≥70%) stenosis only.**
- **Provisional stent strategy in all bifurcations.**
- **Avoid stent in SB ≤ 2.0 mm.**
- **Complete Functional Revascularization.**
- **Prasugrel or ticagrelor in diabetics, complex left main or high SYNTAX score.**

YES Guided

-Severe stenosis (≥ 70%) with RD > 2.0 mm)

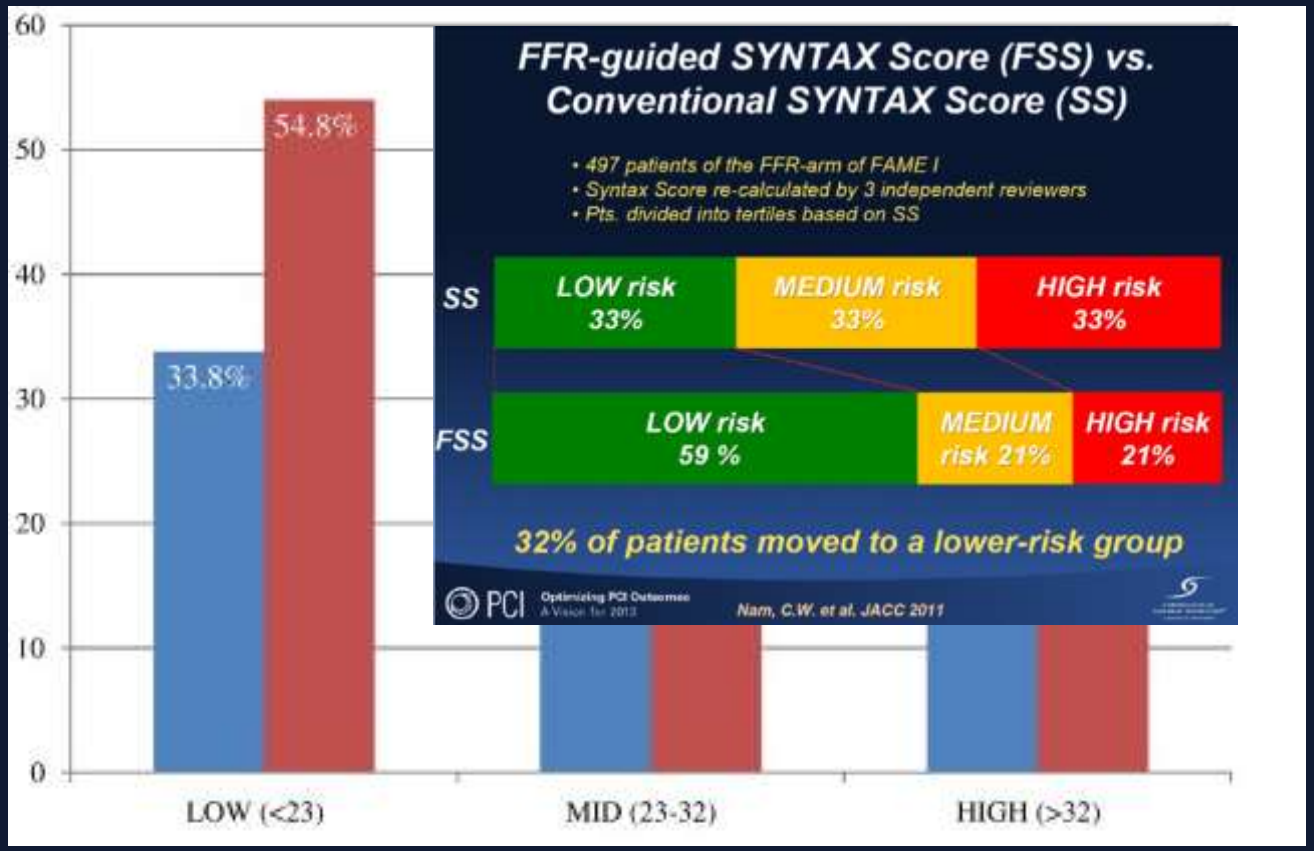
NO

-Intermediate lesions (50-69%)

-Severe lesions in vessels with RD ≤ 2 mm

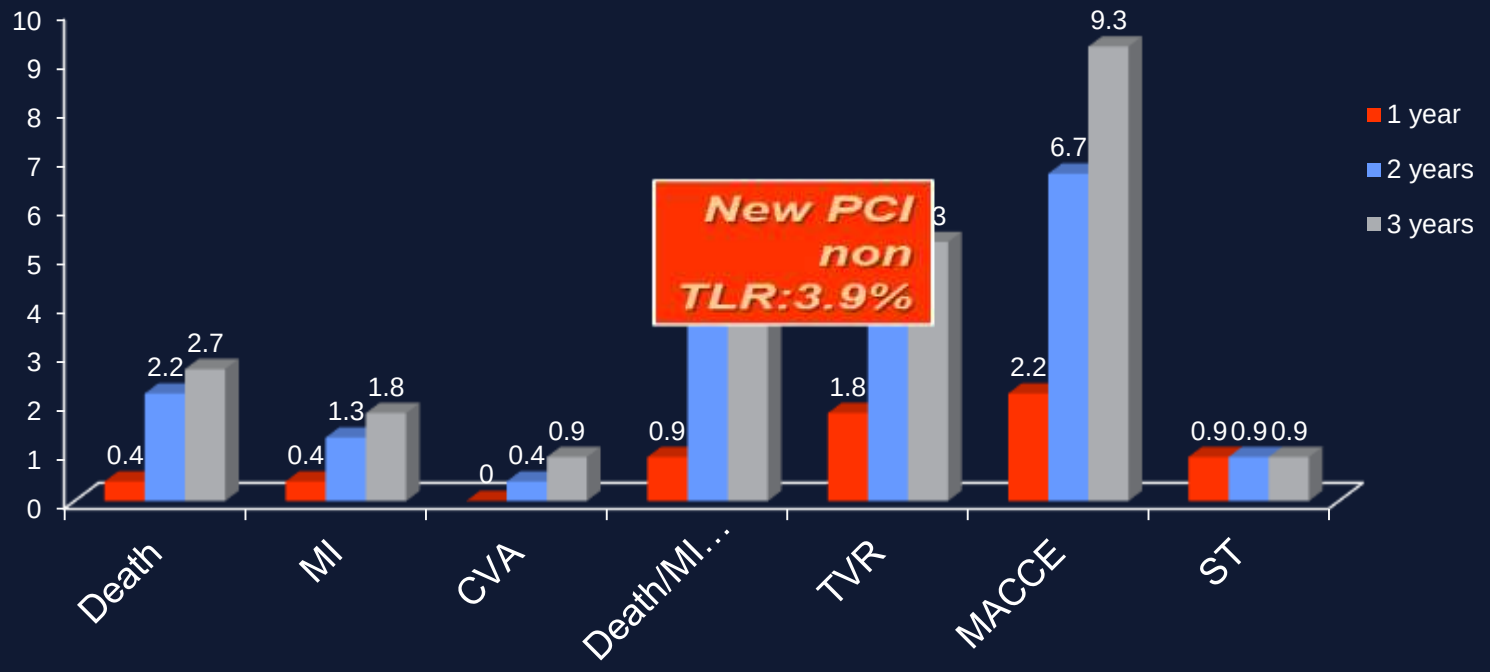
Rodriguez AE et al. Cardiovasc Revasc Med. 2018 Feb 13.
Rodriguez AE et al. Curr Cardiol Rep. 2017 Mar;19(3):20.
Rodriguez AE et al. Cardiovasc Revasc Med. 2015 Oct-Nov;16(7):418-20

Classical SYNTAX score and Modified by ERACI IV Syntax score comparison from ERACI IV trial population.

