

L'anatomie hostile

Les petits vaisseaux

M.GODIN

1^{er} juin 2022



Les petits vaisseaux ? Définition ?

GROUPE ATHÉROME CORONAIRE
ET CARDIOLOGIE INTERVENTIONNELLE

De l'usage des endoprothèses coronaires

B. Chevalier, H. Eltchaninoff,
D. Blanchard, G. Finet,
M. Bedossa, T. Corcos,
J.-L. Fourrier, M. Hanssen,
T. Lefèvre et J. Puel*

Pour le Groupe Athérome
coronaire et cardiologie
interventionnelle
de la Société française de cardiologie

Le recours de principe aux endoprothèses coronaires dans l'angioplastie est en grande partie lié à leur efficacité démontrée sur la resténose. Elle constituait en effet un des talons d'Achille de l'angioplastie au ballon avec un taux de l'ordre de 30 à 50 % dans les 6 mois, imposant un nouveau geste de revascularisation dans 20 à 40 % des cas. Le mécanisme de cette resténose après ballon était triple : retour élastique après déflation du ballon, remodelage négatif secondaire de la paroi artérielle, hyperplasie intimale. L'endoprothèse agit mécaniquement en traitant le retour élastique, et le remodelage chronique. Cet effet mécanique positif est supérieur à l'effet biologique négatif induit par l'implantation du corps étranger qui entraîne une inflammation et une prolifération cellulaire responsables de l'hyperplasie intimale de recouvrement. Ainsi, globalement le bénéfice de l'endoprothèse est net et son usage diminue de moitié les réinterventions à moyen terme (nouvelle dilatation ou pontage coronaire) par son effet strictement mécanique. Par ailleurs, le stent a permis de réduire le risque de complication per-procédure (dissections occlusives, réocclusions précoces). L'implantation d'une endoprothèse coronaire est donc devenue la technique de choix dans le traitement percutané de la maladie coronaire.

- Coronaires < 2,8 à 3mm

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- Coronaires < 2,8 à 3mm
- Surrisque de :
 - dissection
 - occlusion aigue
 - resténose

Les petits vaisseaux ? Evaluer taille artère ?

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- Echographie endocoronaire
- OCT

Les petits vaisseaux ? Comment les traiter ? PAC, Poba, BMS, DES, DCB?

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R ET DES

Besmart
Lésion < 15mm
Diam moyen 2,3 +/- 0,3mm
↘ 55% restenose angio
↘ 50% TVR

- Coronaires < 2,8 à 3mm
- Surisque de : - dissection
- occlusion aigue
- resténose

TABLEAU I – ÉTUDES RANDOMISÉES « ENDOPROTHÈSE VS BALLON »
DANS LES ARTÈRES < 3 MM

	Nombre de patients	Stent	% RS stent +	% RS stent -	p
Park et al. [13]	120	NIR	35,7	30,9	ns
SAR-SMART [12]	404	Multilink	35,7	37,4	ns
BESMART [14]	381	Bestent	21	47	< 0,0001
SISA [15]	331	Bestent	26	32,7	ns
SISCA [16]	145	Bestent	9,7	18,8	ns
RAP [17]	426	Bestent	27	37	< 0,05



TABLE 9.11.
RANDOMIZED TRIALS OF CORONARY STENTING VERSUS BALLOON ANGIOPLASTY IN PATIENTS WITH SMALL VESSELS

Acronym	Trial
Park (10)	A single-center, randomized trial by Park et al.
ISAR-SMART (11)	Intracoronary Stenting or Angioplasty for Restenosis Reduction in Small Arteries
SISCA (12)	Stenting In Small Coronary Arteries
BESMART (13)	BeStent in Small ARteries
SISA (14)	Stenting In Small Arteries
COAST (15)	heparin-COated STents in small coronary arteries
RAP (16)	Restenosis en Arterias Pequeñas
LASMAL (17)	Latin America Small Vessel Randomized Study
SVS (18)	Small Vessel Study
CHIVAS (19)	Coronary Heart Disease Stenting In Small Vessels Versus Balloon Angioplasty Study
COMPASS (20)	Cilostazol Or Multi-link for Percutaneous transluminal coronary Angioplasty Small vessel Study
CORDIS-MICA (21)	The CORDIS Mini-crown stent In small Coronary Arteries

