DCB Use in Your PCI Practice: Adjunctive Therapy or Standard of Care?

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Disclosure

- **Bruno Scheller, MD**

- Shareholder: InnoRa GmbH, Berlin, Germany
- Lecture fees and consulting honoraria: B.Braun, Medtronic

The American Heart Association's Centennial and Percutaneous Coronary Intervention's Semi-Centennial

Patrick W. Serruys, MD, PhD; Pruthvi C. Revaiah, MD

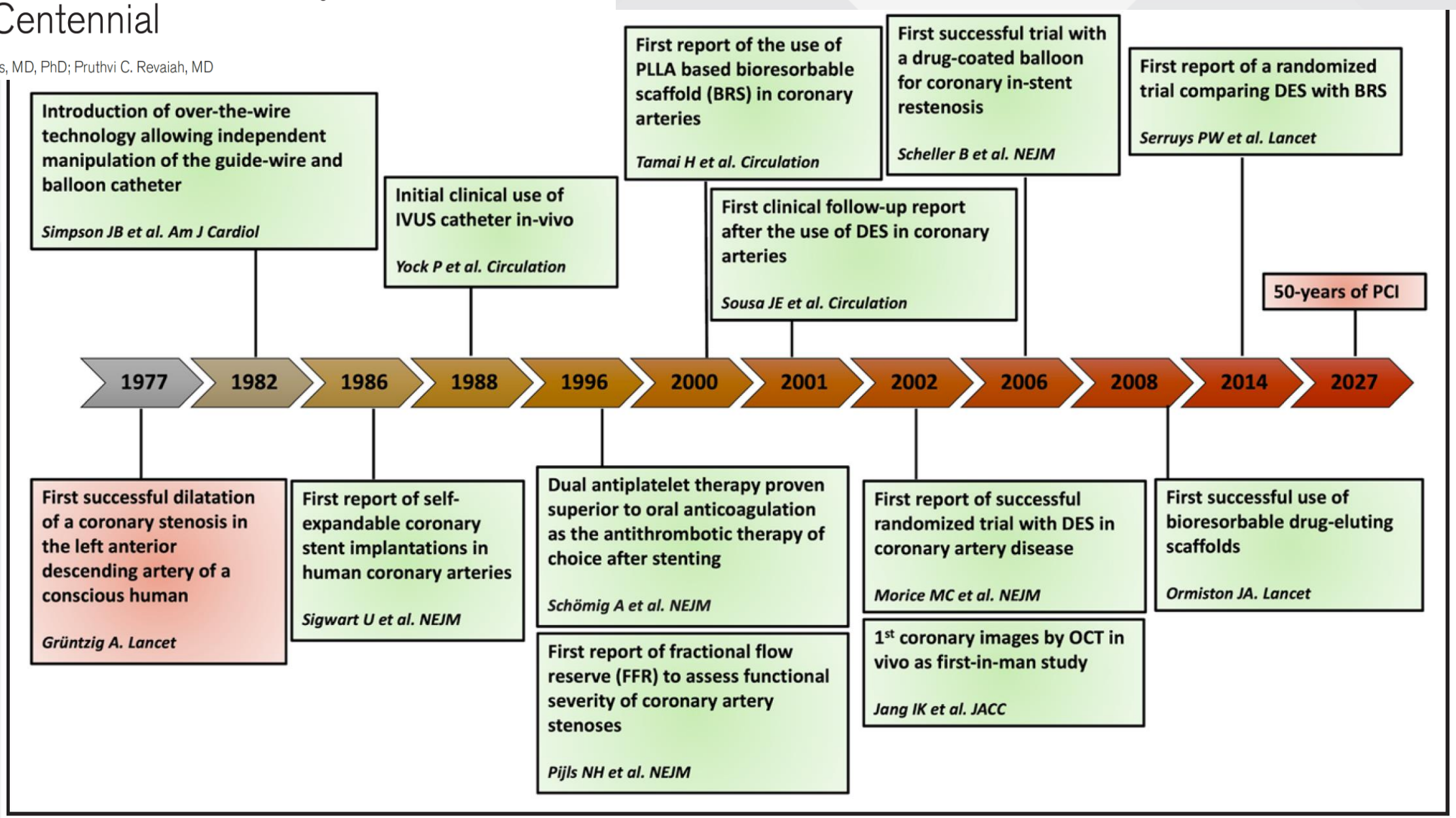


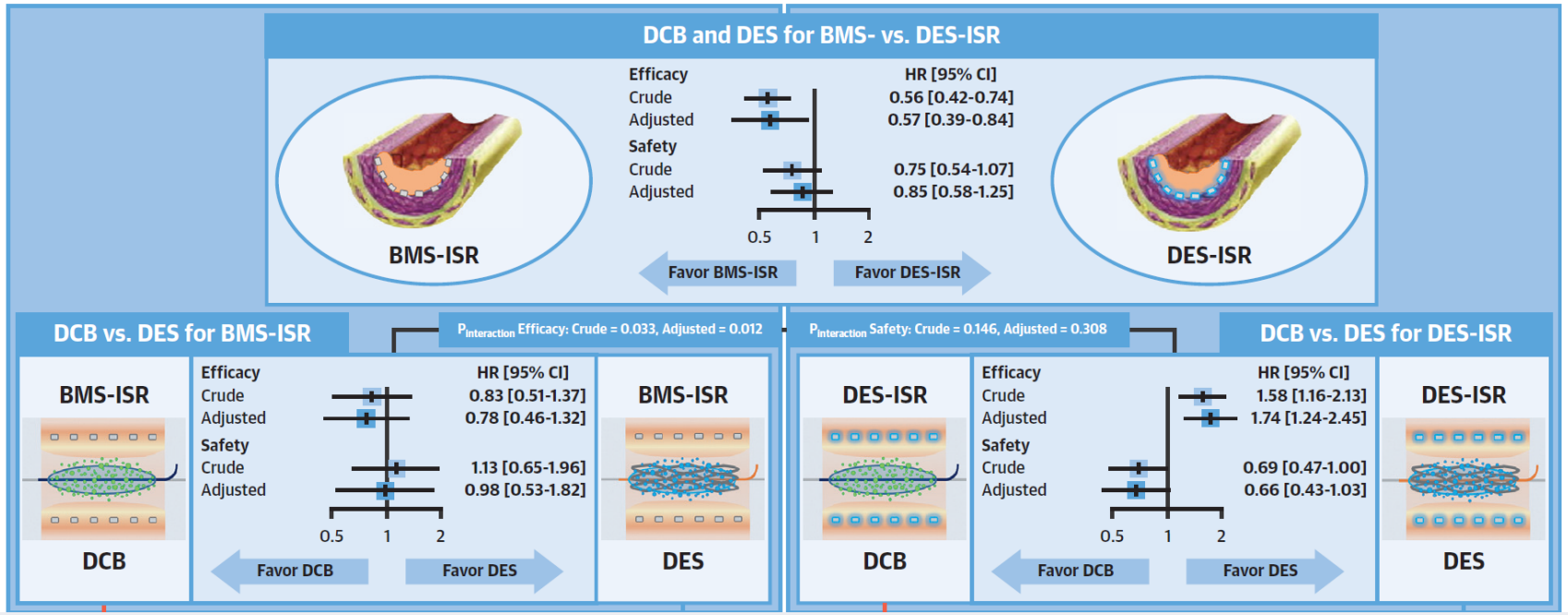
Figure. Major milestones in percutaneous coronary intervention.

Circulation. 2024; 149: 973–978

Drug-Coated Balloon Angioplasty Versus Drug-Eluting Stent Implantation in Patients With Coronary Stent Restenosis

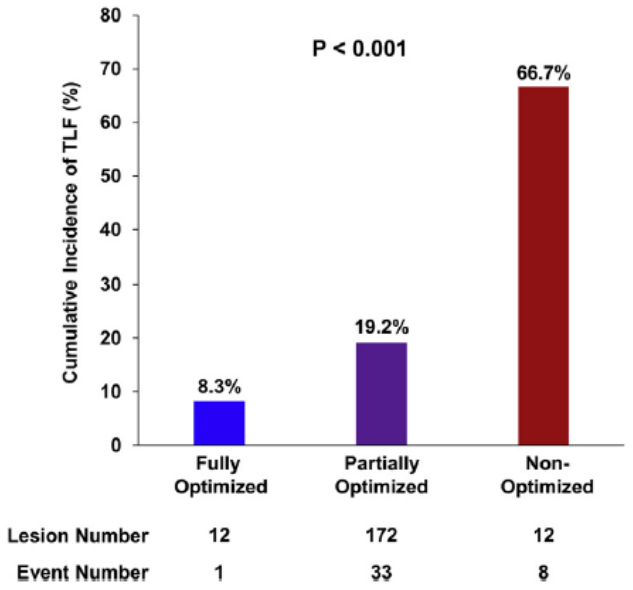
Daniele Giacoppo, MD, MSc,[a] Fernando Alfonso, MD, PhD,[b] Bo Xu, MBBS, PhD,[c] Bimmer E.P.M. Claessen, MD, PhD,[d] Tom Adriaenssens, MD, PhD,[e] Christoph Jensen, MD,[f] María J. Pérez-Vizcayno, MD, PhD,[g] Do-Yoon Kang, MD,[h] Ralf Degenhardt, MD, PhD,[i] Leos Pleva, MD, PhD,[j] Jan Baan, MD, PhD,[k] Javier Cuesta, MD, PhD,[b] Duk-Woo Park, MD, PhD,[h] Pavel Kukla, MD,[j] Pilar Jiménez-Quevedo, MD, PhD,[g] Martin Unverdorben, MD, PhD,[i,l] Runlin Gao, MD,[c] Christoph K. Naber, MD, PhD,[f] Seung-Jung Park, MD, PhD,[h] José P.S. Henriques, MD, PhD,[k] Adnan Kastrati, MD,[a,m] Robert A. Byrne, MB BCh, PhD[a,n,o]

CENTRAL ILLUSTRATION Efficacy and Safety of Drug-Coated Balloon Angioplasty and Drug-Eluting Stent Implantation According to In-Stent Restenosis Type



J Am Coll Cardiol. 2020; 75: 2664-78

FIGURE 4 Incidence of Target Lesion Failure According to Combined Procedure-Related Factors



Rates of target lesion failure (TLF) are compared among 3 groups, classified according to the combined procedure-related factors: 1) fully optimized group (drug-eluting balloon-to-stent ratio [BSR] >0.91, total inflation time of drug-eluting balloon [$T_{inflation}$] >60 s, and residual percentage diameter stenosis [%DS] after lesion preparation <20%); 2) partially optimized group (either 1 or 2 of 3 procedural factors were optimized); and 3) nonoptimized group (BSR ≤0.91, $T_{inflation}$ ≤60 s, and residual %DS after lesion preparation ≥20%).

J Am Coll Cardiol Intv 2018; 11: 969–78

2018 ESC/EACTS Guidelines on myocardial revascularization

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

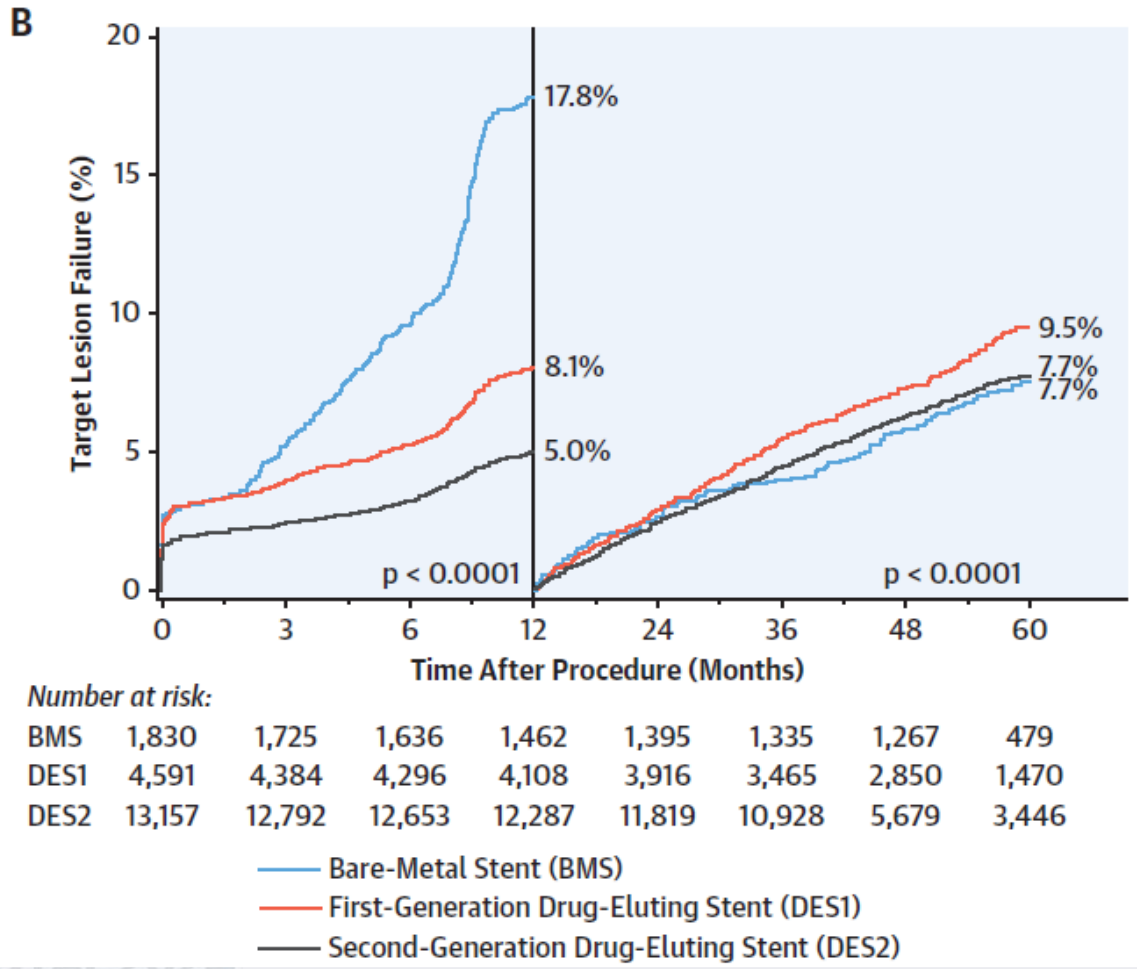
Restenosis		
DES are recommended for the treatment of in-stent restenosis of BMS or DES.[373,375,378,379]	I	A
Drug-coated balloons are recommended for the treatment of in-stent restenosis of BMS or DES.[373,375,378,379]	I	A
In patients with recurrent episodes of diffuse in-stent restenosis, CABG should be considered by the Heart Team over a new PCI attempt.	IIa	C
IVUS and/or OCT should be considered to detect stent-related mechanical problems leading to restenosis.	IIa	C

restenosis (see section 13.4). In terms of the use of DCB angioplasty for *de novo* disease, a number of small randomized trials have been reported with somewhat conflicting results.[599–601] At present, there are no convincing data to support the use of DCB angioplasty for this indication.