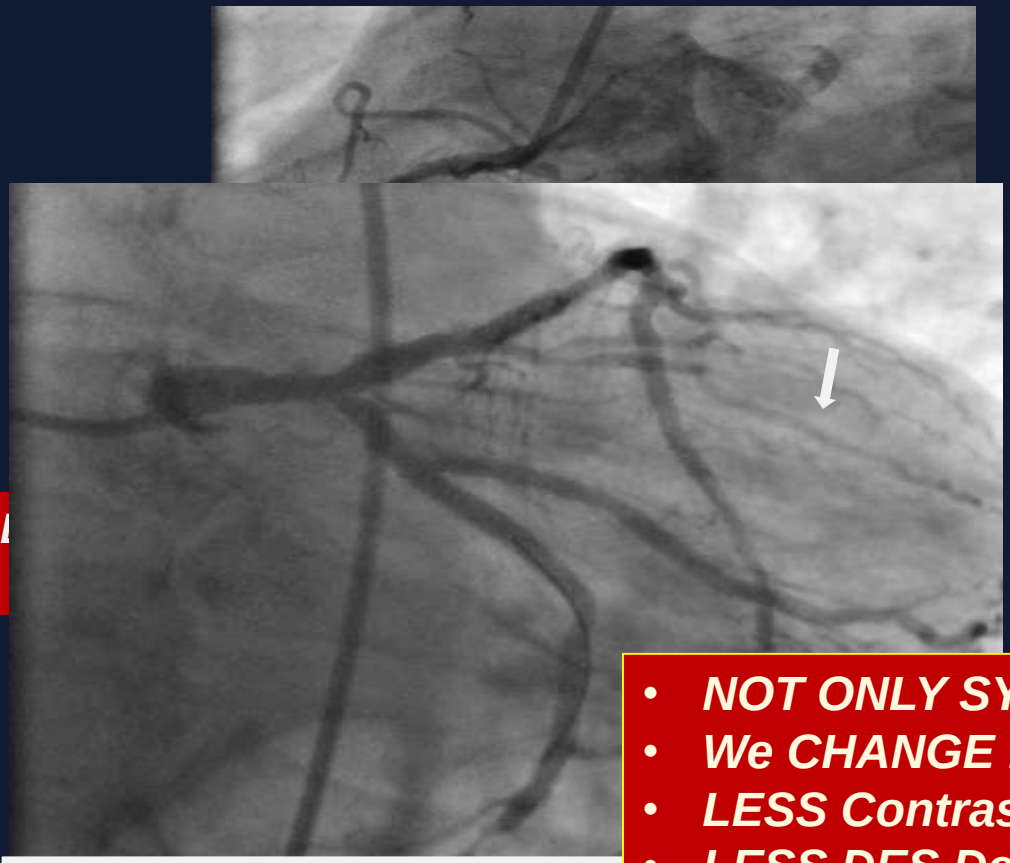


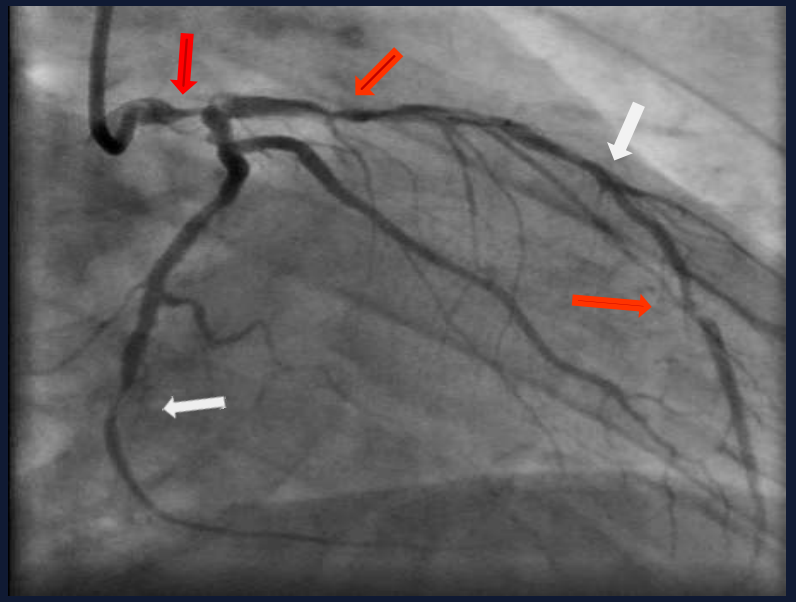
Rodriguez AE et al. Cardiovasc Revasc Med. 2015 Jul 11.(15)00182-7

ERACI IV
Cummulative outcome of hard clinical endpoints comparison between first, second and third year of follow-up



Fernandez-Pereira C, Rodriguez AE et al. JACC Cardiovasc Interv 2017 .





- *NOT ONLY SYNTAX re-categorization…*
- *We CHANGE Profile Risk*
- *LESS Contrast Dye*
- *LESS DES Deployment*
- *We are more Cost / Effective*
- *BETTER Long term Results*

Residual SS = 9
Residual ERACI IV SS = 2

ID:01-021

core = 34
s) 7 DES

score= 19
(Red arrows) 3 DES

Rodriguez AE et al. Cardiovasc Revasc Med February 2018

Summary

1- Results of the ORBITA trial, had limitations driving by very poor lesion assessment and the small sample size (estimated 0.5% of the entire PCI population if we excluded the 82 pts with intermediate stenosis or with small vessel stenosis).

2-Accorded to our analysis many of these lesions included in the study shouldn't be treated with stent, in fact that was the policy of PCI stent strategy of many trials with PCI and multiple vessel CAD, in fact EXCEL trial investigators excluded those lesions in the risk score assessment (high SS 0% on site vs 24% by core lab).

3- Stenting an isolated severe lesion in a small vessel (≤ 2 mm) and/or intermediate lesions may be considerer as inappropriate PCI indication and appears to be an exclusion criteria of ORBITA trial suggesting 41% of patients shouldn't be included.

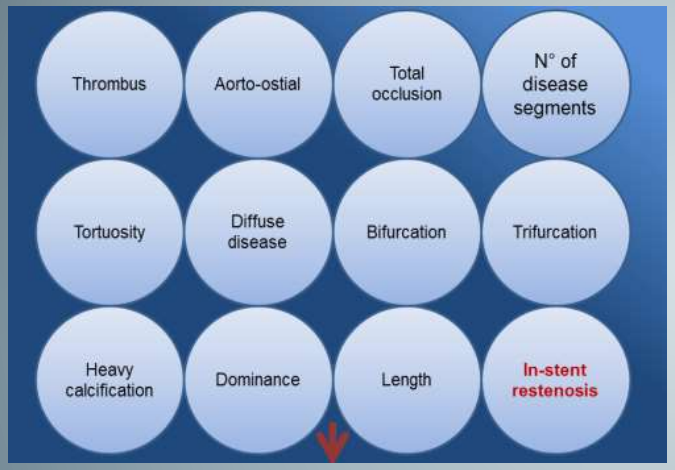
4-Finally, I would like to see ORBITA 2 results with "true critical" stenosis in major epicardial vessel leaving with OMT alone.

Muchas Gracias

IAGS!!!

Muchas Gracias!!!

Modifying angiographic syntax score according to PCI strategy: lessons learnt from ERACI IV Study



YES.

-Guided

-Severe stenosis (≥ 70%) with RD ≥ 2.0 mm)

NO.

-Intermediate lesions (50-69%)

-Severe lesions in vessels with RD < 2 mm

GOAL: "Reasonable" IncompleteRevascularization or FCR

Rodriguez AE et al. Cardiovasc Revasc Med. 2015 Oct-Nov;16(7):418-20.