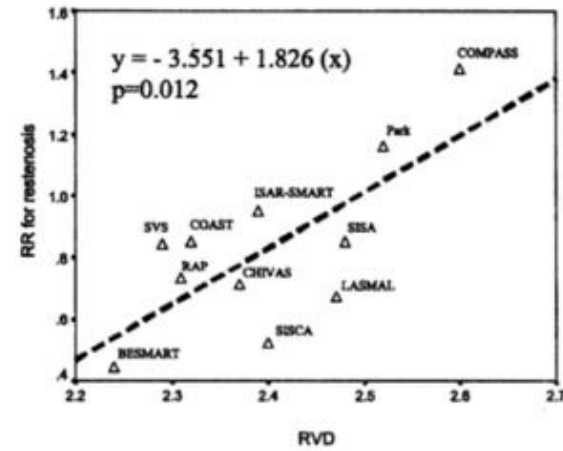


Figure 9.13. Association between reference vessel diameter (RVD) and risk ratio (RR) for restenosis in studies of patients undergoing small vessel stenting (linear regression).

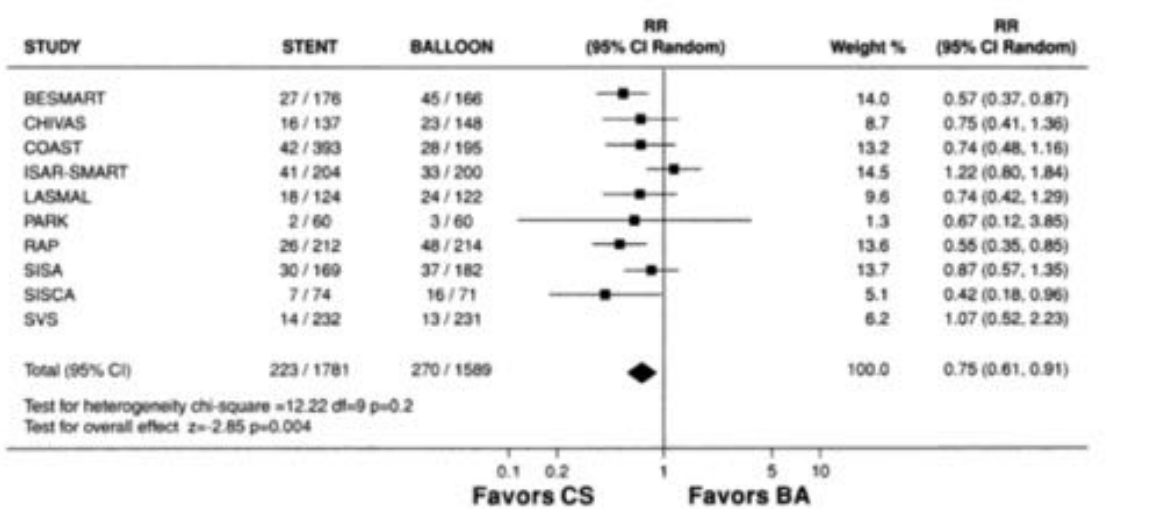


Figure 9.14A. Effect of coronary stenting (CS) versus balloon angioplasty (BA), on the rate of cardiac events at 6 months in the pooled analysis of patients with small vessels (RR: risk ratio, CI: confidence interval).

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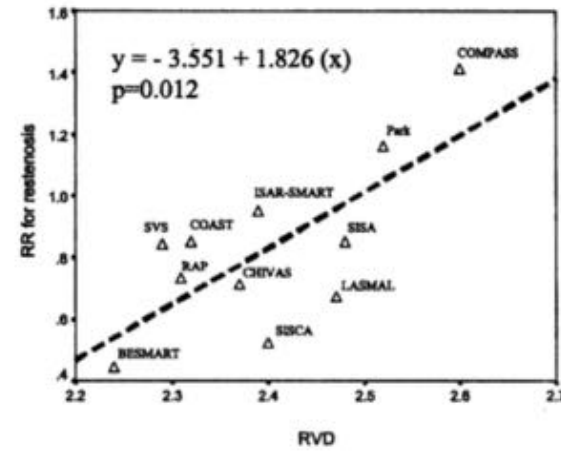