Neumann, European Heart Journal 2018

Stent-Related Adverse Events >1 Year After Percutaneous Coronary Intervention

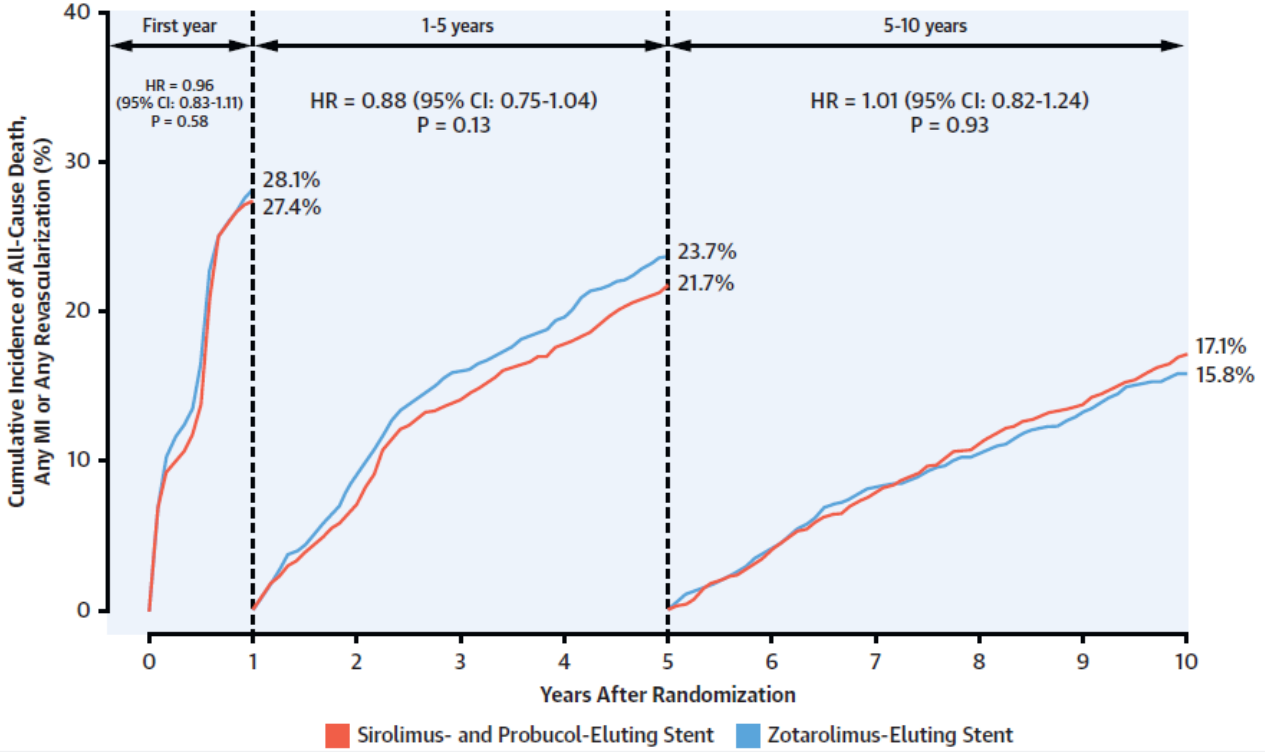
Mahesh V. Madhavan, MD,[a,b] Ajay J. Kirtane, MD, SM,[a,b] Björn Redfors, MD, PhD,[b,c] Philippe Généreux, MD,[b,d,e] Ori Ben-Yehuda, MD,[a,b] Tullio Palmerini, MD,[f] Umberto Benedetto, MD, PhD,[g] Giuseppe Biondi-Zoccai, MD, MStat,[h,i] Pieter C. Smits, MD,[j] Clemens von Birgelen, MD, PhD,[k] Roxana Mehran, MD,[b,l] Thomas McAndrew, PhD,[b] Patrick W. Serruys, MD,[m] Martin B. Leon, MD,[a,b] Stuart J. Pocock, PhD,[n] Gregg W. Stone, MD[b,l]



J Am Coll Cardiol 2020;75:590–604

10-Year Outcomes From a Randomized Trial of Polymer-Free Versus Durable Polymer Drug-Eluting Coronary Stents

Sebastian Kufner, MD,[a] Maximilian Ernst,[a] Salvatore Cassese, MD, PhD,[a] Michael Joner, MD,[a,b] Katharina Mayer, MD,[a] Roisin Colleran, MB BCh,[a] Tobias Koppara, MD,[c] Erion Xhepa, MD, PhD,[a] Tobias Koch, MD,[a] Jens Wiebe, MD,[a] Tareq Ibrahim, MD,[c] Massimiliano Fusaro, MD,[a] Karl-Ludwig Laugwitz, MD,[b,c] Heribert Schunkert, MD,[a,b] Adnan Kastrati, MD,[a,b] Robert A. Byrne, MB BCh, PhD,[d,e] for the ISAR-TEST-5 Investigators



Event rate: 3.3% per year after first year

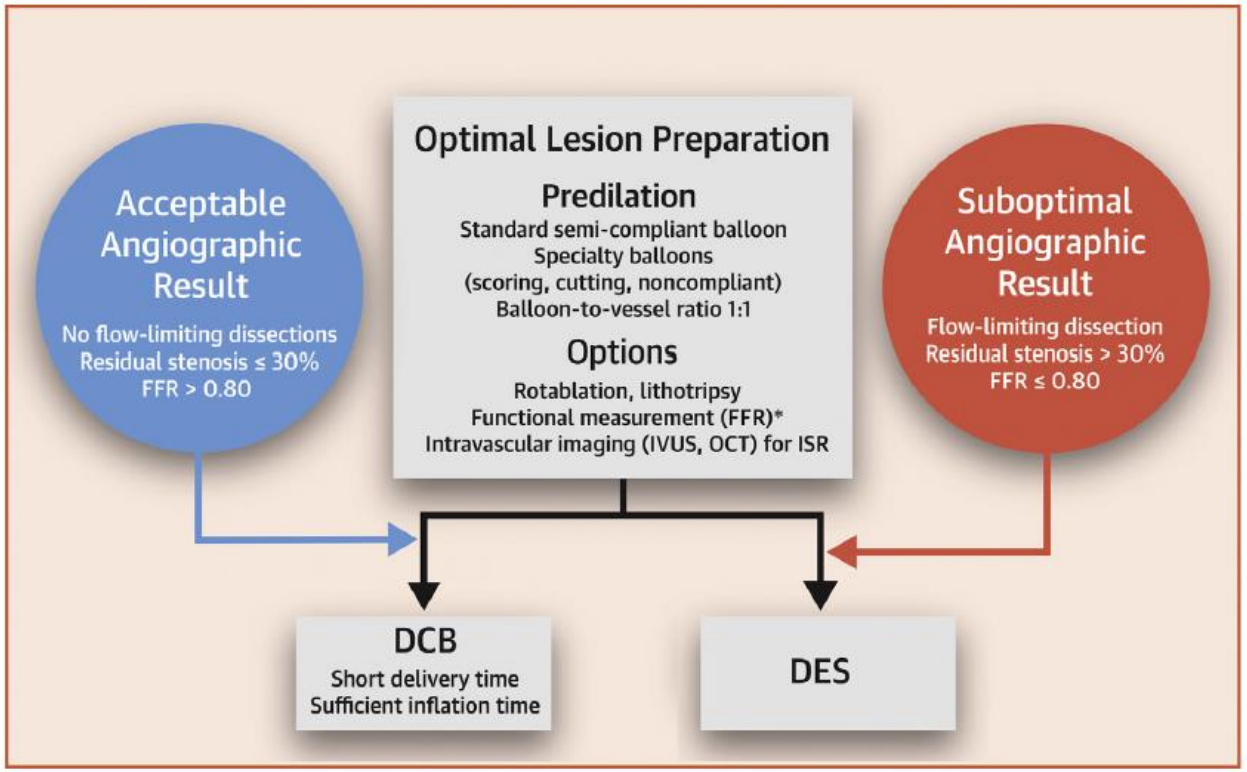
J Am Coll Cardiol 2020;76:146–58

Drug-Coated Balloons for Coronary Artery Disease

Third Report of the International DCB Consensus Group

Raban V. Jeger, MD,[a] Simon Eccleshall, MD,[b] Wan Azman Wan Ahmad, MD,[c] Junbo Ge, MD,[d] Tudor C. Poerner, MD,[e] Eun-Seok Shin, MD,[f] Fernando Alfonso, MD,[g] Azeem Latib, MD,[h] Paul J. Ong, MD,[i] Tuomas T. Rissanen, MD,[j] Jorge Saucedo, MD,[k] Bruno Scheller, MD,[l] Franz X. Kleber, MD,[m] for the International DCB Consensus Group

CENTRAL ILLUSTRATION DCB-Only Strategy for PCI in Coronary Artery Disease

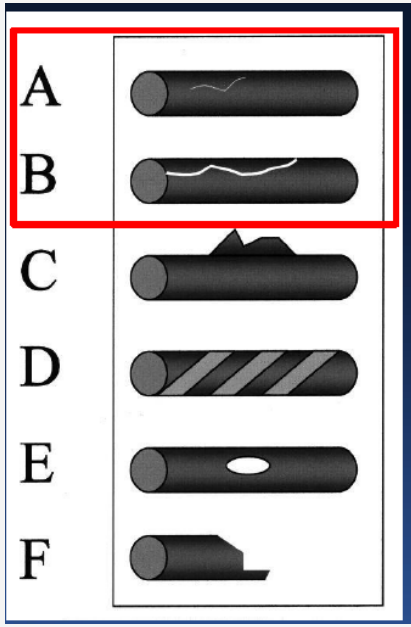


Jeger, R.V. et al. J Am Coll Cardiol Intv. 2020;13(12):1391-402.

*FFR >0.80 may be a good compromise to guide angioplasty. DCB = drug-coated balloon; DES = drug-eluting stent; FFR = fractional flow reserve; ISR = in-stent restenosis; IVUS = intravascular ultrasound; OCT = optical coherence tomography; PCI = percutaneous coronary intervention.

Use of a Morphologic Classification to Predict Clinical Outcome After Dissection from Coronary Angioplasty

Michael S. Huber, MD, Jodi Fishman Mooney, RN, MS, James Madison, MD, and Michael R. Mooney, MD



- A Minor radiolucent areas in the lumen without impairment of flow or persistant dye staining after contrast runoff
- B Luminal flap that is radiolucent and that runs parallel to the vessel wall with contrast injection but without impairment of flow or persistant dye staining after contrast runoff
- C Contrast appears outside of the vessel lumen as an "extraluminal cap". The staining appears even after contrast clears the lumen
- D Spiral radiolucent luminal filling defects. Often persitant staining after contrast clears from the vessel.
- E New and persistant filling defects in the vessel lumen.
- F Lesions that progress to impaired flow or total occlusion.

TABLE III Clinical Outcome in Coronary Dissection Groups

	B (n = 543)		C–F (n = 148)		
	No.	(%)	No.	(%)	p value
Clinical success	509	(93.7)	56	(37.8)	<0.0005
Emergency CABG	38	(0.7)	55	(37.2)	<0.0005
Abrupt reclosure	17	(3.1)	46	(31.1)	<0.0005
Q-wave MI	0	(0.0)	19	(12.8)	<0.0005
Elective CABG	15	(2.8)	17	(11.5)	<0.0005
Additional PTCA done	17	(3.1)	35	(23.6)	<0.0005

CABG = coronary artery bypass surgery; MI = myocardial infarction; PTCA = percutaneous transluminal coronary angioplasty.