Table 2. Procedural Demographics

	Percutaneous Coronary Intervention (n=103)	Placebo (n=93)	Complete Group (n=196)
Vessel			
Left anterior descending	72 (69.9)	65 (70.0)	137 (69.9)
Ostial/proximal	46 (44.7)	30 (32.3)	76 (38.8)
Mid	33 (32.0)	38 (40.9)	71 (36.2)
Distal	4 (3.9)	8 (8.6)	12 (6.1)
Right coronary	16 (15.5)	15 (16.1)	31 (15.8)
Circumflex	9 (8.7)	9 (9.7)	18 (9.1)
First obtuse marginal	3 (2.9)	–	3 (1.5)
First diagonal	2 (1.9)	2 (2.2)	4 (2.0)
Intermediate	1 (1.0)	2 (2.1)	3 (1.5)
Serial lesions	17 (16.5)	12 (12.9)	29 (14.8)
No. of patients with diameter stenosis ≥50% by quantitative coronary angiography	87 (84.4)	79 (85.0)	166 (84.7)
Diameter stenosis by quantitative coronary angiography	64.1±13.7	63.7±13.6	63.9±13.6
Area stenosis by quantitative coronary angiography	84.4±10.1	84.0±10.2	84.2±10.1
No. of patients with iFR ≤0.89	68 (66.0)	68 (73.1)	136 (69.4)
Stent length, mm Median (IQR)	28.4±14.8 24 (15)	–	–
Stent diameter, mm Median (IQR)	3.07±0.46 3 (0.75)	–	–
FFR post-PCI (n=101) Median (IQR)	0.90±0.06 0.9 (0.06)	–	–
iFR post-PCI Median (IQR)	0.95±0.04 0.95 (0.05)	–	–
No. of patients with post-FFR>0.80	95 (94.1) (n=101)	–	–
No. of patients with post-iFR>0.89	98 (95.1) (n=103)	–	–

ast
ble

ITA
(41%)
tudy
ERACI
ssels)

Summary

1- Results of the ORBITA trial, had limitations driving first by small sample size (0.5% or less PCI population) and secondly by poor lesion assessment analysis included jeopardized score.

2-Accorded to our analysis many of these lesions /patients included in the study shouldn't be treated with stent, in fact that was the policy of PCI stent strategy of two observational and prospective registries (ERACI IV and WALTZ).

3- Small vessels and intermediate stenosis should not be part of any revascularization strategy, excluded from revascularization guidelines and definition of multiple vessel CAD.

4-Finally, results from ORBITA trial indirectly is an "external and blind " validation of the ERACI risk score.

ACUTE CORONARY SYNDROME: DETECTION, PREVENTION AND TREATMENT

INTERNATIONAL ACADEMY OF CARDIOLOGY
ANNUAL SCIENTIFIC SESSIONS 2018
23rd WORLD CONGRESS ON
HEART DISEASE
BOSTON, MA, USA, JULY 27-29, 2018

PREDICTIVE VARIABLES OF LONG TERM OUTCOME IN PATIENTS UNDERGOING COMPLEX PERCUTANEOUS CORONARY INTERVENTIONS. THE ERACI RISK SCORE

A.M. Rodriguez-Granillo, H. Pavlovsky, C. Fernandez-Pereira, J. Mieres, M.L. Sisu, O. Santaera, Z. Ming, W. Pan, A.E. Rodriguez on behalf of ERACI IV and WALTZ investigators.
Cardiovascular Research Center (CECI)
Buenos Aires, Argentina

SUNDAY, JULY 29, 2018 at 11:15 - 14:30 in HALL A.

METHODS
Patient Population and Study Design

426 pts from ERACI IV and WALTZ registries
15 sites from Argentina
2013-2016
(20% random "on site" monitoring)

ERACI IV
Inclusion criteria
ULMD or MVD
No previous DES
LVEF > 35%
Non-STEMI

225 pts (11.8%) with PCI with Rapamycin chromium cobalt alloy SES(Microport Corp.)
ERACI IV
FU 36 months

201 pts (9.7%) with PCI with bare chromium cobalt alloy BMS (Microport Corp)
WALTZ
FU 18 months

WALTZ
Inclusion criteria
All-comers
STEMI included
LVEF > 35%

DEFINITIONS
MACCE (any death, MI, CVA or unplanned vessel revascularization)

"Reasonable" Residual ERACI /Syntax Risk Score ≤5 was arbitrarily defined

RESULTS

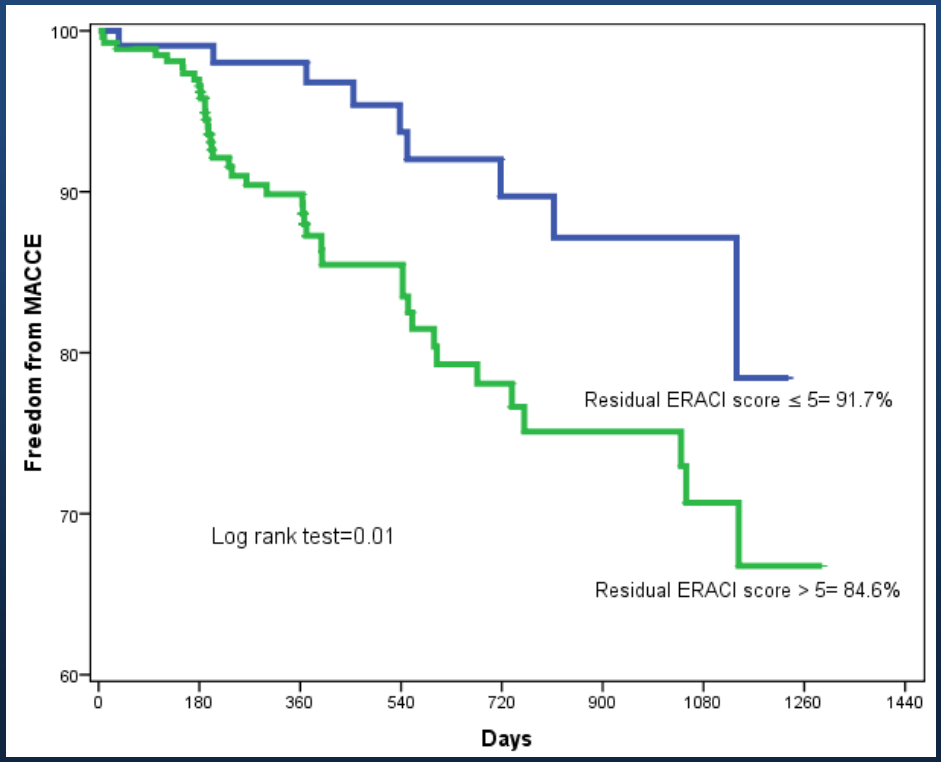
Univariate analysis - MACCE

Variable	P value
Male gender	0.19
Previous MI	0.53
Previous PCI	0.87
Diabetics	0.38
HBP	0.37
Dyslipidemia	0.22
Family history CAD	0.008
PVD	0.23
Current smoker	0.68
ACS	0.03
STEMI	0.81

Variable	P value
Previous ASA	0.26
Previous 2PY12	0.25
Previous statins	0.32
ULMD	0.85
Prox LAD or ULMD	0.30
High SS	0.01
High ES	0.01
rSS< 6	0.87
rES< 6	0.09
IIb/IIIa	0.57
Radial access	0.80

RESULTS

Variable	P value	OR	95% CI
Family history of CAD	0.03	2.59	1.07-6.23
High SS (>32)	0.50	0.75	0.33-1.71
High ES (>32)	0.84	1.12	0.34-3.64
ACS	0.49	0.79	0.41-1.54
Low residual SS (<6)	0.73	1.13	0.55-2.29
Low residual ES (<6)	0.01	0.36	0.15-0.82