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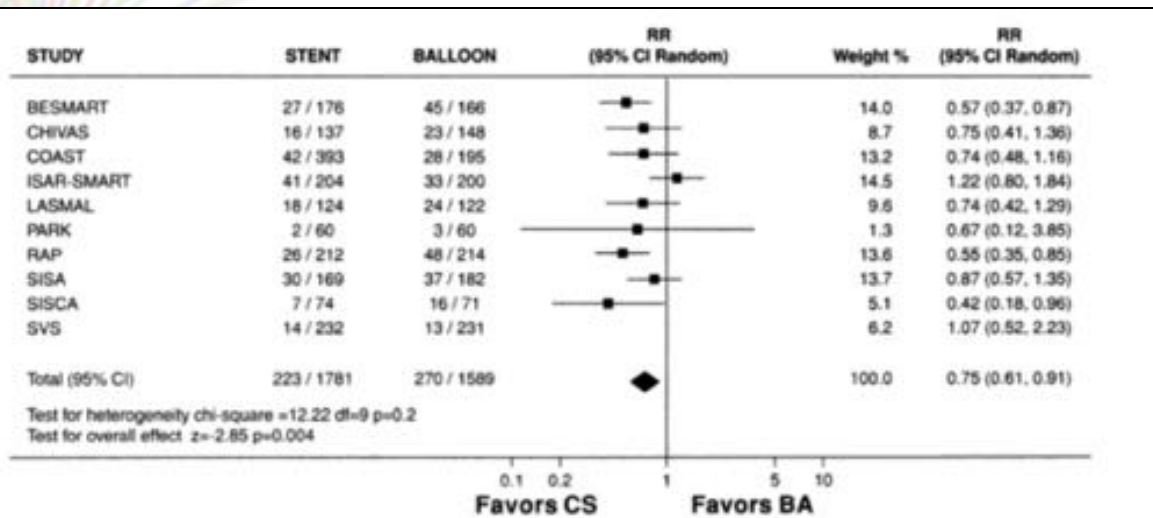


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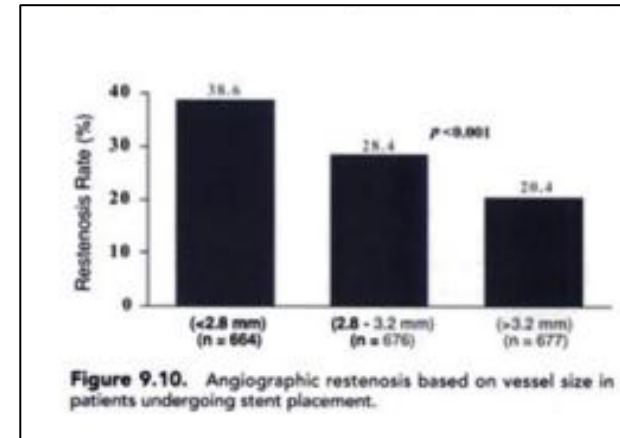


Figure 9.10. Angiographic restenosis based on vessel size in patients undergoing stent placement.

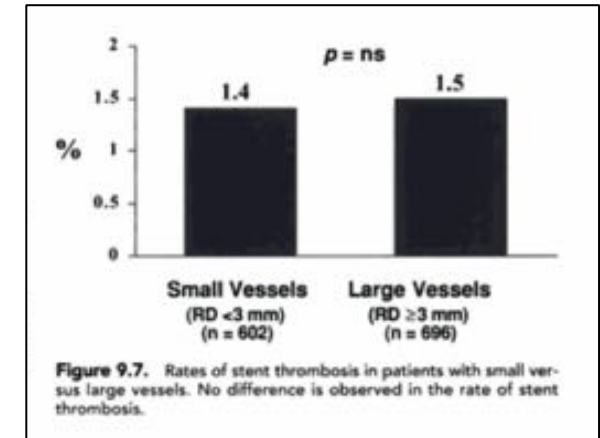


Figure 9.7. Rates of stent thrombosis in patients with small versus large vessels. No difference is observed in the rate of stent thrombosis.

30% de resténose !!!!

- Pb du recoil élastique
- Pas de Double AAP pour POBA
- Pression de dilatation (PIO= PNB + PD)
- Ratio ballon/artere
- Pb du remodelage négatif

Sous-groupes TAXUS II (resténose binaire)	Groupe contrôle (%)	Groupe paclitaxel (%)
Vaisseau < 2,5 mm	32,4	9,1
2,5 < vaisseau < 3 mm	19	2,5
Vaisseau > 3 mm	14,3	8,6
Diabétiques	20,5	8,3