Am J Cardiol 1991;68:467-471

Effect of Drug-Coated Balloons in Native Coronary Artery Disease Left With a Dissection

Bernardo Cortese, MD,* Pedro Silva Orrego, MD,* Pierfrancesco Agostoni, MD, PhD,† Dario Buccheri, MD,*‡ Davide Piraino, MD,*‡ Giuseppe Andolina, MD,‡ Romano Giuseppe Seregni, MD*

FIGURE 4 The Fate of Dissections After DCB Angioplasty

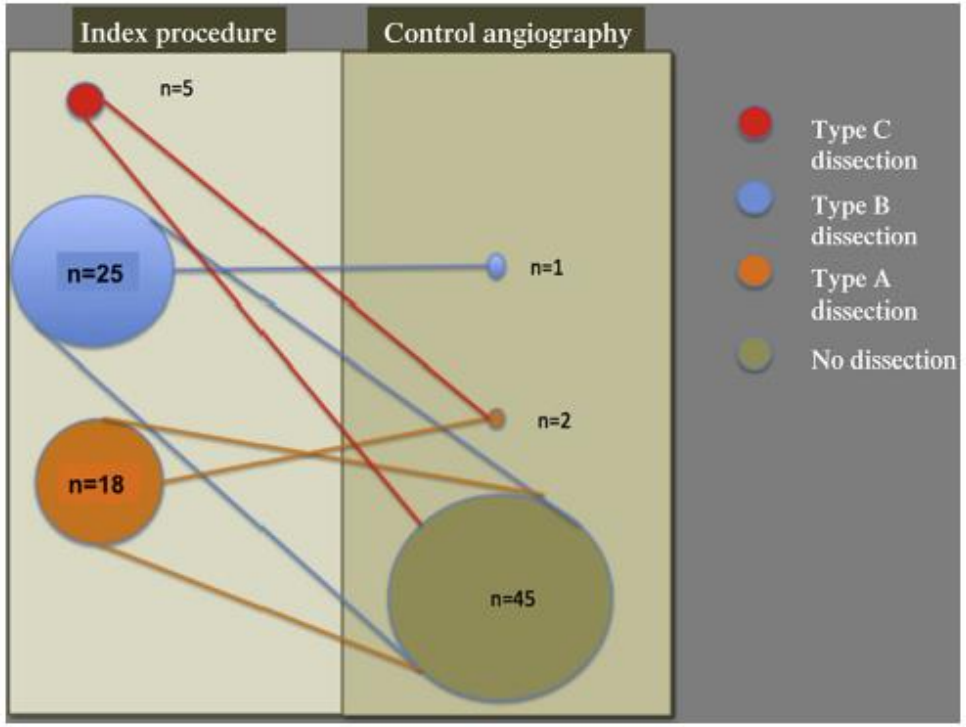
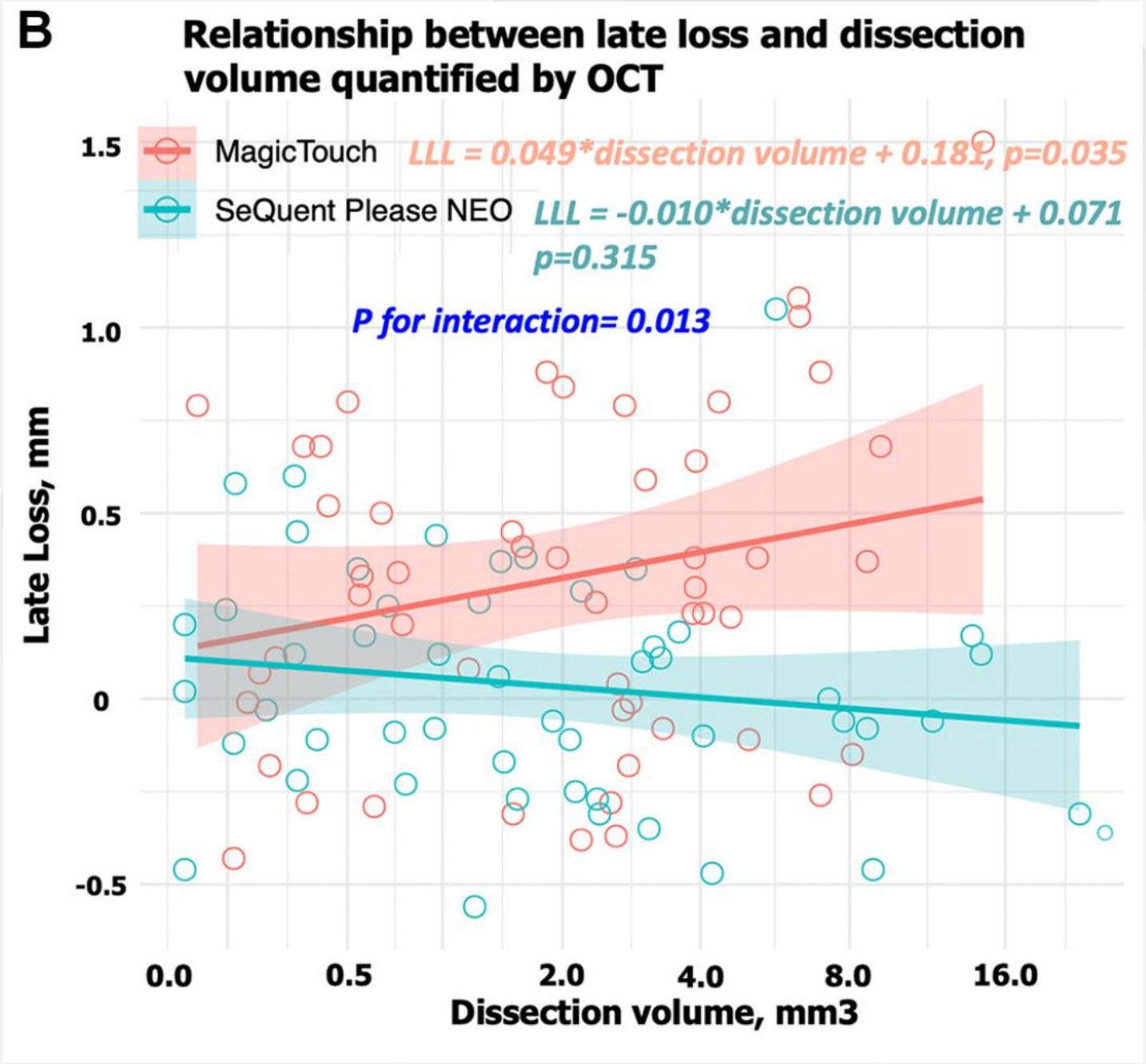


Figure shows what happened to dissections at 6-month angiography: 45 were healed and 3 were chronic. There was not an apparent correlation between the type of initial dissection left after DCB angioplasty and its fate. We followed the NHLBI classification for coronary dissections. DCB = drug-coated balloon; NHLBI = National Heart, Lung, and Blood Institute.

J Am Coll Cardiol Intv 2015;8:2003–9



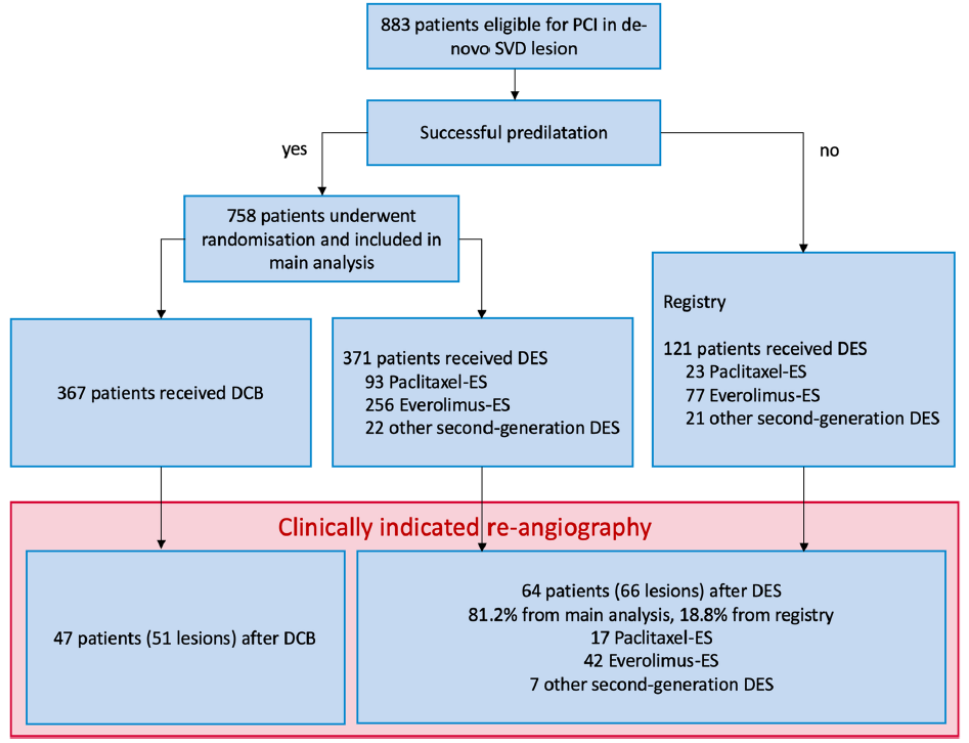
A Prospective Randomized Trial Comparing Sirolimus-Coated Balloon With Paclitaxel-Coated Balloon in De Novo Small Vessels

Kai Ninomiya, MD,[a,*] Patrick W. Serruys, MD, PhD,[a,*] Antonio Colombo, MD,[b,c] Bernhard Reimers, MD,[b] Sandeep Basavarajaiah, MD, PhD,[d] Faisal Sharif, MD, PhD,[a] Luca Testa, MD, PhD,[e] Carlo Di Mario, MD, PhD,[f] Roberto Nerla, MD,[g] Daixin Ding, MSc,[h] Jiayue Huang, MSc,[h] Nozomi Kotoku, MD,[a] Shigetaka Kageyama, MD,[a] Momoko Kageyama, MD,[a] Emelyne Sevestre, BA,[a] Simone Fezzi, MD,[a] Jouke Dijkstra, PhD,[i] Neil O'Leary, PhD,[a] Marie Angele Morel, BSc,[a] Scot Garg, MD, PhD,[j] Bernardo Cortese, MD, PhD,[k] Yoshinobu Onuma, MD, PhD[a]

JACC Cardiovasc Interv. 2023; 16: 2884-96

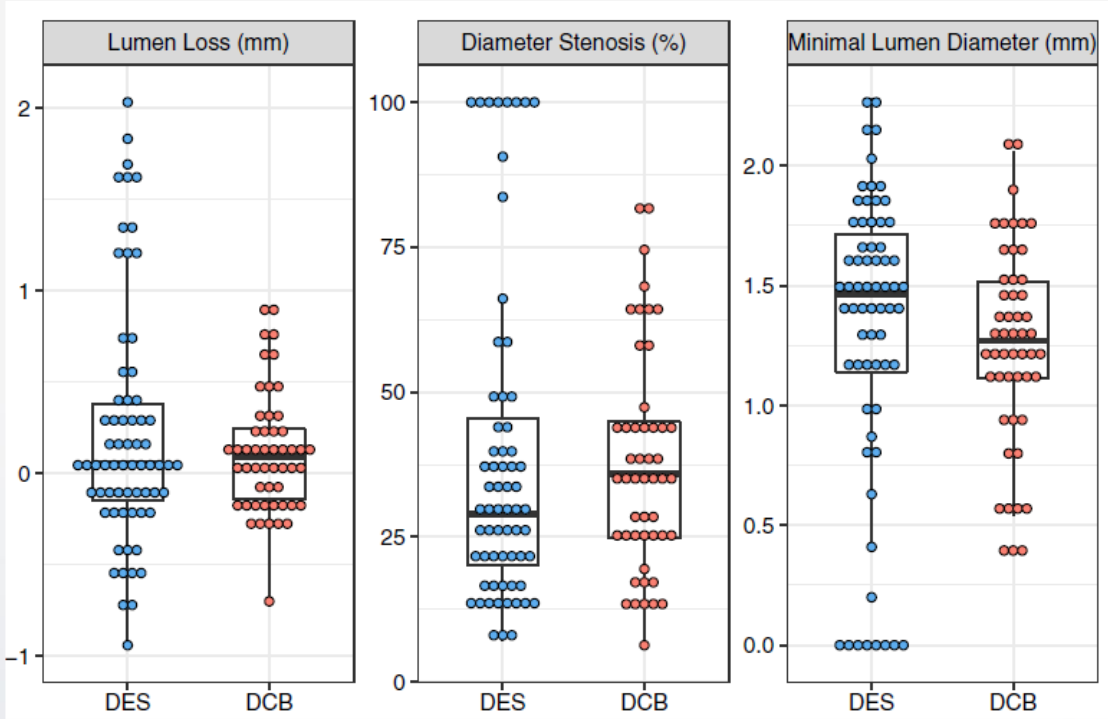
Drug-coated balloon versus drug-eluting stent in small coronary artery lesions: angiographic analysis from the BASKET-SMALL 2 trial

Gregor Fahrni[1] · Bruno Scheller[2] · Michael Coslovsky[1] · Nicole Gilgen[1] · Ahmed Farah[3] · Marc-Alexander Ohlow[4] · Norman Mangner[5] · Daniel Weilenmann[6] · Jochen Wöhrle[7] · Florim Cuculi[8] · Gregor Leibundgut[9] · Sven Möbius-Winkler[10] · Robert Zweiker[11] · Raphael Twerenbold[1] · Christoph Kaiser[1] · Raban Jeger[1] · For the BASKET-SMALL 2 Investigators



Complete thrombotic vessel occlusion

A striking observation in Fig. 3a is the presence of eight patients who presented with a complete thrombotic vessel occlusion after undergoing stent implantation compared to none after a DCB intervention (Fisher's exact test $p = 0.009$).