Cox Multivariate analysis

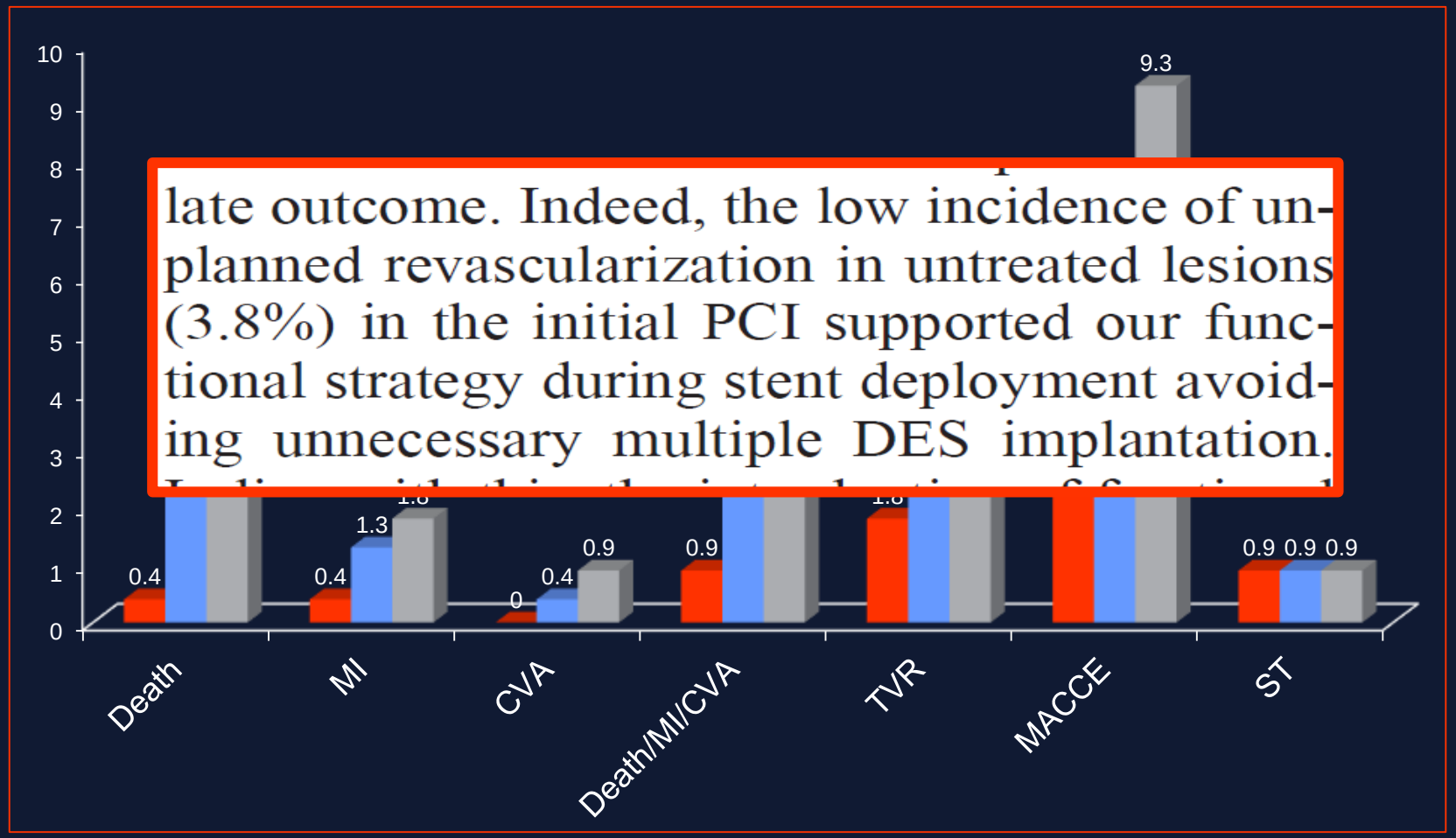
RESULTS

Outcome at mean 509 days of follow-up
Overall population

Now if from the 200 study group patients, we discard these 82 patients, now we are saying that only around 0.5% of the population having severe CAD in the centers involved in the study should be included and randomized in ORBITA trial. However, this does not end here, and we recently noticed, from unpublished data, that 85% of patients not initially treated with PCI were ultimately treated with PCI for unknown reasons [9].

Unplanned revascularization	9.8%
MACCE	13.4%

ERACI IV
Cummulative outcome of hard clinical endpoints comparison between first, second and third year of follow-up



late outcome. Indeed, the low incidence of unplanned revascularization in untreated lesions (3.8%) in the initial PCI supported our functional strategy during stent deployment avoiding unnecessary multiple DES implantation.

Fernandez-Pereira C, Rodriguez AE et al. JACC Cardiovasc Interv 2017 .

Fractional flow reserve versus angiography for guidance of PCI in patients with multivessel coronary artery disease (FAME): 5-year follow-up of a randomised controlled trial

Lokien X van Nunen*, Frederik M Zimmermann*, Pim A L Tonino, Emanuele Barbato, Andreas Baumbach, Thomas Engstrøm, Volker Klauss, Philip A MacCarthy, Ganesh Manoharan, Keith G Oldroyd, Peter N Ver Lee, Marcel van't Veer, William F Fearon, Bernard De Bruyne, Nico H J Pijls, for the FAME Study Investigators

Summary

Background flow reser guided PC outcome v

Methods T the UK, a undergo a on the an Patients a was 0·80 events at 1 registered

Findings A guided gr p=0·31). T the FFR-guided group (mean 2·7 [SD 1·2] *vs* 1·9 [1·3], p<0·0001).

Interpretation The results confirm the long-term safety of FFR-guided PCI in patients with multivessel disease. A strategy of FFR-guided PCI resulted in a significant decrease of major adverse cardiac events for up to 2 years after the index procedure. From 2 years to 5 years, the risks for both groups developed similarly. This clinical outcome in the FFR-guided group was achieved with a lower number of stented arteries and less resource use. These results indicate that FFR guidance of multivessel PCI should be the standard of care in most patients.

Funding St Jude Medical, Friends of the Heart Foundation, and Medtronic.

Introduction

In addition to coronary angiographic abnormalities, the presence and extent of inducible myocardial ischaemia is an important prognostic factor in coronary artery disease.[1–3] The absence of inducible myocardial ischaemia is associated with excellent outcome during medical treatment.[3,4] Therefore, revascularisation of non-ischaemic stenoses is usually not indicated. However, revascularisation of ischaemia-inducing stenoses improves symptoms and outcome.[5,6]

Fractional flow reserve (FFR) is defined as the ratio of maximum blood flow in a stenotic coronary artery to maximum blood flow if the same artery were completely normal. An FFR of 0·80 or less, as measured with the use of a coronary pressure wire during invasive coronary angiography, indicates the potential of a specific stenosis to induce myocardial ischaemia with an accuracy of greater than 90%. Therefore, FFR is recommended for the guidance of coronary revascularisation.[7,8]

In the Fractional Flow Reserve Versus Angiography for Multivessel Evaluation (FAME) study,[9] we compared angiography-guided percutaneous coronary intervention (PCI) with FFR-guided PCI in multivessel disease. At 1 year, the proportion of major adverse cardiac events was significantly lower and a higher proportion of patients were free from angina in the FFR-guided group than in the angiography-guided PCI group.[9] At 2 years, the rates of death and myocardial infarction were significantly lower in the FFR-guided group.[10] Additionally, use of FFR-guided PCI was cost-saving.[11] The results of the FAME study contributed to a shift from purely anatomical to functional revascularisation strategies. However, the long-term safety of such a strategy has not been studied so far.