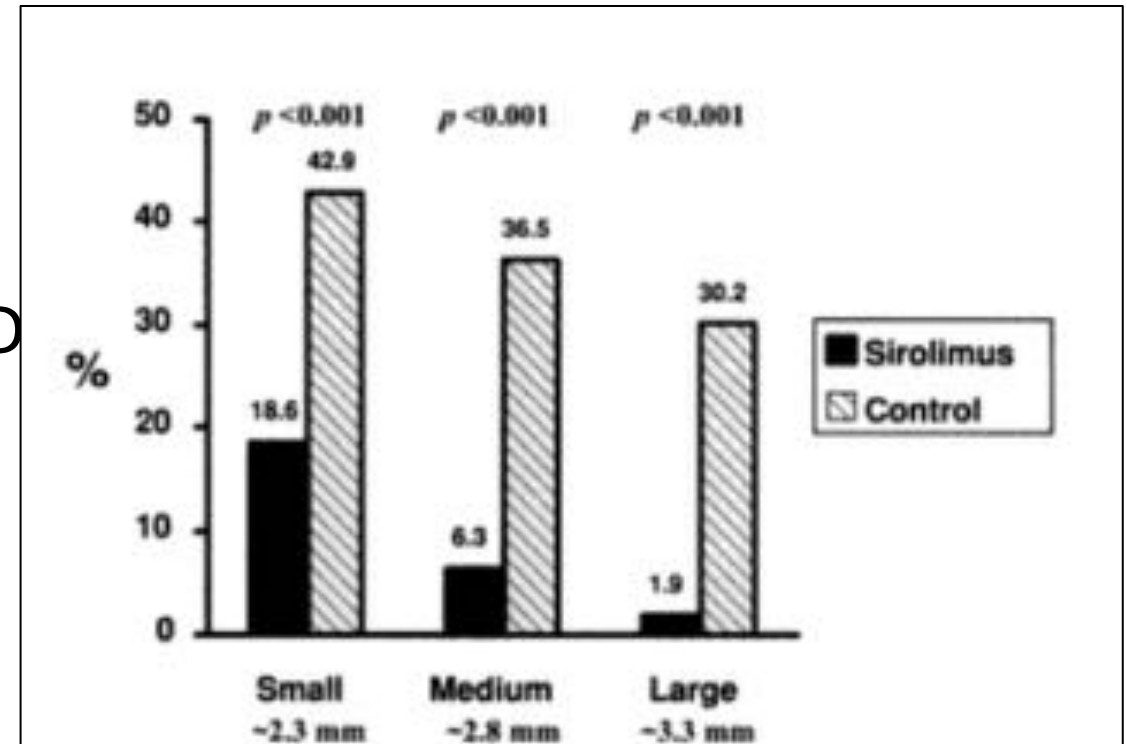
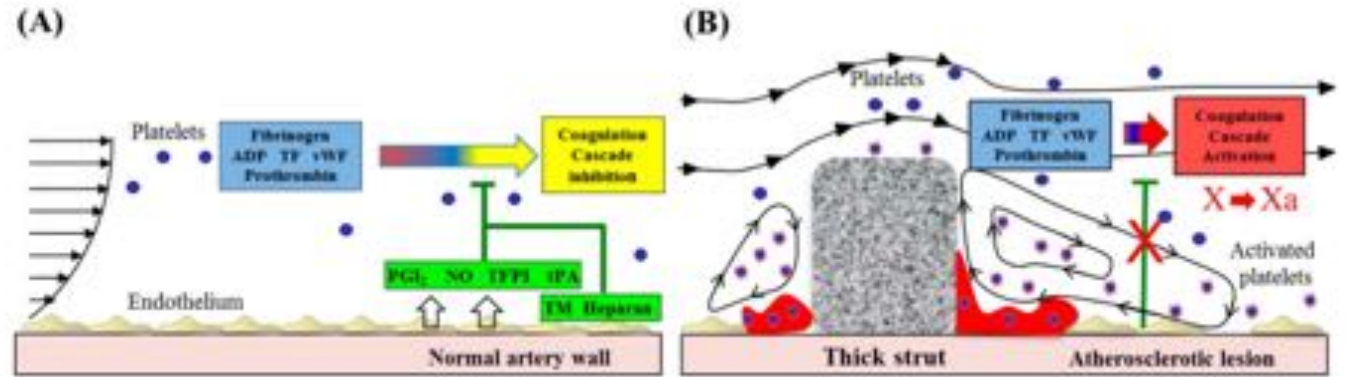


Figure 9.16. Rates of in-stent restenosis based on vessel size for patients randomly assigned to receive sirolimus-eluting stents or bare metal stents in the SIRIUS trial.