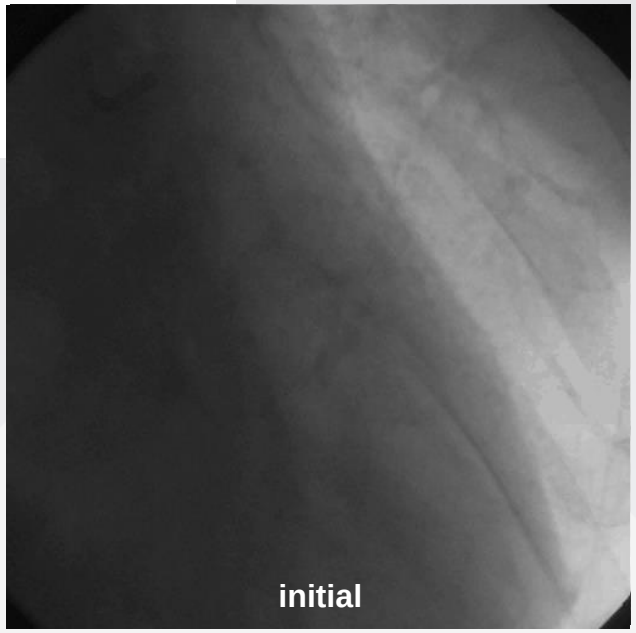


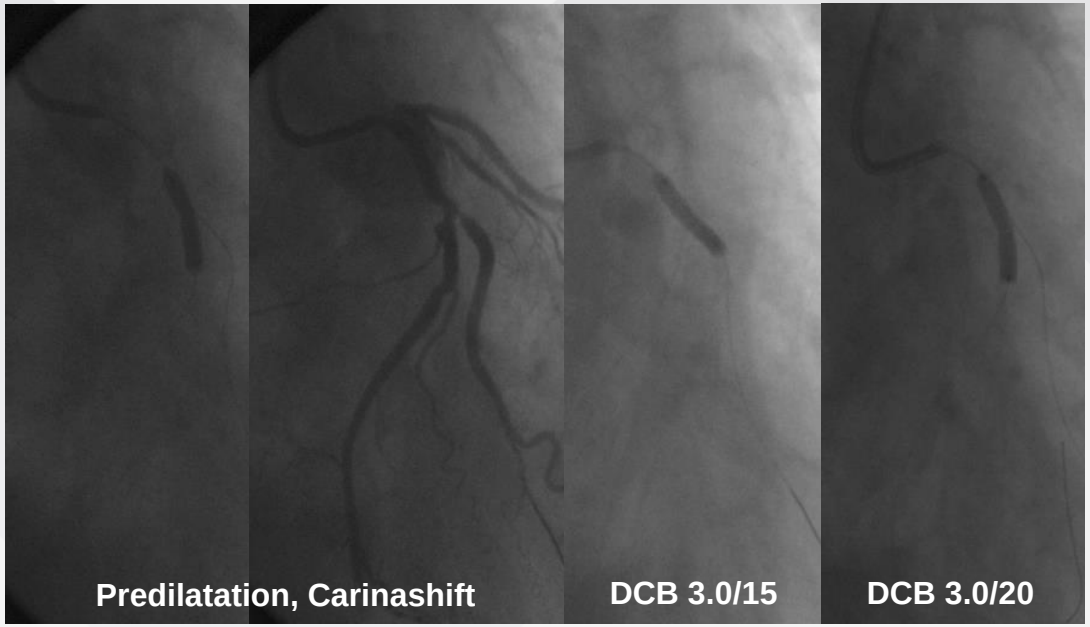
Clinical Research in Cardiology 2020; 109: 1114–24

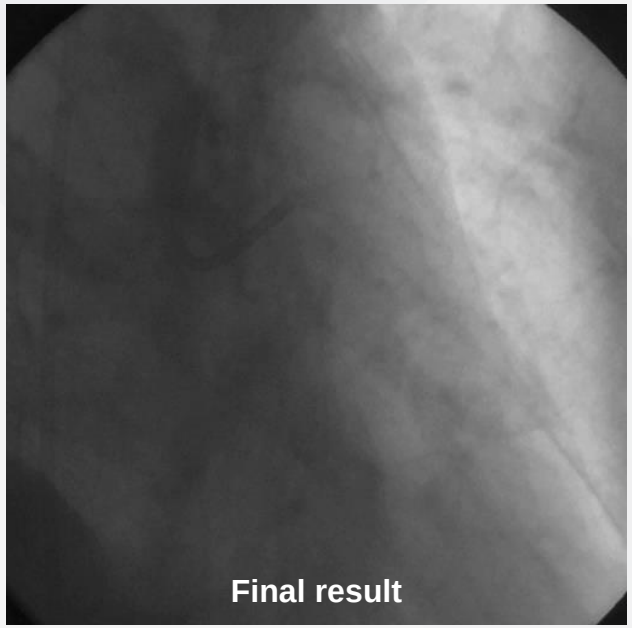
Treatment of a coronary bifurcation lesion with drug-coated balloons: lumen enlargement and plaque modification after 6 months

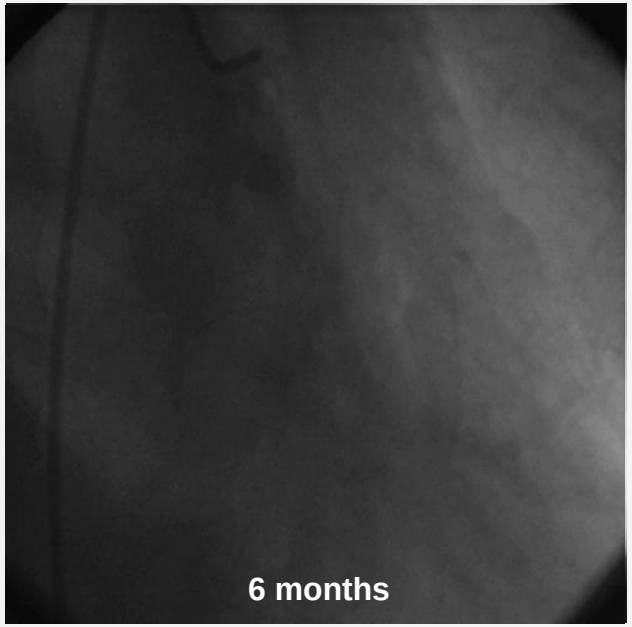
Bruno Scheller · Dieter Fischer · Yvonne P. Clever · Franz X. Kleber · Ulrich Speck · Michael Böhm · Bodo Cremers

Clin Res Cardiol. 2013; 102: 469-72









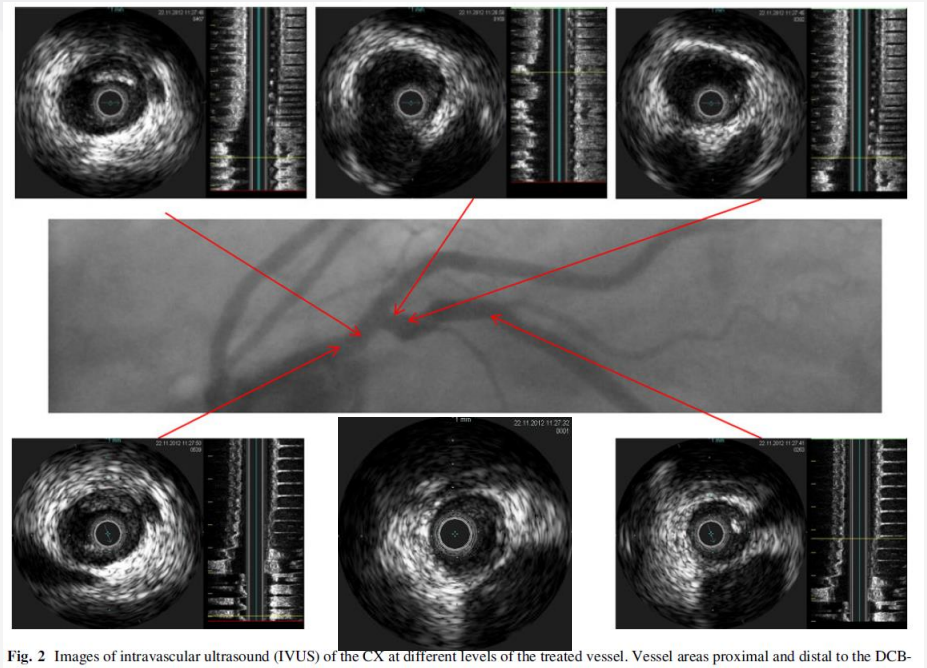
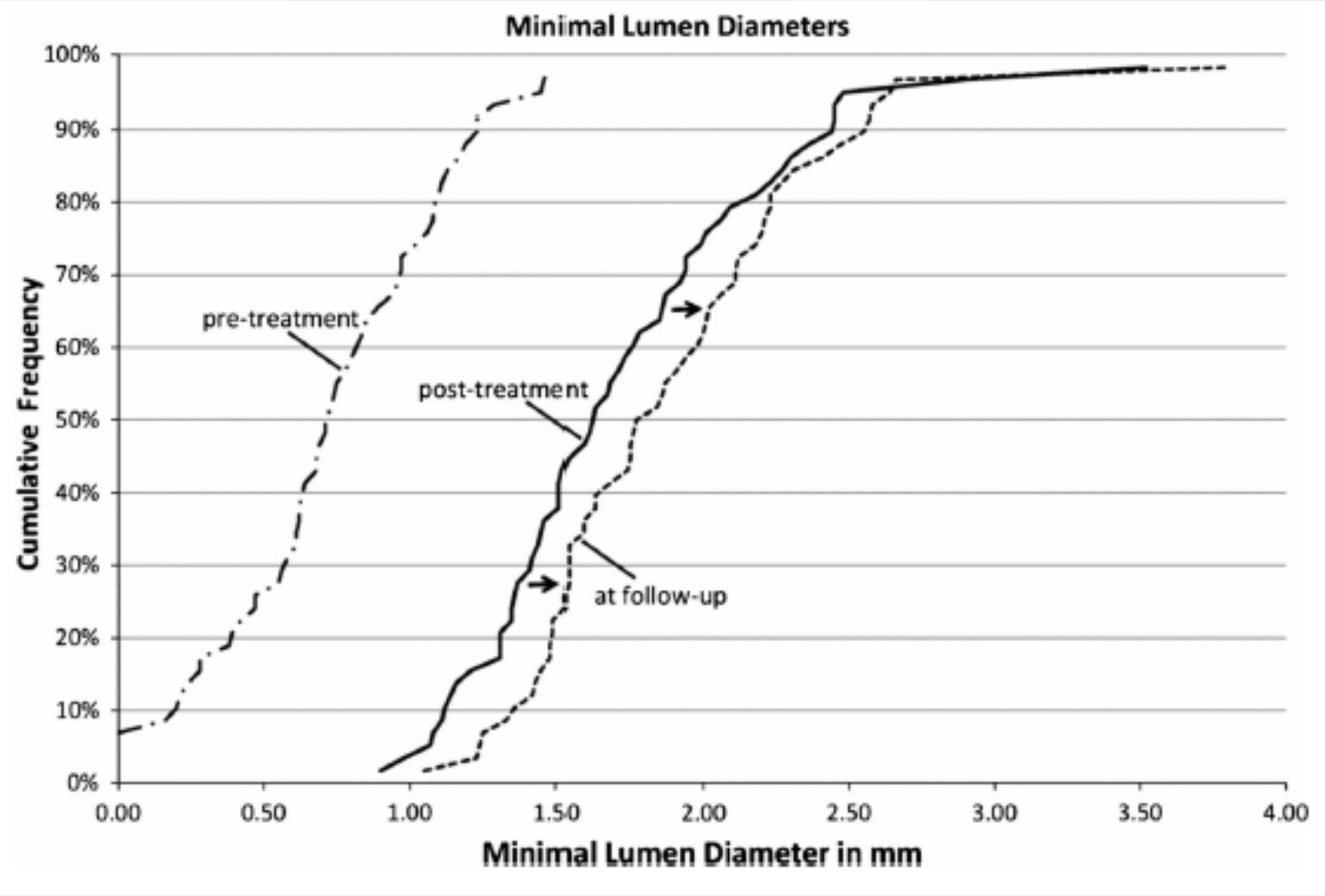
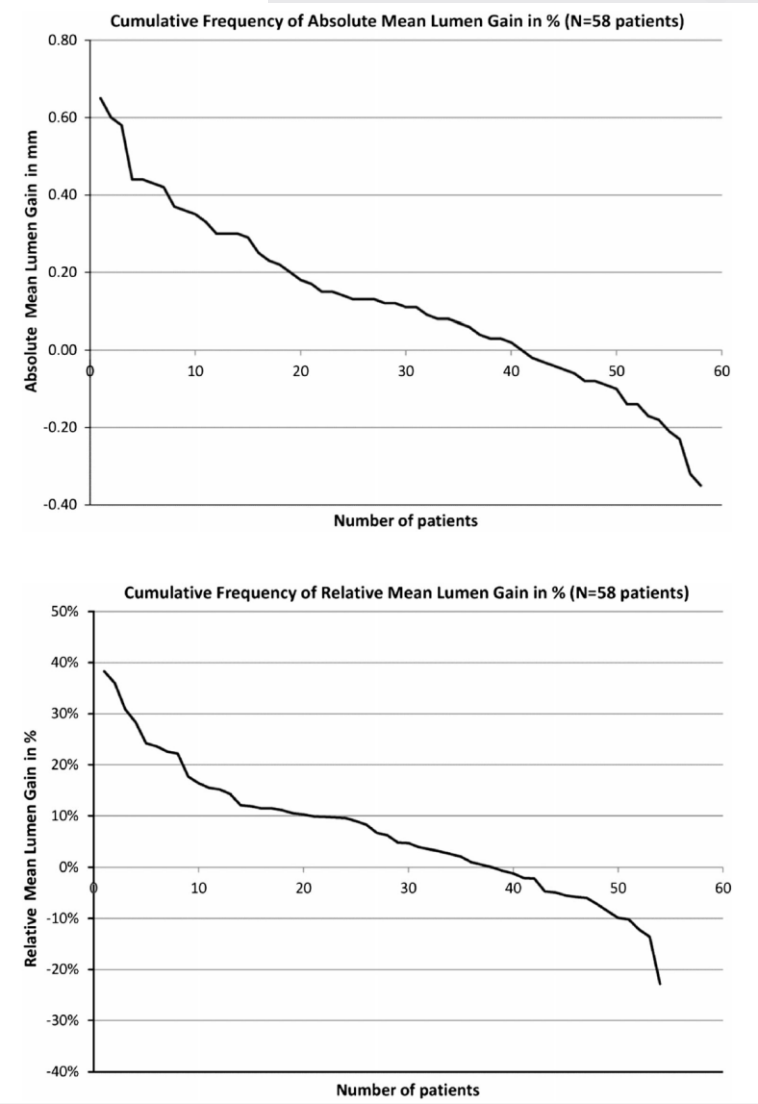