The goal in this analysis was to investigate whether the favourable outcome with the FFR-guided PCI in the FAME study persisted over 5 years of follow-up.

www.thelancet.com Published online August 30, 2015 http://dx.doi.org/10.1016/S0140-6736(15)00057-4

Fractional flow reserve versus angiography for guidance of PCI in patients with multivessel coronary artery disease (FAME): 5-year follow-up of a randomised controlled trial

Lokien X van Nunen*, Frederik M Zimmermann*, Pim A L Tonino, Emanuele Barbato, Andreas Baumbach, Thomas Engstrøm, Volker Klauss, Philip A MacCarthy, Ganesh Manoharan, Keith G Oldroyd, Peter N Ver Lee, Marcel van't Veer, William F Fearon, Bernard De Bruyne, Nico H J Pijls, for the FAME Study Investigators

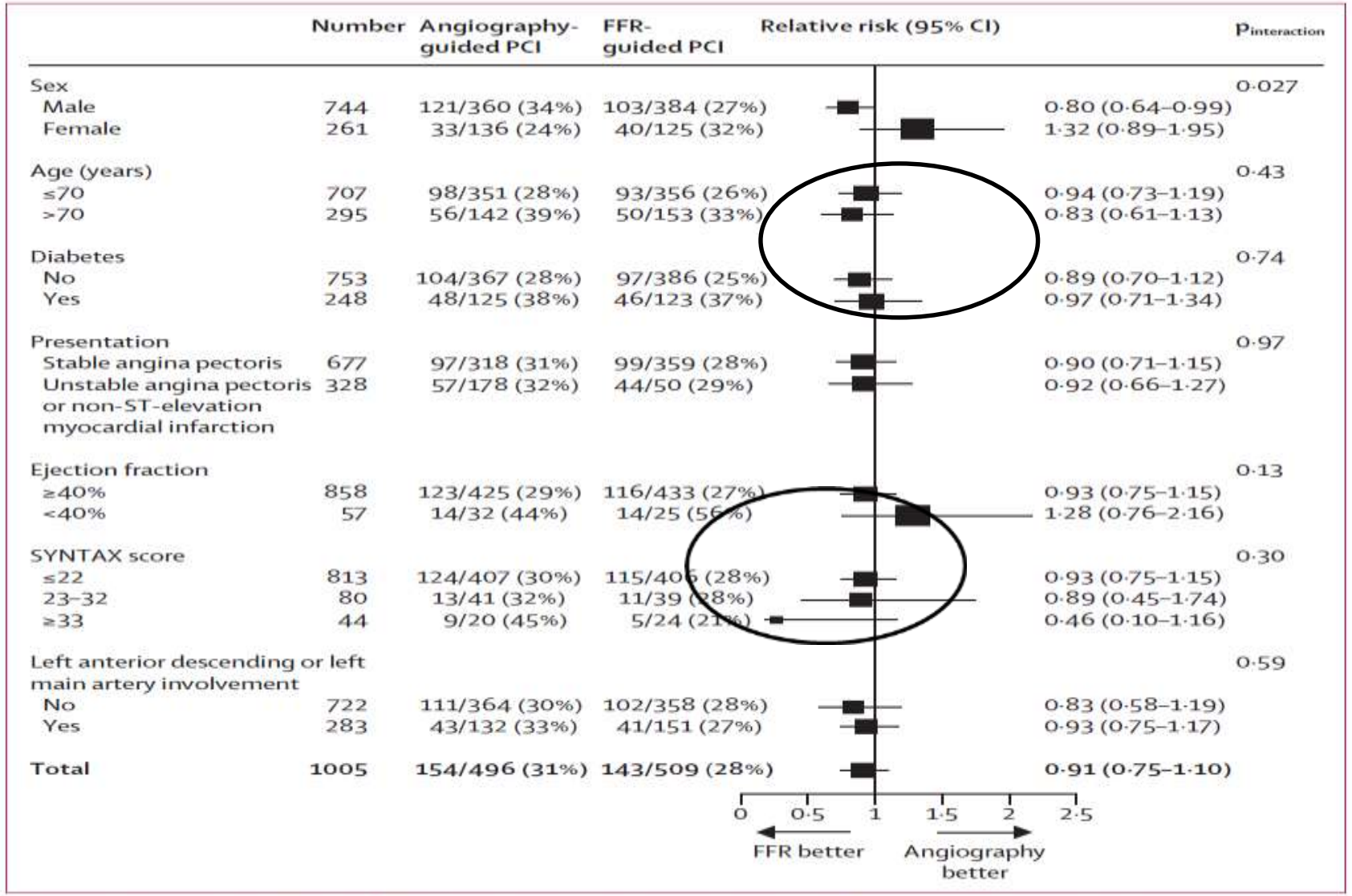


***Figure 3*: Subgroup analyses of the primary endpoint major cardiac adverse events at 5 years**
Data are n/N (%), unless otherwise indicated. Relative risks (with 95% CI) of the primary endpoint are shown by subgroup. FFR=fractional flow reserve. PCI=percutaneous coronary intervention.

ORBITA

	PCI (n=105)	Placebo (n=95)	All (n=200)
Age (years)	65·9 (9·5)	66·1 (8·4)	66·0 (9·0)
Male	74 (70%)	72 (76%)	146 (73%)
BMI (kg/m²)	28·0 (4·7)	29·5 (5·1)	28·7 (5·0)
Diabetes	15 (14%)	21 (22%)	36 (18%)
Hypertension	72 (69%)	66 (69%)	138 (69%)
Hyperlipidaemia	81 (77%)	62 (65%)	143 (72%)
Current smoker	11 (10%)	15 (16%)	26 (13%)
Previous myocardial infarction	5 (5%)	7 (7%)	12 (6%)
Previous PCI	10 (10%)	15 (16%)	25 (13%)
Left ventricle systolic function			
Normal	98 (93%)	85 (89%)	183 (92%)
Mild impairment	3 (3%)	7 (7%)	10 (5%)
Moderate impairment	4 (4%)	3 (3%)	7 (4%)
CCS class			
I	2 (2%)	3 (3%)	5 (3%)
II	64 (61%)	54 (57%)	118 (59%)
III	39 (37%)	38 (40%)	77 (39%)
Angina duration (months)	9·5 (15·7)	8·4 (7·5)	9·0 (12·5)

	Percutaneous Coronary Intervention (n=103)	Placebo (n=93)	Complete Group (n=196)
Vessel			
Left anterior descending	72 (69.9)	65 (70.0)	137 (69.9)
Ostial/proximal	46 (44.7)	30 (32.3)	76 (38.8)
Mid	33 (32.0)	38 (40.9)	71 (36.2)
Distal	4 (3.9)	8 (8.6)	12 (6.1)
Right coronary	16 (15.5)	15 (16.1)	31 (15.8)
Circumflex	9 (8.7)	9 (9.7)	18 (9.1)
First obtuse marginal	3 (2.9)	–	3 (1.5)
First diagonal	2 (1.9)	2 (2.2)	4 (2.0)
Intermediate	1 (1.0)	2 (2.1)	3 (1.5)
Serial lesions	17 (16.5)	12 (12.9)	29 (14.8)
No. of patients with diameter stenosis ≥50% by quantitative coronary angiography	87 (84.4)	79 (85.0)	166 (84.7)
Diameter stenosis by quantitative coronary angiography	64.1±13.7	63.7±13.6	63.9±13.6
Area stenosis by quantitative coronary angiography	84.4±10.1	84.0±10.2	84.2±10.1
FFR Median (IQR)	0.69±0.16 0.72 (0.25)	0.69±0.16 0.73 (0.21) (n=91)	0.69±0.16 0.72 (0.24) (n=194)
iFR Median (IQR)	0.76±0.22 0.85 (0.24)	0.76±0.21 0.85 (0.21)	0.76±0.22
No. of patients with FFR ≤0.80	76 (73.8)	69 (75.8) (n=91)	145 (74.7) (n=194)
No. of patients with iFR ≤0.89	68 (66.0)	68 (73.1)	136 (69.4)