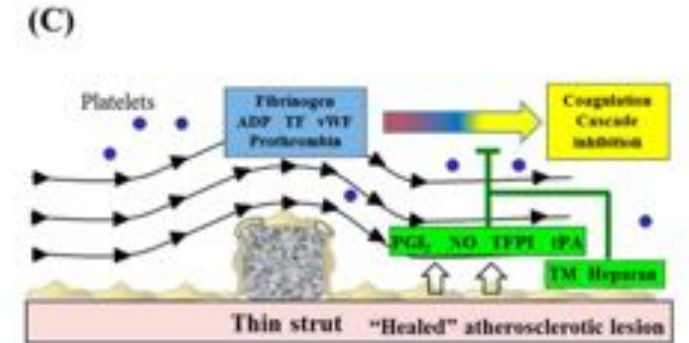
Review

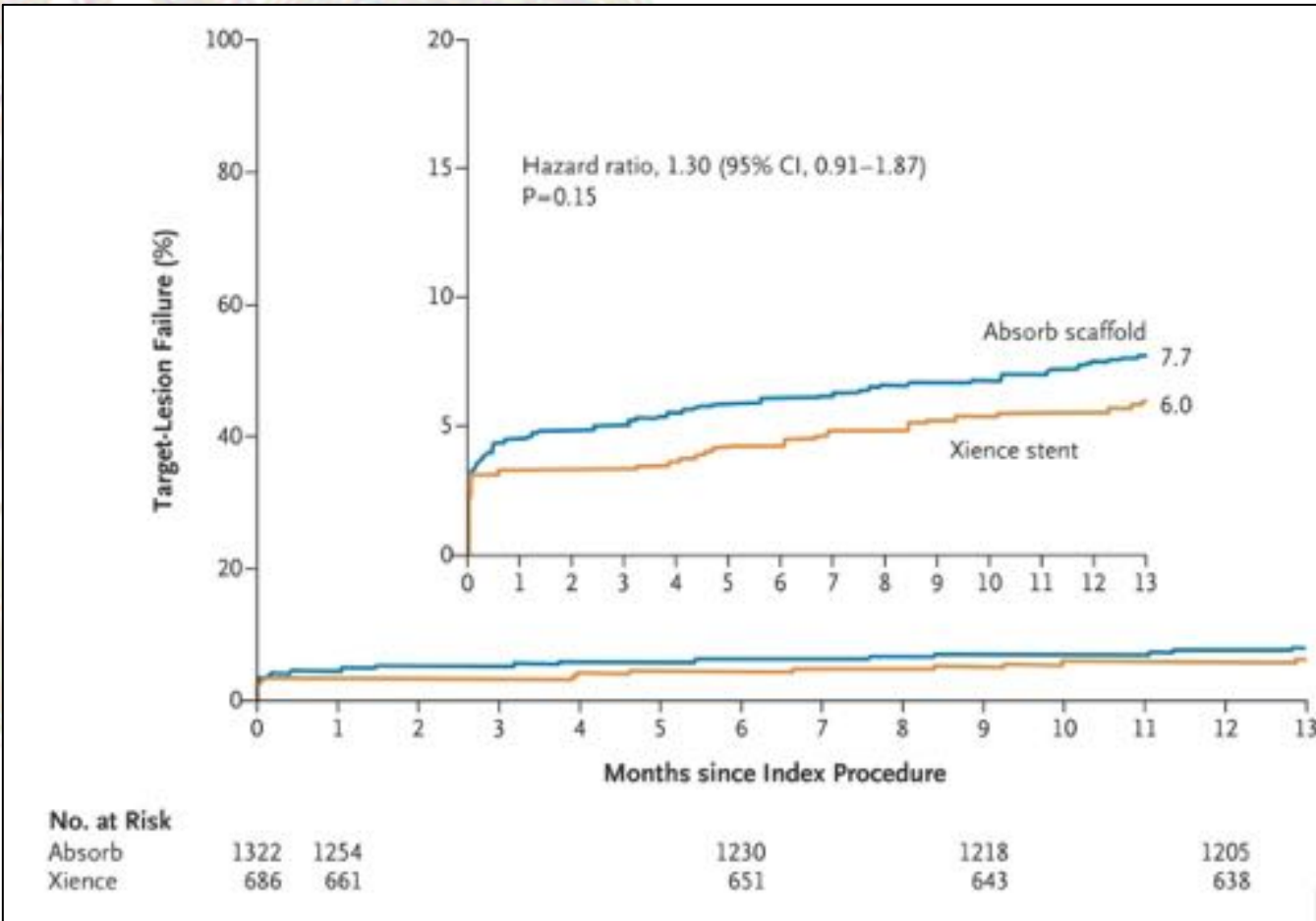
Understanding the Impact of Stent and Scaffold Material and Strut Design on Coronary Artery Thrombosis from the Basic and Clinical Points of View