Fig. 2 Images of intravascular ultrasound (IVUS) of the CX at different levels of the treated vessel. Vessel areas proximal and distal to the DCB-treated area with concentric atherosclerotic plaque burden. Reduced plaque burden in the DCB-treated area

Local paclitaxel induces late lumen enlargement in coronary arteries after balloon angioplasty

Franz X. Kleber · Antonia Schulz · Matthias Waliszewski · Telse Hauschild · Michael Böhm · Ulrich Dietz · Bodo Cremers · Bruno Scheller · Yvonne P. Clever

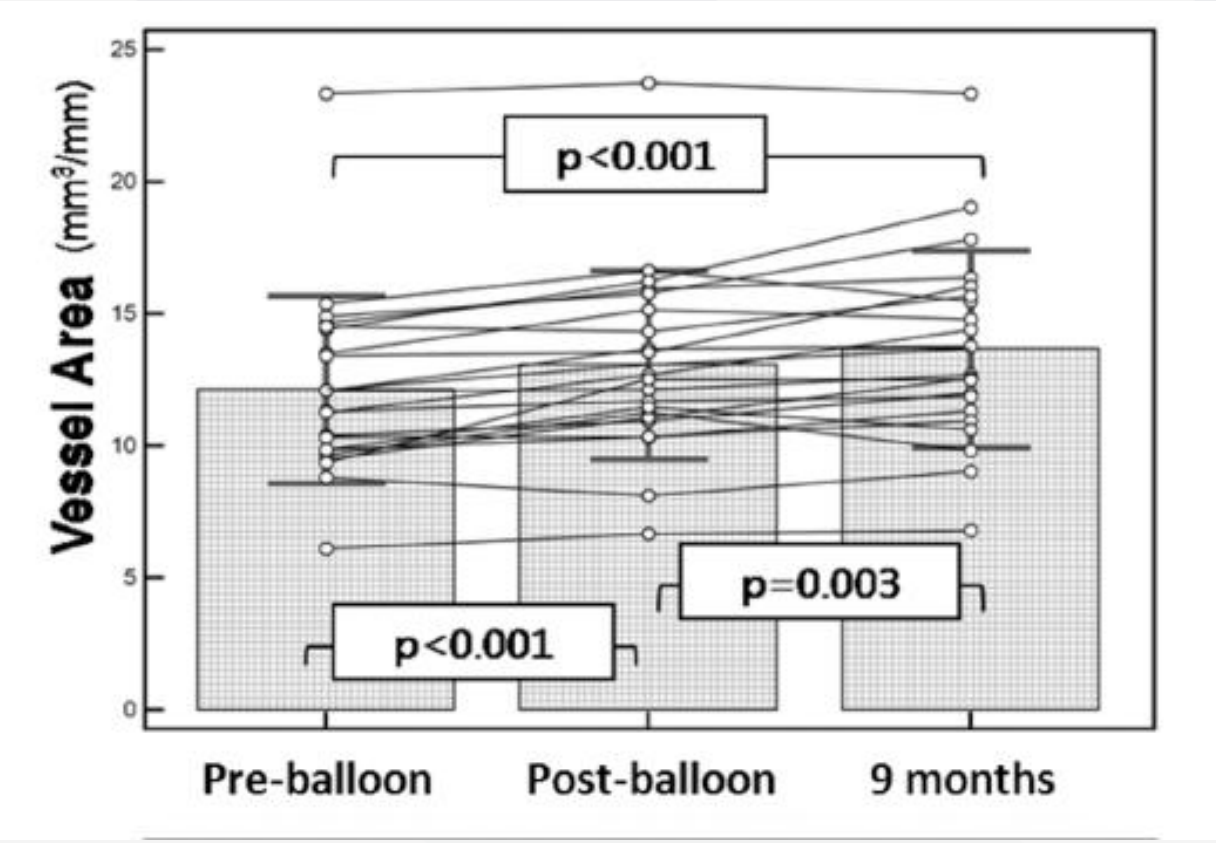


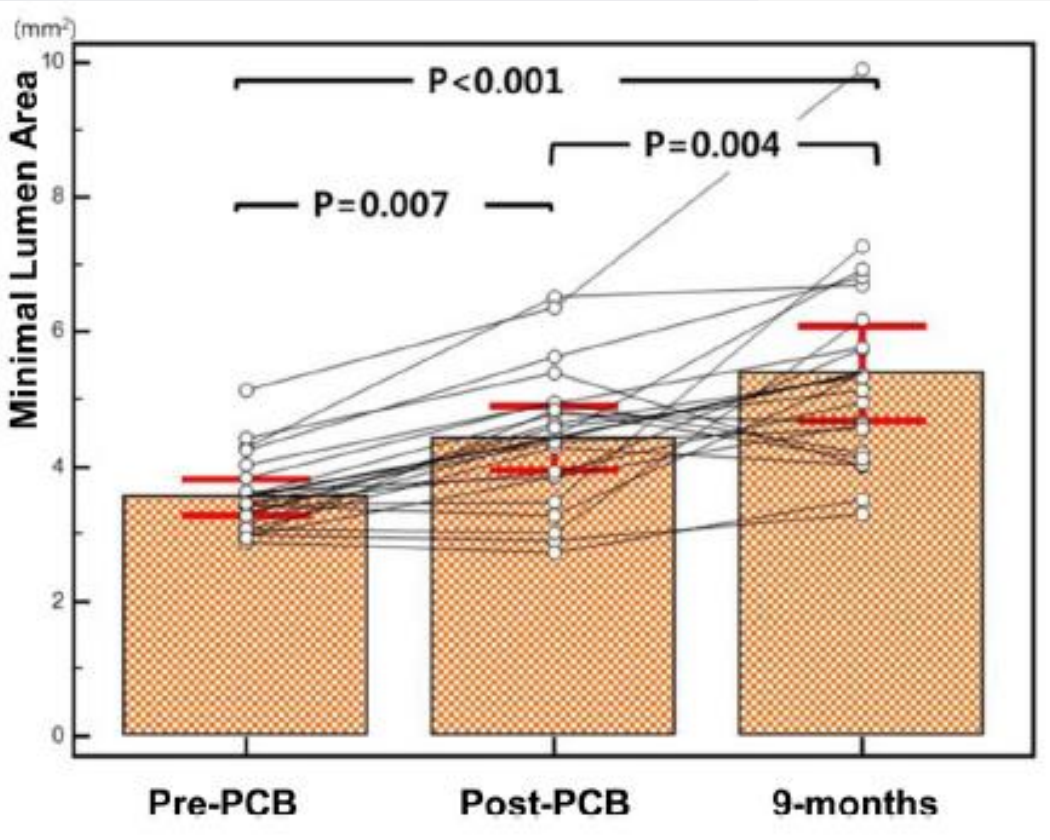


Clin Res Cardiol. 2015; 104: 217-25

Anatomical and Physiological Changes after Paclitaxel-Coated Balloon for Atherosclerotic *De Novo* Coronary Lesions: Serial IVUS-VH and FFR Study

Soe Hee Ann[1], Gillian Balbir Singh[1], Kyung Hun Lim[1], Bon-Kwon Koo[2], Eun-Seok Shin[1]*





PLoS One. 2016 Jan 29;11(1):e0147057. doi: 10.1371/journal.pone.0147057.

Editorial

Late lumen enlargement after treatment of de-novo lesions with drug coated balloon catheters – Glagov effect or plaque regression?

Bruno Scheller [a,*], Ole Gemeinhardt [b], Franz Xaver Kleber [c]

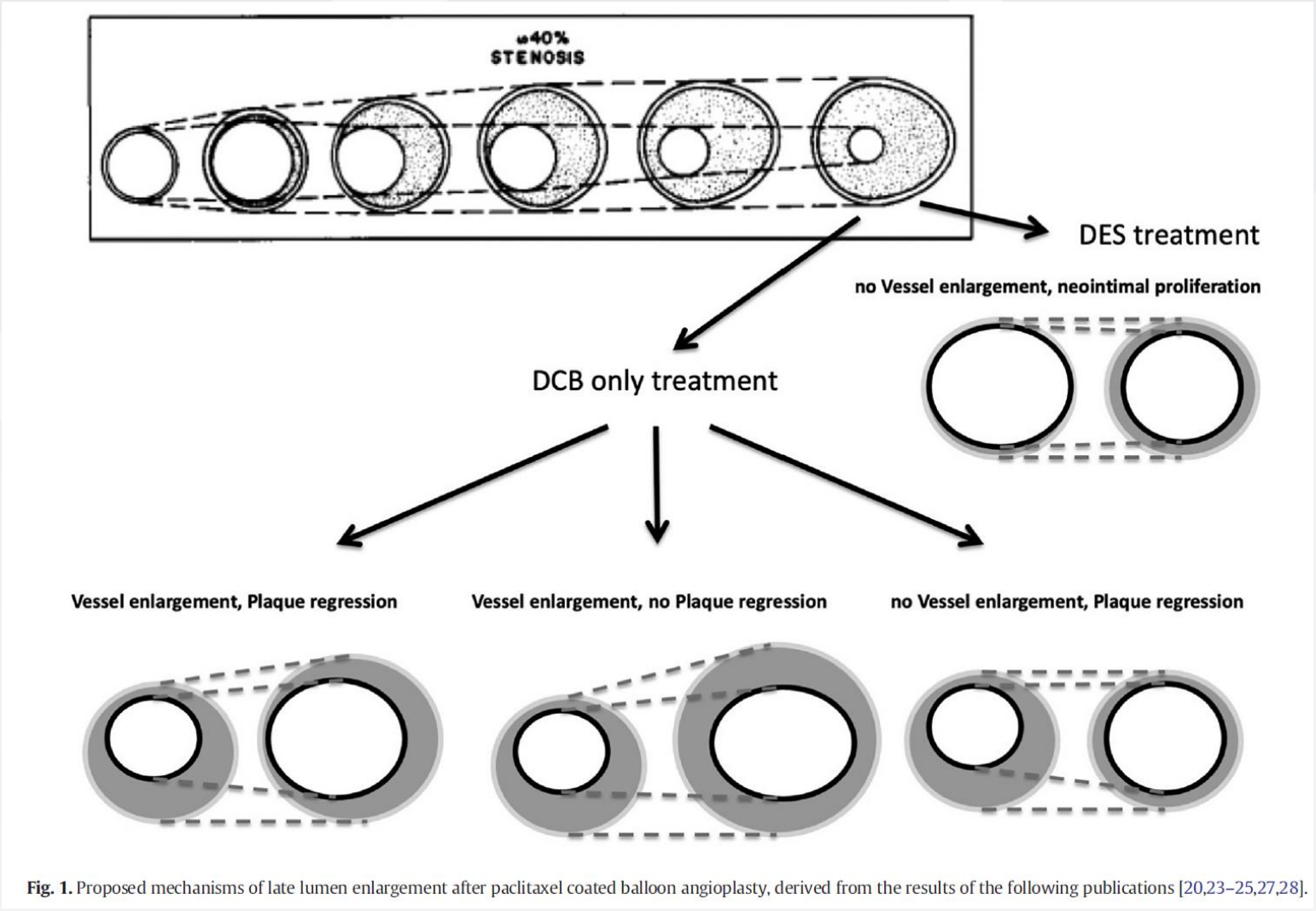


Fig. 1. Proposed mechanisms of late lumen enlargement after paclitaxel coated balloon angioplasty, derived from the results of the following publications [20,23–25,27,28].