Baseline Characteristics

Al-Lamee et al. Circulation. 2018 May 22, ahead of print

Al-Lamee et al. Lancet. 2018 Jan 6;391(10115):31-40

Percutaneous coronary intervention in stable angina (ORBITA): a double-blind, randomised controlled trial

*Rasha Al-Lamee, David Thompson, Hakim-Moulay Dehbi, Sayan Sen, Kare Tang, John Davies, Thomas Keeble, Michael Mielewczik, Raffi Kaprielian, Iqbal S Malik, Sukhjinder S Nijjer, Ricardo Petraco, Christopher Cook, Yousif Ahmad, James Howard, Christopher Baker, Andrew Sharp, Robert Gerber, Suneel Talwar, Ravi Assomull, Jamil Mayet, Roland Wensel, David Collier, Matthew Shun-Shin, Simon A Thom, Justin E Davies, Darrel P Francis, on behalf of the ORBITA investigators**

Summary

Background Symptomatic relief is the primary goal of percutaneous coronary intervention (PCI) in stable angina and is commonly observed clinically. However, there is no evidence from blinded, placebo-controlled randomised trials to show its efficacy.

Methods ORBITA is a blinded, multicentre randomised trial of PCI versus a placebo procedure for angina relief that was done at five study sites in the UK. We enrolled patients with severe (≥70%) single-vessel stenoses. After enrolment, patients received 6 weeks of medication optimisation. Patients then had pre-randomisation assessments with cardiopulmonary exercise testing, symptom questionnaires, and dobutamine stress echocardiography. Patients were randomised 1:1 to undergo PCI or a placebo procedure by use of an automated online randomisation tool. After 6 weeks of follow-up, the assessments done before randomisation were repeated at the final assessment. The primary endpoint was difference in exercise time increment between groups. All analyses were based on the intention-to-treat principle and the study population contained all participants who underwent randomisation. This study is registered with ClinicalTrials.gov, number NCT02062593.

Findings ORBITA enrolled 230 patients with ischaemic symptoms. After the medication optimisation phase and between Jan 6, 2014, and Aug 11, 2017, 200 patients underwent randomisation, with 105 patients assigned PCI and 95 assigned the placebo procedure. Lesions had mean area stenosis of 84·4% (SD 10·2), fractional flow reserve of 0·69 (0·16), and instantaneous wave-free ratio of 0·76 (0·22). There was no significant difference in the primary endpoint of exercise time increment between groups (PCI minus placebo 16·6 s, 95% CI −8·9 to 42·0, p=0·200). There were no deaths. Serious adverse events included four pressure-wire related complications in the placebo group, which required PCI, and five major bleeding events, including two in the PCI group and three in the placebo group.

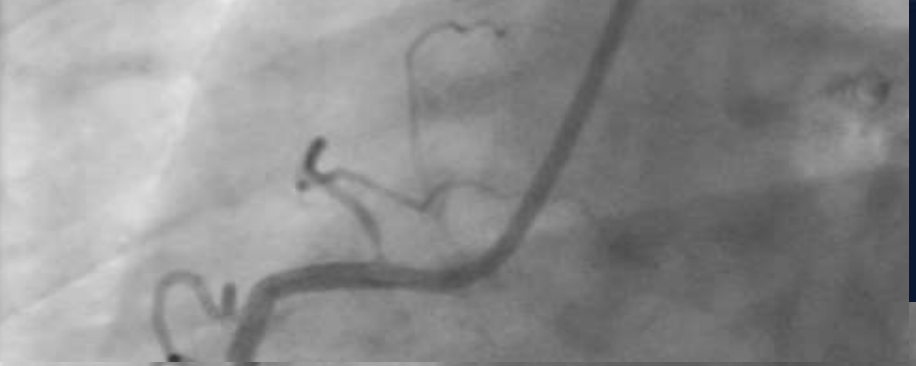
Interpretation In patients with medically treated angina and severe coronary stenosis, PCI did not increase exercise time by more than the effect of a placebo procedure. The efficacy of invasive procedures can be assessed with a placebo control, as is standard for pharmacotherapy.

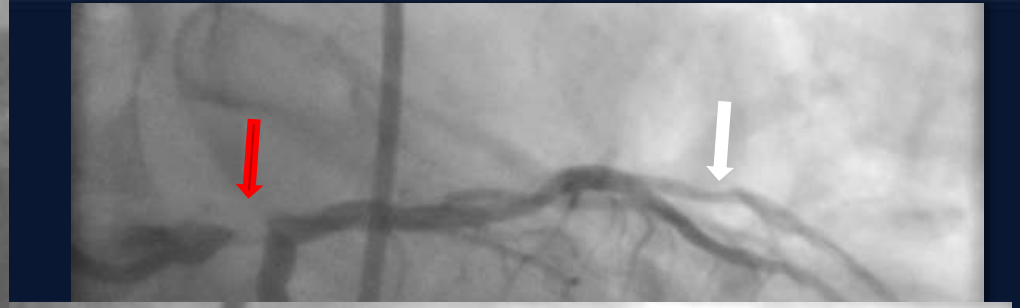
Published Online
November 2, 2017
http://dx.doi.org/10.1016/S0140-6736(17)32714-9

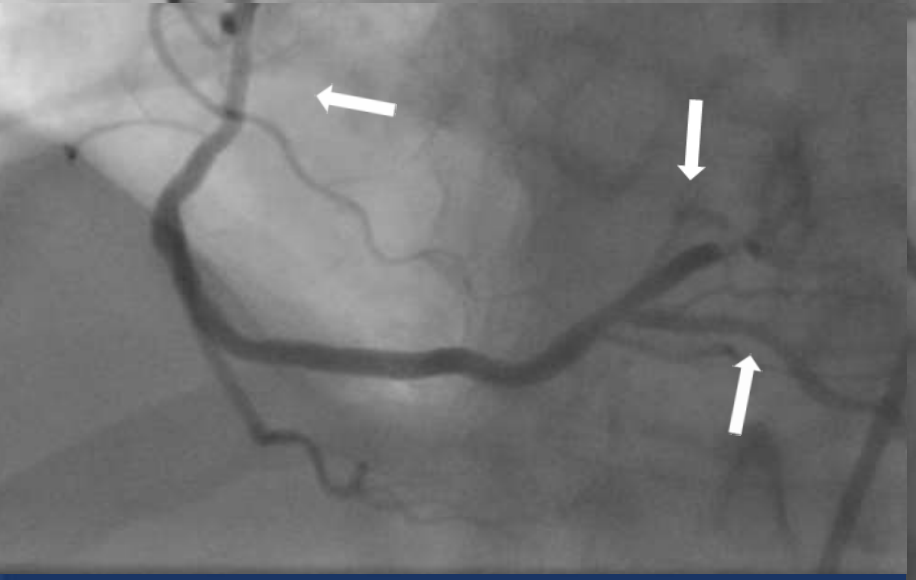
See Online/Comment
http://dx.doi.org/10.1016/S0140-6736(17)32757-5