Atsushi Sakamoto¹, Hiroyuki Jinnouchi¹, Sho Torii¹, Renu Virmani¹ and Alok V. Finn^{1,2,*}



A	1 st Generation			2 nd and new Generation				
	Cypher	Taxus Express	Taxus Liberté	Resolute Integrity	Nience Alpine	Promus Premier	Resolute Guys	Nience Sierra
Durable Polymer Stents								
Manufacturer	Cordis	Boston Scientific	Boston Scientific	Medtronic	Abbott Vascular	Boston Scientific	Medtronic	Abbott Vascular
Alloy	316L SS	316L SS	316L SS	CoCr (MP-35N)	CoCr (L-605)	PCr	CoCr (MP-35N) +Pt	CoCr (L-605)
Strut Thickness	140 µm	132 µm	96 µm	91 µm	81 µm	81 µm	81 µm	81 µm
Drug	Sirolimus (1.8 µg/mm ²)	Paclitaxel (1.8 µg/mm ²)	Paclitaxel (1.8 µg/mm ²)	Zotarolimus (2.4 µg/mm ²)	Everolimus (1.8 µg/mm ²)	Everolimus (1.8 µg/mm ²)	Zotarolimus (1.8 µg/mm ²)	Everolimus (1.8 µg/mm ²)
Polymer	PEVA/PEMA	Poly(styrene- <i>b</i> -isobutylene- <i>b</i> -styrene)	Poly(styrene- <i>b</i> -isobutylene- <i>b</i> -styrene)	Bio-lin (PC coating)	Fluorinated copolymer	Fluorinated copolymer	Bio-lin (PC coating)	Fluorinated copolymer
Biodegradable Polymer Stents								
Manufacturer	Biosensors	Toray	Medtronic	Boston Scientific	Toray	Biosensors	Medtronic	
Alloy	316L SS	316L SS	CoCr	PCr	CoCr (L-605)	316L SS	CoCr +Ta	
Strut Thickness	120 µm	120 µm	60 µm	74 µm	80 µm	112 µm	86 µm	
Drug	Biofilms A9 (1.5 µg/mm ²)	Biofilms A9 (1.5 µg/mm ²)	Sirolimus (1.8 µg/mm ²)	Everolimus (1.13 µg/20mm)	Sirolimus (1.8 µg/mm SL)	Biofilms A9	Sirolimus (1.1 µg/mm ²)	
Polymer	PLLA	PLLA	PLLA with silicon carbide layer	PLGA	PDLA/PCL			
Polymer absorb duration	9 Mo	9 Mo	15 Mo	<4 Mo	1-4 Mo			





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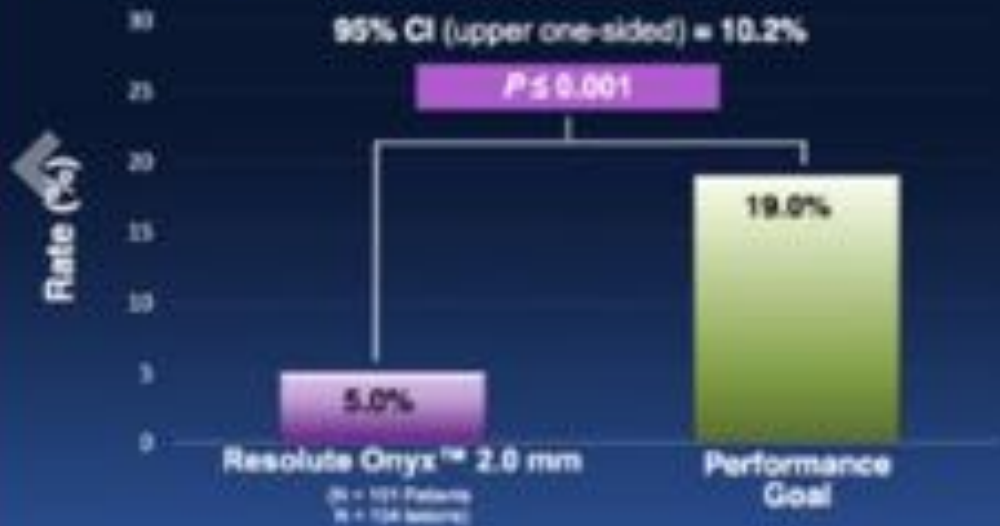
Everolimus-Eluting Bioresorbable Scaffolds for Coronary Artery Disease