Int J Cardiol. 2021

Coronary vasomotion after treatment with drug-coated balloons or drug-eluting stents: a prospective, open-label, single-centre randomised trial

Tsutomu Kawai[1]*, MD; Tetsuya Watanabe[1], MD, PhD; Takahisa Yamada[1], MD, PhD; Takashi Morita[1], MD, PhD; Yoshio Furukawa[1], MD, PhD; Shunsuke Tamaki[1], MD, PhD; Masato Kawasaki[1], MD; Atsushi Kikuchi[1], MD; Masahiro Seo[1], MD; Jun Nakamura[1], MD; Kentaro Tachibana[2], MAS; Hirota Kida[2], MAS; Yohei Sotomi[3], MD, PhD; Yasushi Sakata[3], MD, PhD; Masatake Fukunami[1], MD, PhD

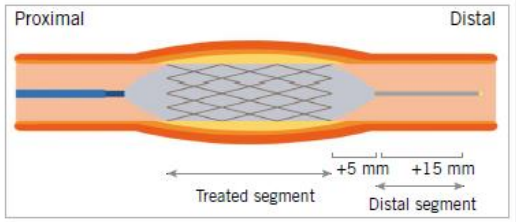
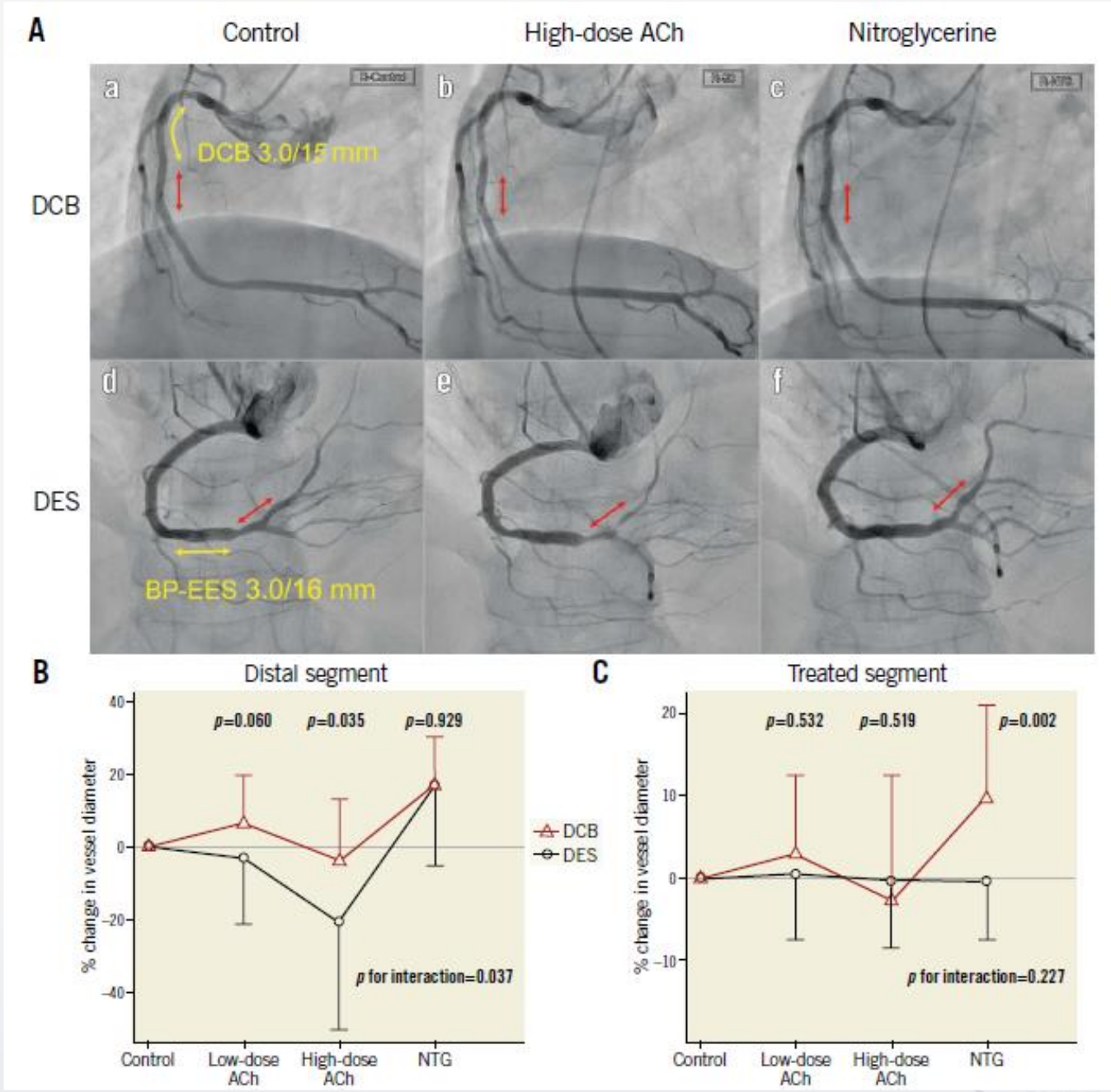


Figure 1. *Definition of each segment. A representation of the segment treated with the drug-coated balloon or drug-eluting stent. The distal segment begins 5 mm and ends 15 mm distal to the end of the treated segment.*



EuroIntervention 2022;18:e140-e148

Long-term efficacy and safety of drug-coated balloons versus drug-eluting stents for small coronary artery disease (BASKET-SMALL 2): 3-year follow-up of a randomised, non-inferiority trial

Raban V Jeger, Ahmed Farah, Marc-Alexander Ohlow, Norman Mangner, Sven Möbius-Winkler, Daniel Weilenmann, Jochen Wöhrle, Georg Stachel, Sinisa Markovic, Gregor Leibundgut, Peter Rickenbacher, Stefan Osswald, Marco Cattaneo, Nicole Gilgen, Christoph Kaiser, Bruno Scheller, for the BASKET-SMALL 2 Investigators

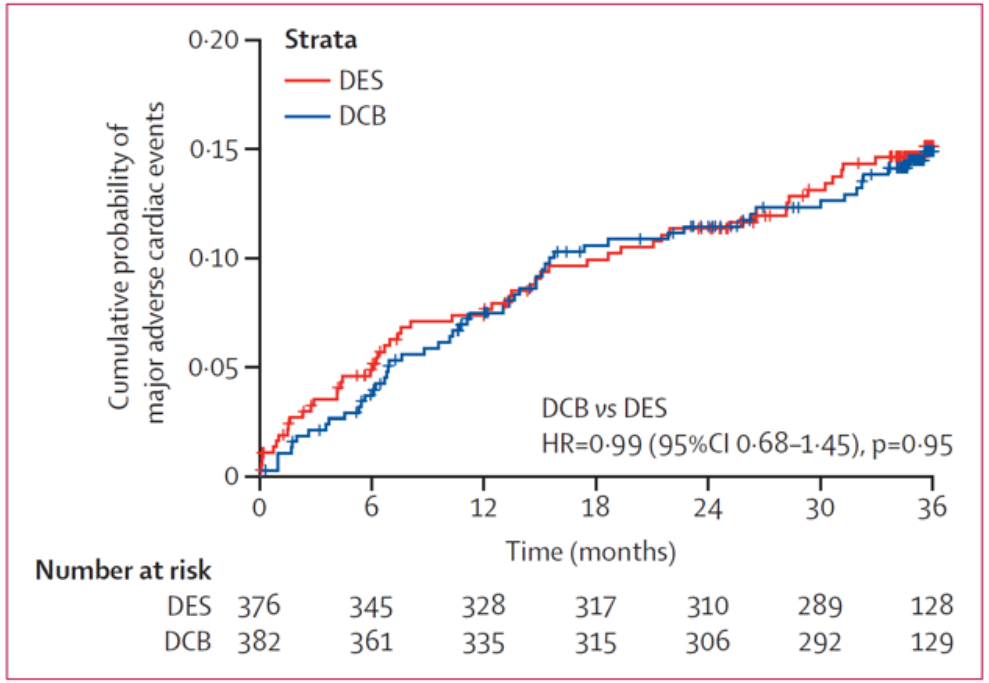


Figure 2: **Kaplan-Meier estimates of the cumulative probabilities of major adverse cardiac events in the two study groups during 3 years for the full analysis set**

DCB=drug-coated balloons. DES=drug-eluting stents. HR=hazard ratio.

	1-year events	1-year hazard ratio* (95% CI)	2-year events (rate)	2-year hazard ratio* (95% CI)	3-year events (rate)	3-year hazard ratio* (95% CI)
Major adverse cardiac events						
DES (n=376)	28 (8%)	0·97 (0·58–1·64)	41 (11%)	1·01 (0·66–1·56)	53 (15%)	0·99 (0·68–1·45)
DCB (n=382)	28 (7%)	..	42 (11%)	..	53 (15%)	..
Cardiac death						
DES (n=376)	5 (1%)	2·33 (0·82–6·62)	9 (3%)	1·53 (0·66–3·55)	13 (4%)	1·29 (0·63–2·66)
DCB (n=382)	12 (3%)	..	14 (4%)	..	17 (5%)	..
Non-fatal myocardial infarction						
DES (n=376)	13 (4%)	0·46 (0·17–1·20)	19 (5%)	0·74 (0·37–1·47)	23 (6%)	0·82 (0·45–1·51)
DCB (n=382)	6 (2%)	..	14 (4%)	..	19 (6%)	..
Target vessel revascularisation						
DES (n=376)	17 (5%)	0·75 (0·36–1·55)	26 (7%)	0·89 (0·51–1·56)	32 (9%)	0·95 (0·58–1·56)
DCB (n=382)	13 (4%)	..	23 (6%)	..	30 (9%)	..
Major bleeding						
DES (n=376)	9 (3%)	0·45 (0·14–1·46)	13 (4%)	0·32 (0·10–0·97)	14 (4%)	0·43 (0·17–1·13)
DCB (n=382)	4 (1%)	..	4 (1%)	..	6 (2%)	..
Net clinical benefit						
DES (n=376)	36 (10%)	0·81 (0·50–1·32)	52 (14%)	0·84 (0·56–1·25)	64 (18%)	0·86 (0·60–1·24)
DCB (n=382)	30 (8%)	..	44 (12%)	..	56 (16%)	..
Stent thrombosis						
DES (n=376)	4 (1%)	0·50 (0·09–2·73)	6 (2%)	0·33 (0·07–1·64)	6 (2%)	0·33 (0·07–1·64)
DCB (n=382)	2 (1%)	..	2 (1%)	..	2 (1%)	..
All-cause death						
DES (n=376)	9 (2%)	1·86 (0·83–4·17)	17 (5%)	1·29 (0·68–2·43)	27 (8%)	1·05 (0·62–1·77)
DCB (n=382)	17 (5%)	..	22 (6%)	..	28 (8%)	..

All values are numbers of events and Kaplan Meier estimates with the corresponding hazard ratios and 95% CIs. DCB=drug-coated balloon. DES=drug-eluting stent. *Hazard ratios are for DCB *vs* DES.

Table 2: **Primary and secondary endpoints**

Lancet 2020; 396: 1504–10

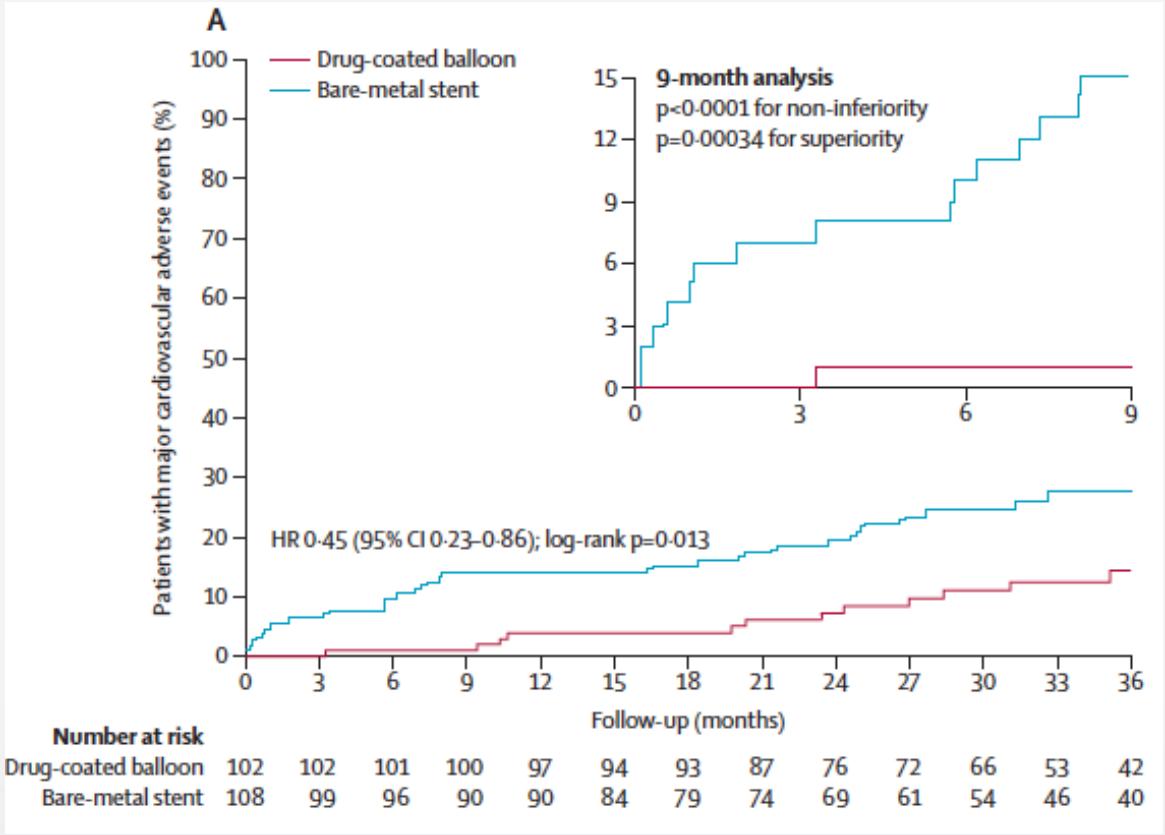
Drug-coated balloon for treatment of de-novo coronary artery lesions in patients with high bleeding risk (DEBUT): a single-blind, randomised, non-inferiority trial

*Tuomas T Rissanen, Sanna Uskela, Jaakko Eränen, Pirjo Mäntylä, Annika Olli, Hannu Romppanen, Antti Siljander, Mikko Pietilä, Mikko J Minkkinen, Jerry Tervo, Jussi M Kärkkäinen, on behalf of the DEBUT trial investigators**