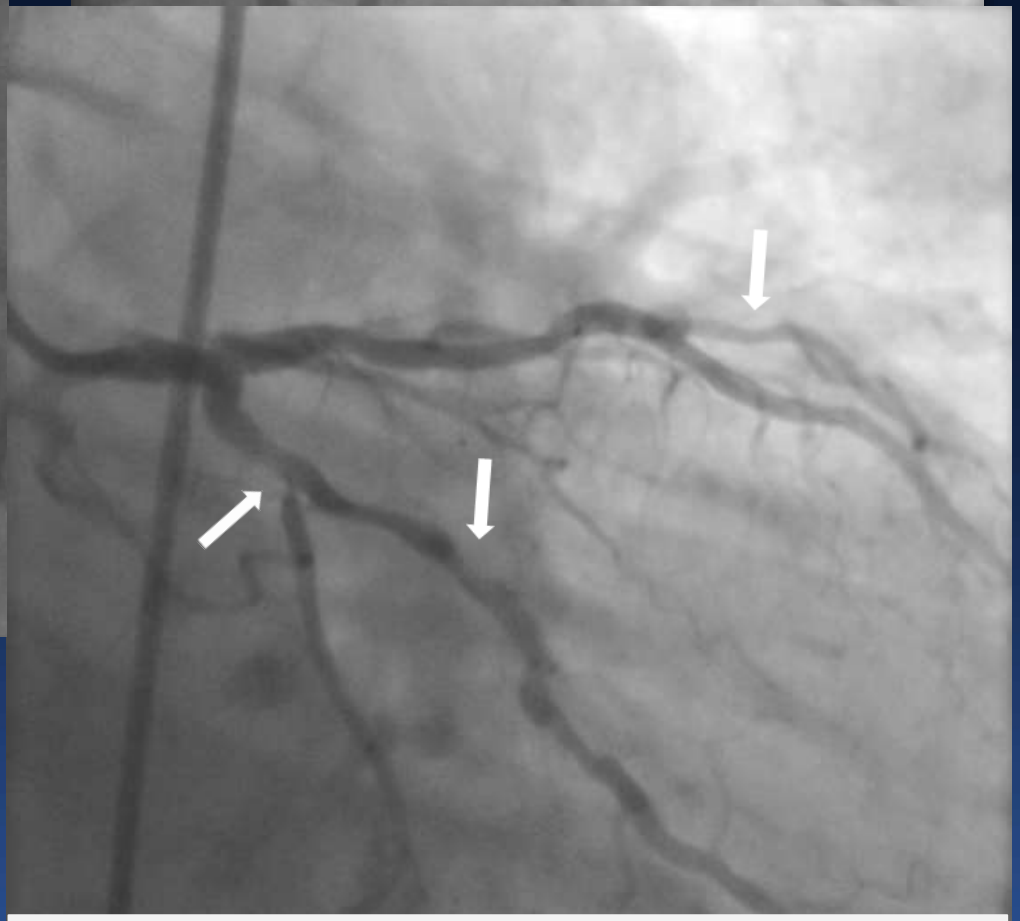
*ORBITA investigators listed at the end of the Article.

Imperial College London, London, UK (R Al-Lamee MRCP, D Thompson MRCPI, S Sen MRCP, M Mielewczik PhD, R Petraco MRCP, C Cook MRCP, Y Ahmad MRCP, J Howard MRCP, Prof J Mayet FRCP, R Wensel MRCP, M Shun-Shin MRCP, Prof S A Thom FRCP, J E Davies MRCP, Prof D P Francis FRCP); **Imperial College Healthcare NHS Trust, London, UK** (R Al-Lamee, D Thompson, S Sen, R Kaprielian FRCP, I S Malik FRCP, S S Nijjer MRCP, R Petraco, C Cook, Y Ahmad, J Howard, C Baker FRCP, R Assomull MRCP, Prof J Mayet, M Shun-Shin, Prof S Thom, J E Davies, and Prof D P Francis FRCP); **Cancer Research UK & UCL Cancer Trials**