Stephen G. Ellis, M.D., Dean J. Kereiakes, M.D., D. Christopher Metzger, M.D., Ronald P. Caputo, M.D., David G. Rizik, M.D., Paul S. Teirstein, M.D., Marc R. Litt, M.D., Annapoorna Kini, M.D., Ameer Kabour, M.D., Steven O. Marx, M.D., Jeffrey J. Popma, M.D., Robert McGreevy, Ph.D., Zhen Zhang, Ph.D., Charles Simonton, M.D., and Gregg W. Stone, M.D., for the ABSORB III Investigators*

Adverse Event	Absorb Scaffold (N = 1322)	Xience Stent (N = 686)	Relative Risk (95% CI)	P Value
	<i>no./total no. (%)</i>			
Target-lesion failure	102/1313 (7.8)	41/677 (6.1)	1.28 (0.90-1.82)	0.16
Cardiac death	8/1313 (0.6)	1/677 (0.1)	4.12 (0.52-32.91)	0.29
Target-vessel myocardial infarction	79/1313 (6.0)	31/677 (4.6)	1.31 (0.88-1.97)	0.18
Ischemia-driven target-lesion revascularization	40/1313 (3.0)	17/677 (2.5)	1.21 (0.69-2.12)	0.50

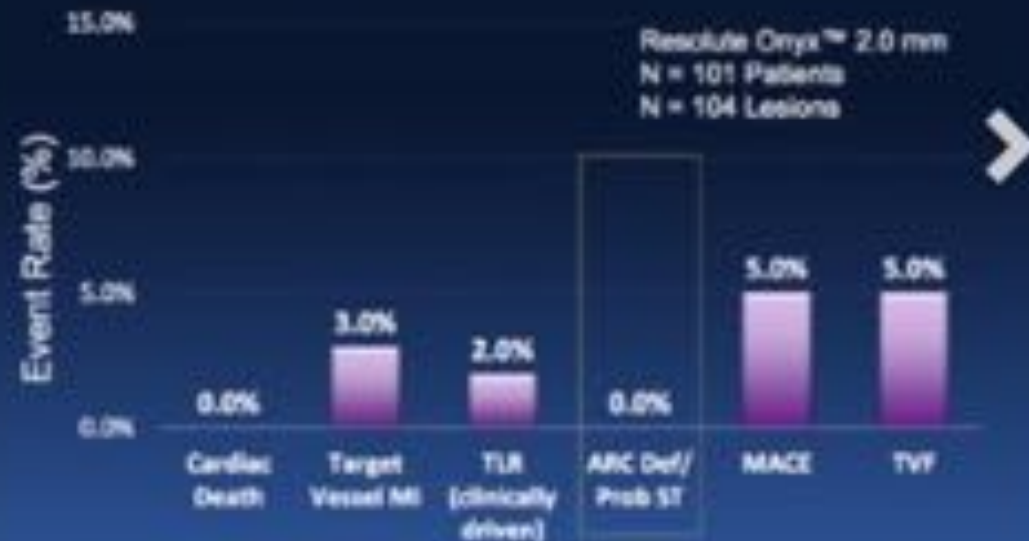
First Report of the Resolute Onyx 2.0-mm Zotarolimus-Eluting Stent for the Treatment of Coronary Lesions With Very Small Reference Vessel Diameter

Resolute Onyx 2.0mm: Primary Endpoint Target Lesion Failure at 12 Months



Target Lesion Failure (TLF) at 12 months (periprocedural death (PPD), Target Vessel Repermeability (TVR), Target Vessel Renormalized Infarct (TVRMI)) as well as in-hospital death or Target Lesion Repermeability (TLR) as secondary endpoints in surgical patients.