	Drug-coated balloon (n=102)	Bare-mental stent (n=106)
Patient characteristics		
Age, years	77·6 (8·4)	76·2 (8·5)
Sex		
Male	63 (62%)	68 (64%)
Female	39 (38%)	38 (36%)
Smoking	34 (34%)	36 (33%)
Current smoker	4 (4%)	7 (7%)
Ex-smoker	30 (29%)	29 (27%)
Hypertension	89 (87%)	96 (91%)
Hypercholesterolaemia	80 (78%)	89 (84%)
Diabetes	27 (26%)	52 (49%)
Non-insulin dependent	16 (16%)	31 (29%)
Insulin dependent	9 (9%)	18 (17%)
New onset*	2 (2%)	3 (3%)
Previous myocardial infarction	23 (23%)	20 (19%)
Acute coronary syndrome	47 (46%)	49 (46%)
Severity of symptoms†		
0	4 (4%)	3 (3%)
1	5 (5%)	1 (1%)
2	25 (25%)	26 (25%)
3	33 (32%)	38 (36%)
4	35 (34)	38 (36%)
Haemoglobin, g/L	135 (17)	132 (16)
Creatinine, µmol/L	91 (29)	103 (79)

Inclusion criteria‡		
Age ≥80 years	54 (53%)	53 (50%)
Anaemia or thrombocytopenia	30 (29%)	36 (34%)
Previous intracerebral haemorrhage or stroke	11 (11%)	12 (11%)
Planned elective surgery	7 (7%)	1 (1%)
Severe renal dysfunction	3 (3%)	8 (8%)
Non-compliant for 12 months of dual antiplatelet therapy	3 (3%)	4 (4%)
Active malignant disease	2 (2%)	1 (1%)
Previous bleeding	1 (1%)	3 (3%)
Frailty or cachexia	1 (1%)	1 (1%)
Severe liver dysfunction	0	0
Use of anticoagulation	58 (57%)	66 (62%)
Warfarin	54 (53%)	64 (60%)
Novel oral anticoagulant	4 (4%)	2 (2%)
Indication for anticoagulation		
Atrial fibrillation	42 (41%)	53 (50%)
Prosthetic valve	4 (4%)	5 (5%)
Thromboembolism	7 (7%)	5 (5%)
Other or not known	5 (5%)	3 (3%)

The antiplatelet regimen was the same in both groups: the duration of dual antiplatelet therapy (clopidogrel [75 mg per day] plus aspirin [100 mg per day]) was 1 month in patients with stable coronary artery disease and acute coronary syndrome. The duration of aspirin was 6 months for patients on anticoagulation therapy presenting with acute coronary syndrome. Although



Lancet 2019; 394: 230-239

Clinical Impact of Drug-Coated Balloon–Based Percutaneous Coronary Intervention in Patients With Multivessel Coronary Artery Disease

Eun-Seok Shin, MD, PhD,[a] Eun Jung Jun, PhD,[a] Sunwon Kim, MD, PhD,[b] Bitna Kim, MS,[a] Tae-Hyun Kim, MD,[c] Chang-Bae Sohn, MD,[c] Ae-Young Her, MD, PhD,[d] Yongwhi Park, MD, PhD,[e] Jung Rae Cho, MD, PhD,[f] Young-Hoon Jeong, MD, PhD,[g] Byung Joo Choi, MD[c]

TABLE 1 Patient Clinical and Procedural Characteristics

	DCB-Based Treatment (n = 254)	DES-Only Treatment (n = 254)	*P* Value
Age, y	63.0 ± 10.1	64.0 ± 10.9	0.279
Men	186 (73.2)	169 (66.5)	0.122
Hypertension	181 (71.3)	190 (74.8)	0.424
Diabetes mellitus	104 (40.9)	115 (45.3)	0.370
Current smoker	87 (34.3)	82 (32.3)	0.706
Prior MI	25 (9.8)	31 (12.2)	0.479
Prior PCI	38 (15.0)	40 (15.7)	0.902
End-stage renal disease	12 (4.7)	16 (6.3)	0.560
Clinical presentation			
Stable angina	72 (28.3)	97 (38.2)	0.024
Unstable angina	111 (43.7)	82 (32.3)	0.010
Acute myocardial infarction	71 (28.0)	75 (29.5)	0.769
DCB-only treatment	87 (34.3)	0	
Target lesion and procedure characteristics			
Left main	32 (12.6)	40 (15.7)	0.373
Chronic total occlusion	52 (20.5)	48 (18.9)	0.738
Total number of diseased vessels	2.4 (0.5)	2.4 (0.5)	0.727
Total number of treated vessels	2.2 (0.4)	2.2 (0.5)	0.253
Total number of devices used (mean)	2.6 ± 0.9	2.6 ± 0.9	0.627
Total number of devices used (median)	2.0 (2.0-3.0)	2.0 (2.0-3.0)	0.830
Total device length, mm (mean)	65.2 ± 25.4	64.2 ± 30.1	0.673
Total device length, mm (median)	58.5 (47.0-80.0)	59.0 (42.0-84.0)	0.390
Device diameter, mm (mean)	2.8 ± 0.3	2.8 ± 0.4	0.711
Device diameter, mm (median)	2.8 (2.6-3.0)	2.8 (2.5-3.0)	0.141
Total number of DCBs used (mean)	1.7 ± 0.8	0	
Total number of DCBs used (median)	1.0 (1.0-2.0)	0	
Total DCB length, mm (mean)	42.0 ± 23.7	0	
Total DCB length, mm (median)	30.0 (26.0-56.0)	0	
DCB diameter, mm (mean)	2.6 ± 0.3	0	
DCB diameter, mm (median)	2.5 (2.5-2.7)	0	
Small DCB used (diameter ≤ 2.5 mm)	160/254 (36.0)	0	
Total number of DES used (mean)	0.9 ± 0.8	2.6 ± 0.9	<0.001
Total number of DES used (median)	1.0 (0.0-1.0)	2.0 (2.0-3.0)	<0.001
Total DES length, mm (mean)	23.3 ± 23.1	64.2 ± 30.1	<0.001
Total DES length, mm (median)	22.0 (0.0-35.0)	59.0 (42.0-84.0)	<0.001
DES diameter, mm (mean)	3.2 ± 0.5	2.8 ± 0.4	<0.001
DES diameter, mm (median)	3.2 (3.0-3.5)	2.8 (2.5-3.0)	<0.001
Small DES used (≤2.5 mm)	13/167 (7.8)	109/254 (42.9)	<0.001

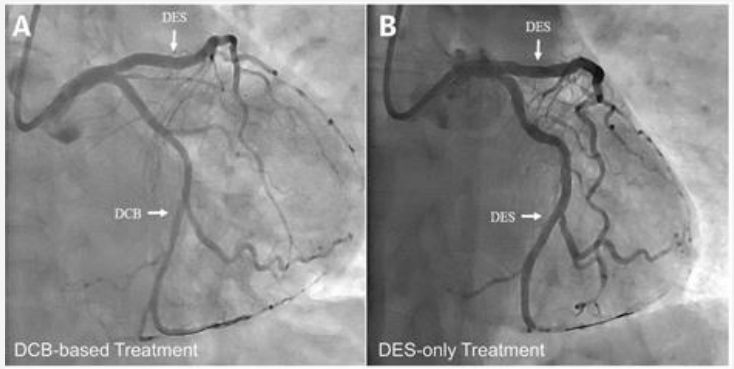
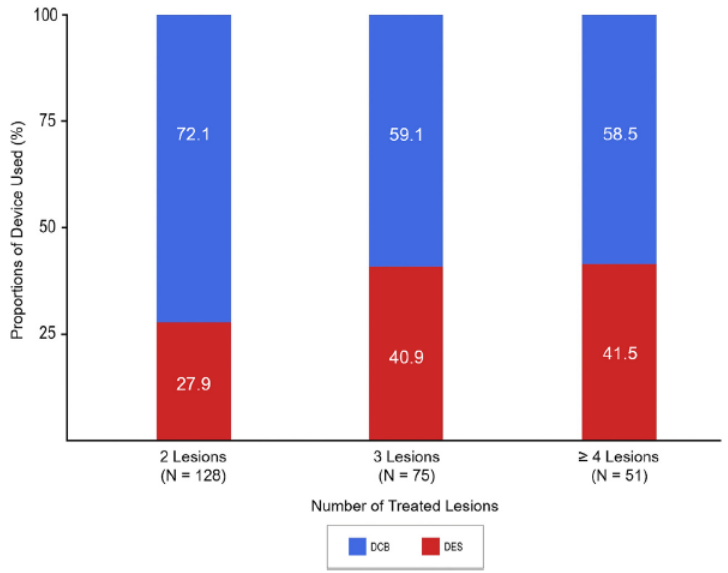
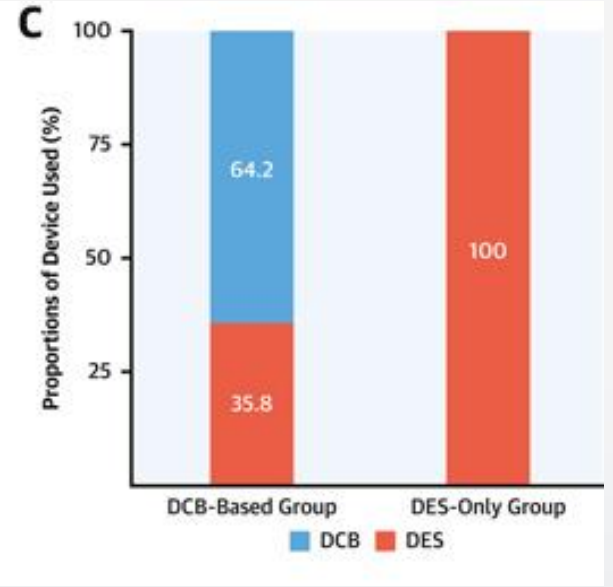


FIGURE 1 Comparison of Proportions of Device Used According to the Number of Lesions in the DCB-Based Treatment Group



DCB = drug-coated balloon; DES = drug-eluting stent.



Shin ES, et al. J Am Coll Cardiol Intv. 2023;16:292-9

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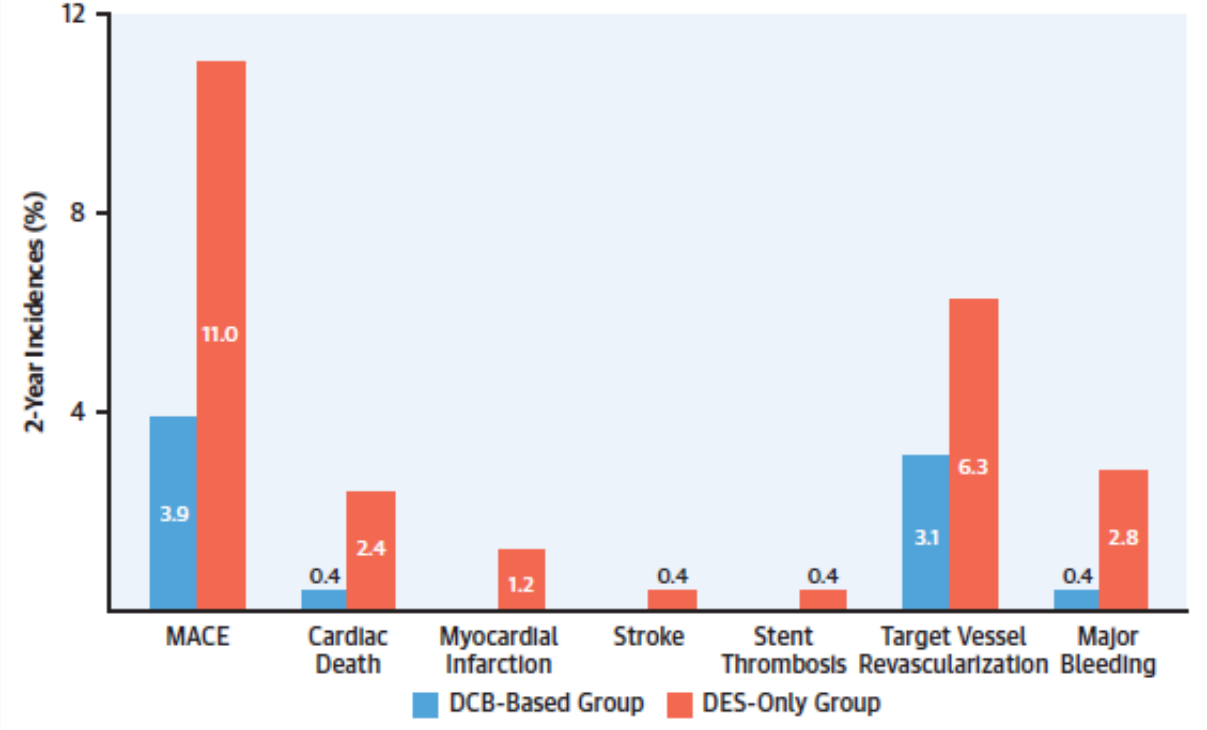
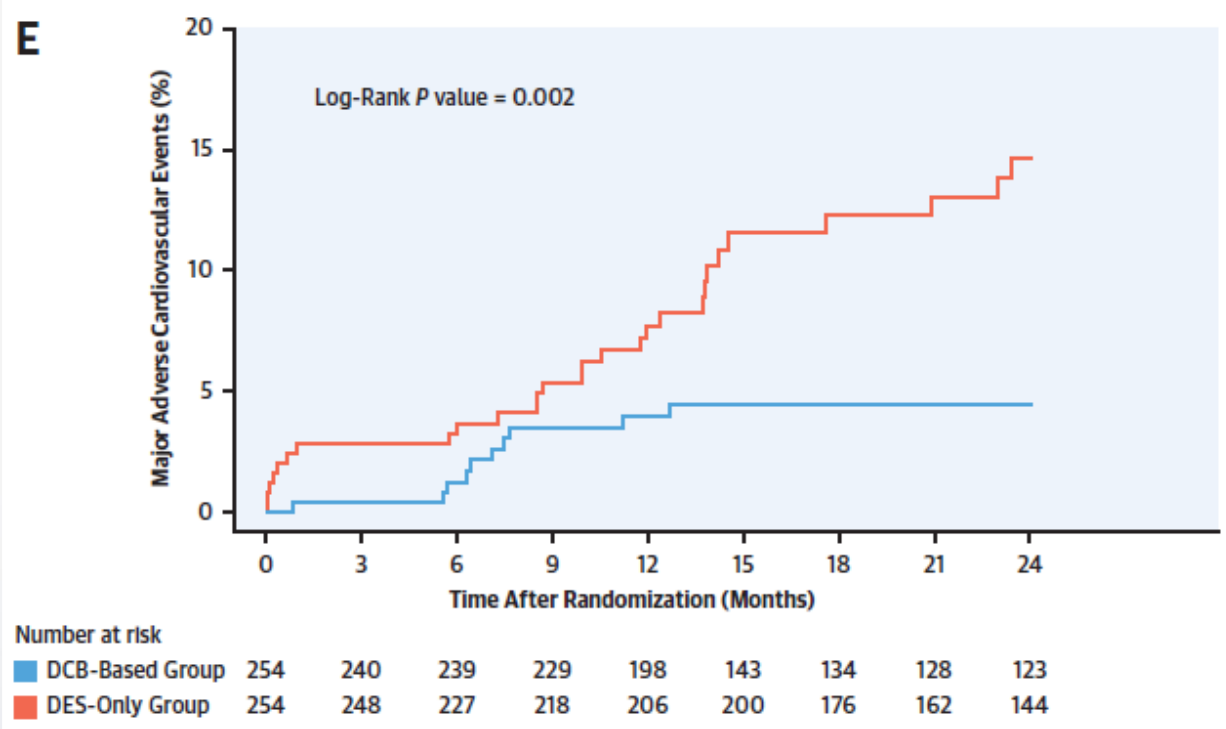
2-Year Follow-Up of DCB-Based Versus DES-Only Treatment in 508 Patients With Multivessel CAD