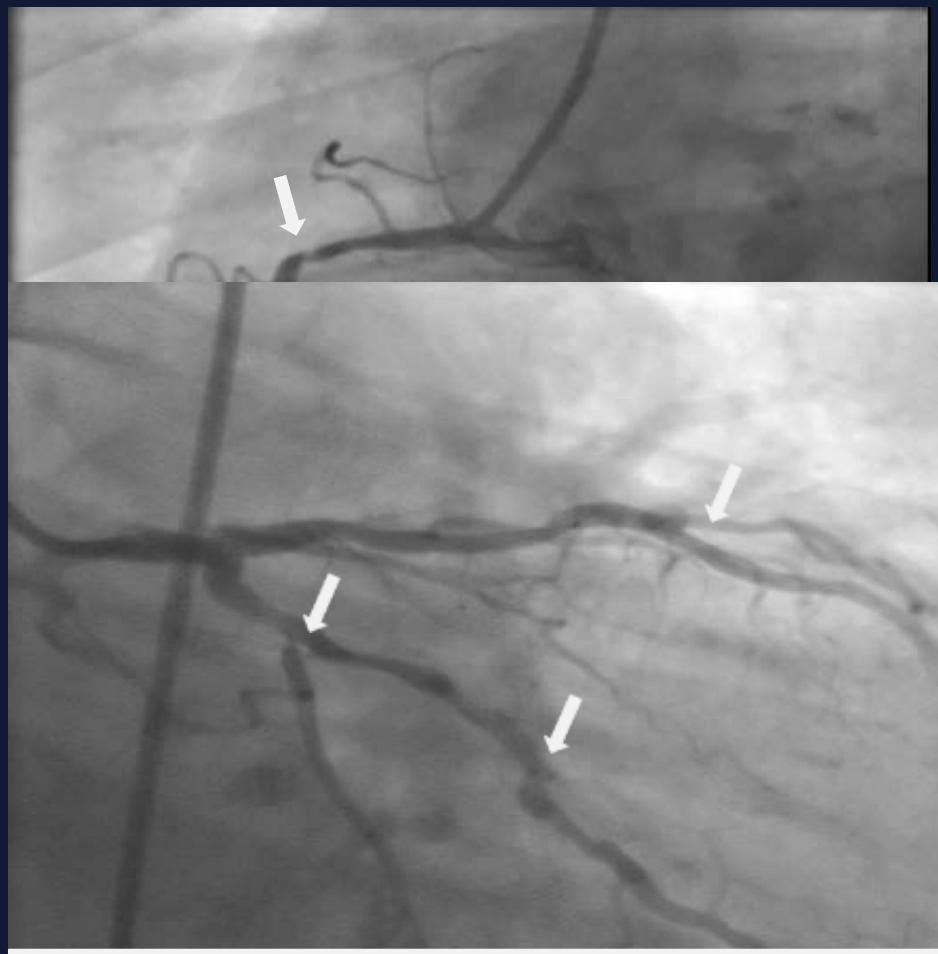


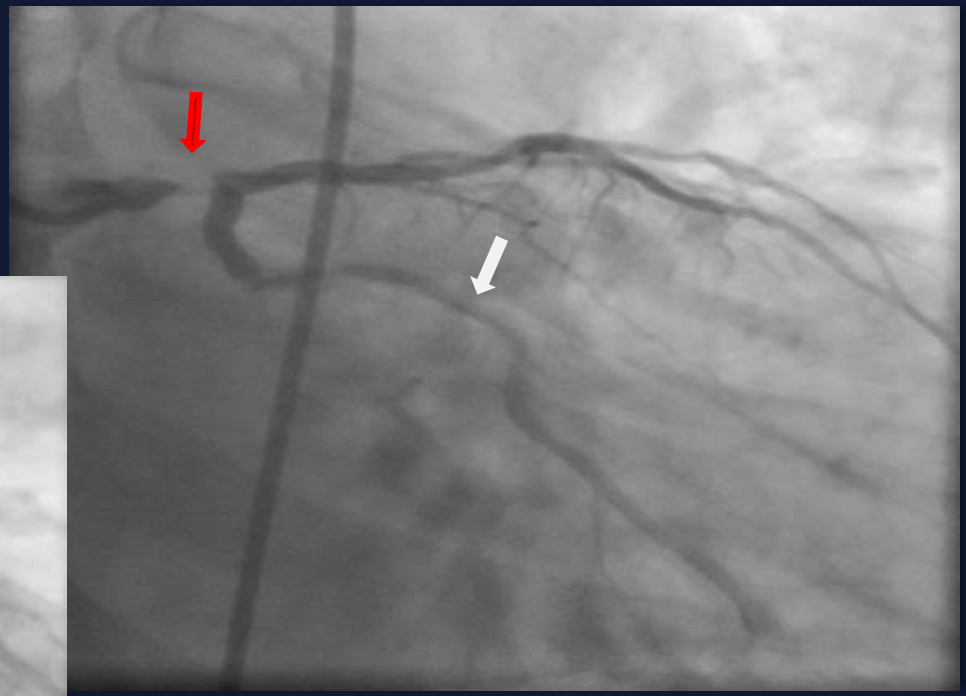
PT ID:02-018

SYNTAX score = 32
(Red & white arrows) 4 DES

Modified ERACI IV SYNTAX score= 21
(Red arrows) 2 DES

Residual SS = 14
Residual ERACI IV SS = 0





PT ID:02-018

SYNTAX score = 26
(Red & white arrows) DES

Modified ERACI IV SYNTAX score=12
(Red arrows) 1 DES

Residual SS = 6
Residual ERACI IV SS = 0

XXI Reunion CECI :
Cardiologia Intervencionista para el Medico Clinico
Sanatorio Otamendi
Octubre 18 2018

Porque los Resultados del ORBITA NO Deben ser Tenidos en Consideracion

Alfredo E Rodriguez, MD, PhD, FACC, FSCAI, IAGS(Delegate)

Founder & Director

Centro de Estudios en Cardiología Intervencionista (CECI)

Head Catheterization Laboratory, Sanatorio Otamendi /Las Lomas

Director Cardiology Fellow Training Program

Otamendi Hospital

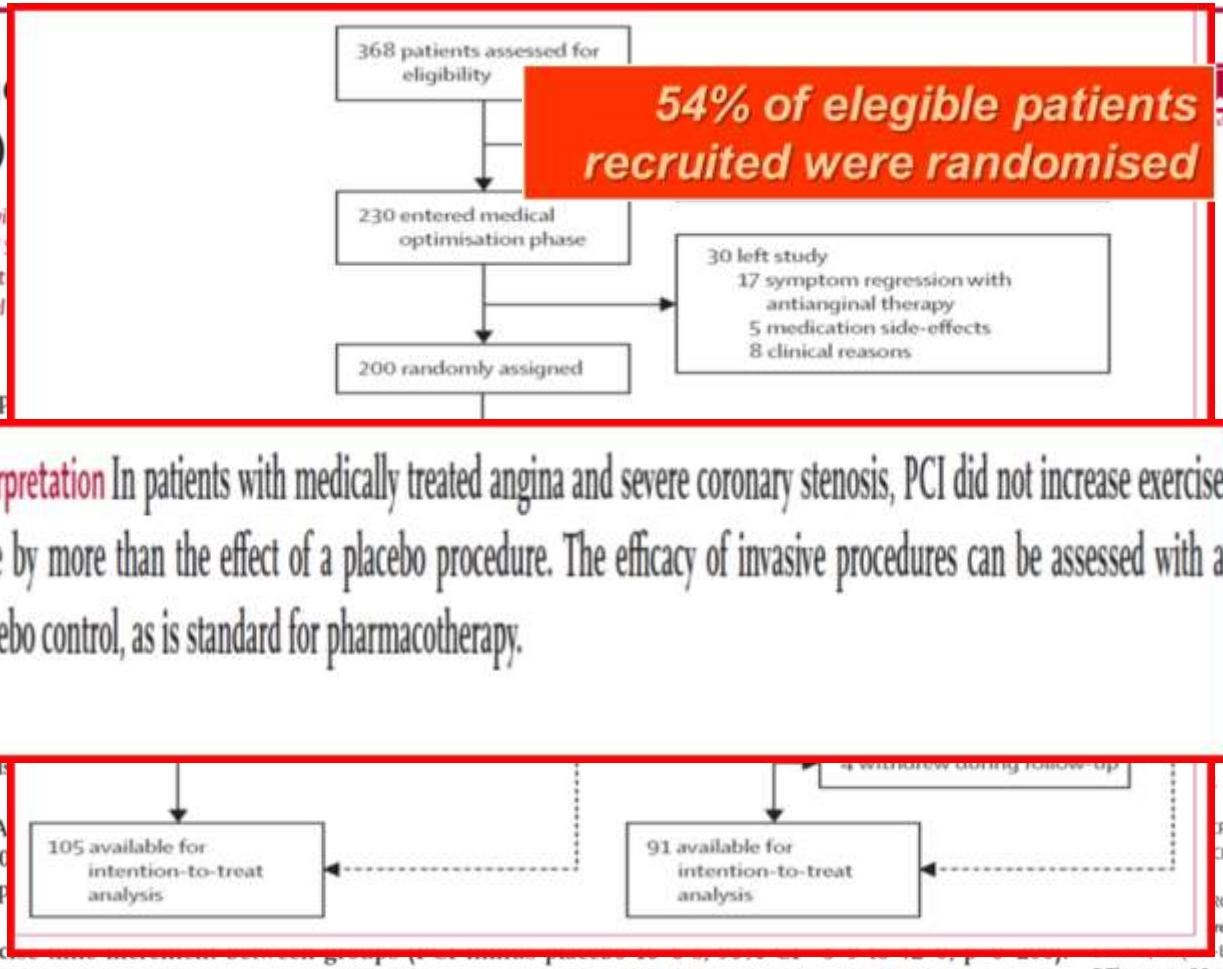
Buenos Aires School of Medicine, Argentina

Editor in Chief

Revista Argentina de Cardioangiologia Intervencionista (RACI)

Percutan
(ORBITA)

Rasha Al-Lamee, Davi
Raffi Kaprielian, Iqbal
Andrew Sharp, Robert
Justin E Davies, Darrel



54% of elegible patients recruited were randomised

Summary

Background Symp
is commo
show its e

Methods
was done
patients
cardiopul
randomis
6 weeks o
endpoint
principle
with Clinical Trials

Findings ORBITA
between Jan 6, 20
95 assigned the p
0·69 (0·16), and
endpoint of exer
There were no deaths. Serious adverse events included four pressure-wire related complications in the placebo group, which required PCI, and five major bleeding events, including two in the PCI group and three in the placebo group.

Interpretation In patients with medically treated angina and severe coronary stenosis, PCI did not increase exercise time by more than the effect of a placebo procedure. The efficacy of invasive procedures can be assessed with a placebo control, as is standard for pharmacotherapy.

Interpretation In patients with medically treated angina and severe coronary stenosis, PCI did not increase exercise time by more than the effect of a placebo procedure. The efficacy of invasive procedures can be assessed with a placebo control, as is standard for pharmacotherapy.

D Thompson, S Sen, R Kaprielian FRCP, I S Malik FRCP, S S Nijjer MRCP, R Petraco, C Cook, Y Ahmad, J Howard, C Baker FRCP, R Assomull MRCP, Prof J Mayet, M Shun-Shin, Prof S Thom, J E Davies, and Prof D P Francis FRCP); **Cancer Research UK & UCL Cancer Trials**

The SYNTAX lesion score is calculated by grading 11 types of lesions by answering sequential interactive questions

YES: Non Guided.

-Intermediate (50 to 69%) or Severe Stenosis (≥ 70%) with RD ≥ 1.5 mm)

- **Goal: Complete Revascularization**
- **Syntax/Freedom/Best/Pre-Combat/Excel/ Noble/VA Cardia**

Sianos G, et al. EuroIntervention. 2005 Aug;1(2):219-27.