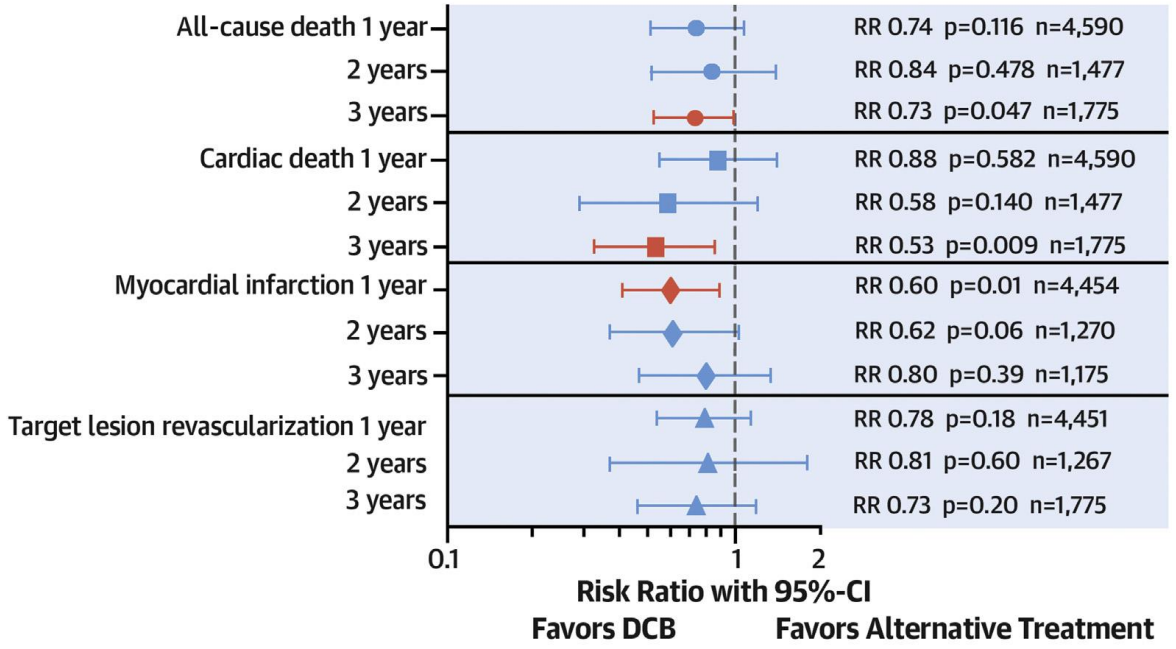


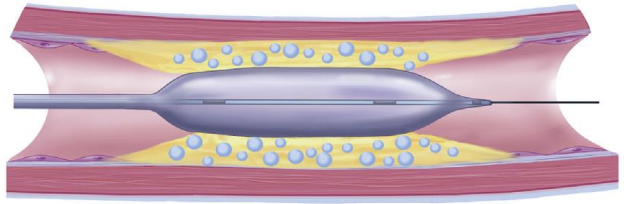
Shin ES, et al. J Am Coll Cardiol Intv. 2023;16:292-9

Survival After Coronary Revascularization With Paclitaxel-Coated Balloons

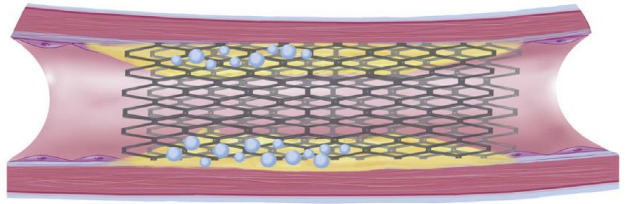
Bruno Scheller, MD,[a,b] Davor Vukadinovic, MD,[a] Raban Jeger, MD,[c] Tuomas T. Rissanen, MD,[d] Sean S. Scholz, MD,[a] Robert Byrne, MD,[e] Franz X. Kleber, MD,[f] Azeem Latib, MD,[g] Yvonne P. Clever, MD,[a] Sebastian Ewen, MD,[a] Michael Böhm, MD,[a] Yiping Yang, PhD,[h] Alexandra Lansky, MD,[h] Felix Mahfoud, MD[a]

4,590 Patients Enrolled in 26 RCTs Published Between 2006 and 2019





Drug-Coated Balloon

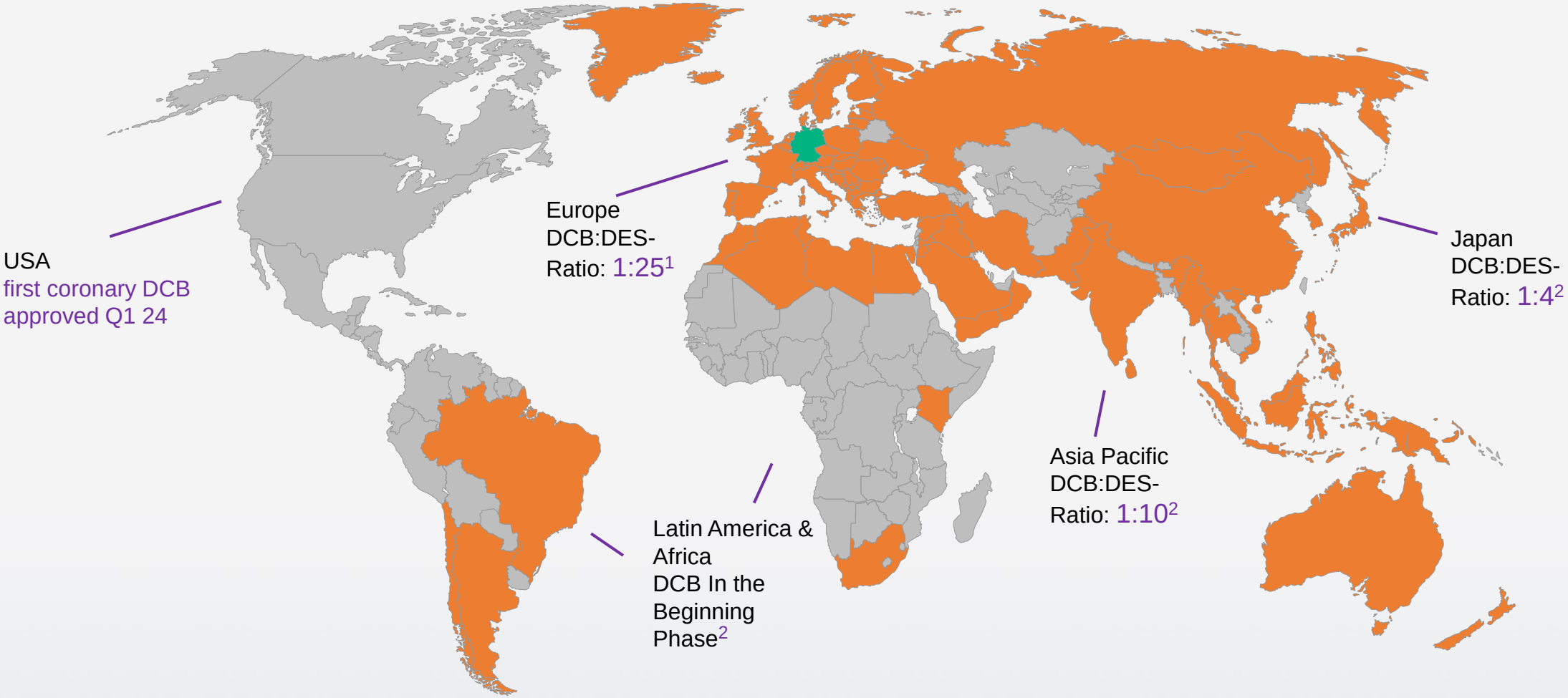


Balloon Angioplasty, Bare-Metal Stent, or Drug-Eluting Stent

J Am Coll Cardiol. 2020; 75: 1017-1028

Coronary DCB to DES Ratio in PCI Worldwide 2020

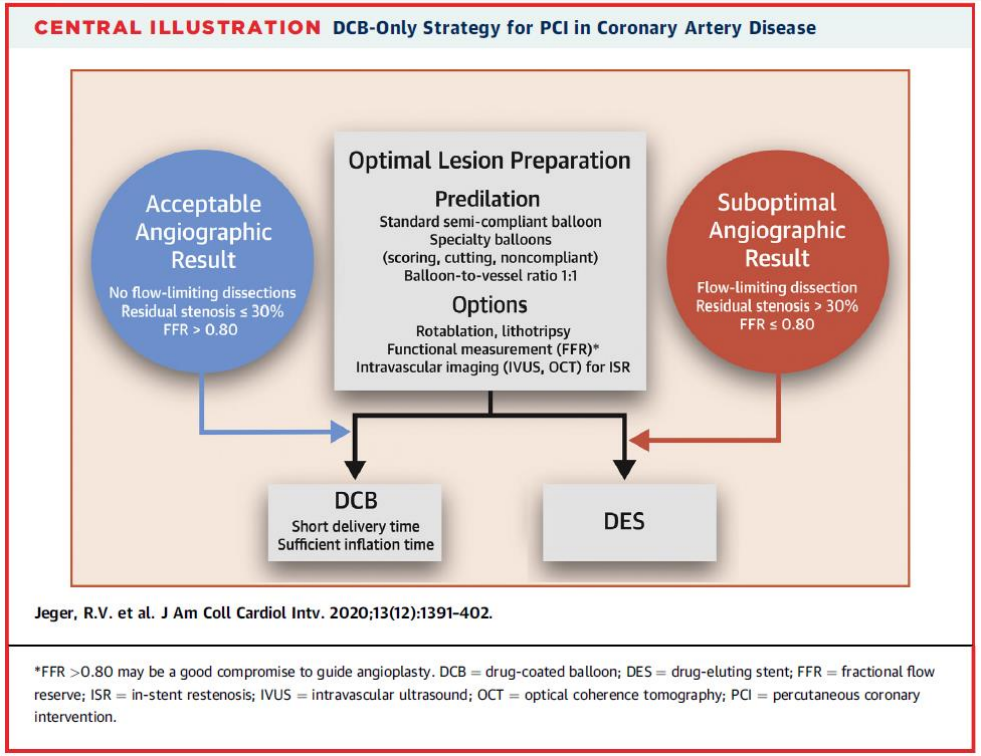
Coronary DCB to DES Ratio in PCI Worldwide 2023 1:4, 2033 1:1



1: EUCOMED-Data Europe, 2020
2: EUCOMED-Data, 2020 & Internal Data B. Braun Melsungen AG

Use of Drug Coated Balloons in the Coronary Arteries

- Stent-related events 2-3% per year
- DCB-only strategy to reduce number and length of stents
- Lesion preparation is the first and most important step of the procedure
- Careful lesion preparation improves outcomes of DCB and DES
- Decision between DCB and DES per lesion after preparation
- DCBonly if diameter stenosis < 30% and absence of flow-limiting dissection, otherwise DES
- Benefits: late lumen enlargement, vasomotion, no stent-related complications
- DCB will become standard of care together with (bioresorbable) DES



DCB Use in Your PCI Practice: Adjunctive Therapy or Standard of Care?

Drug-coated balloon angioplasty is a well-established treatment and in everyday use in cathlabs worldwide

Tuomas T. Rissanen[1] | Franz X. Kleber[2] | Bruno Scheller[3]

Catheter Cardiovasc Interv. 2023; 102: 912-913