Resolute Onyx 2.0 mm: Secondary Clinical Endpoints



Amphilimus- vs zotarolimus-eluting stents in patients with diabetes and coronary artery disease (SUGAR trial)

Rafael Romaguera

and Pablo Salinas

on behalf of the SUGAR trial investigators



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Twitter: @rafa_romaguera

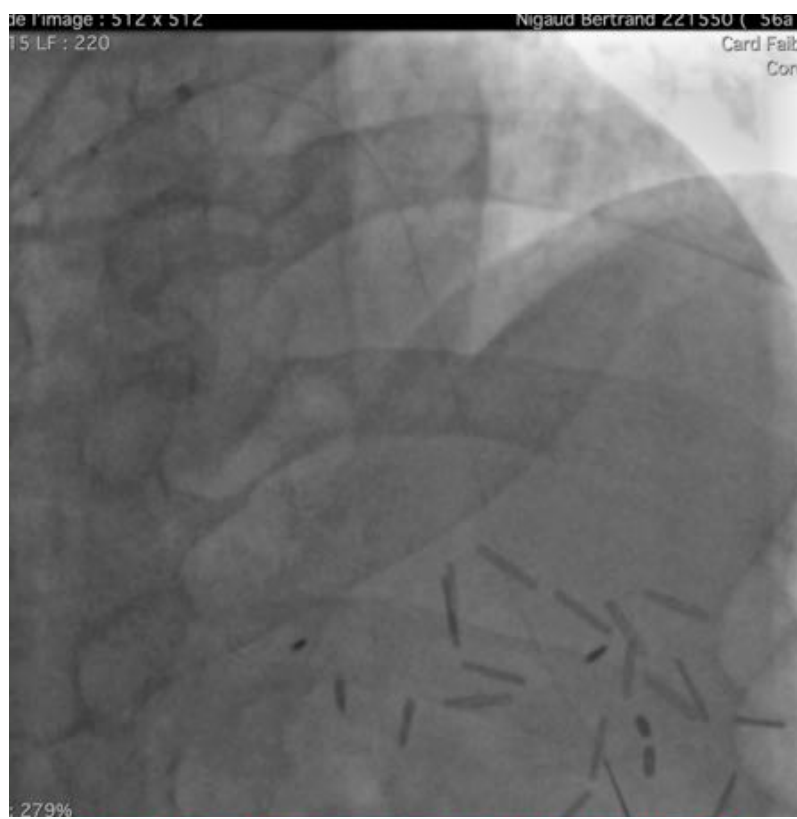
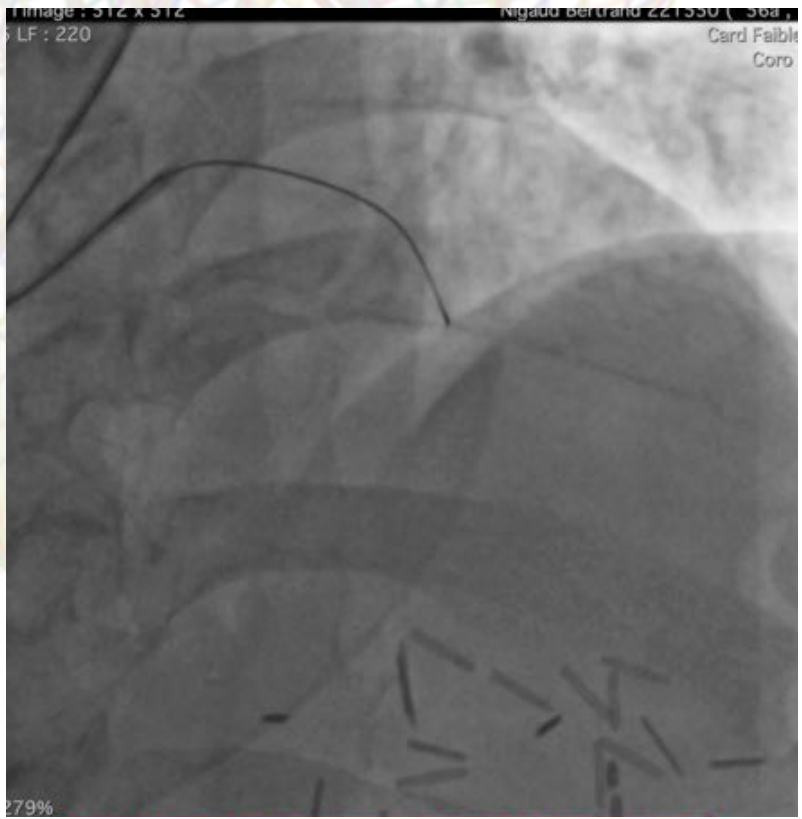
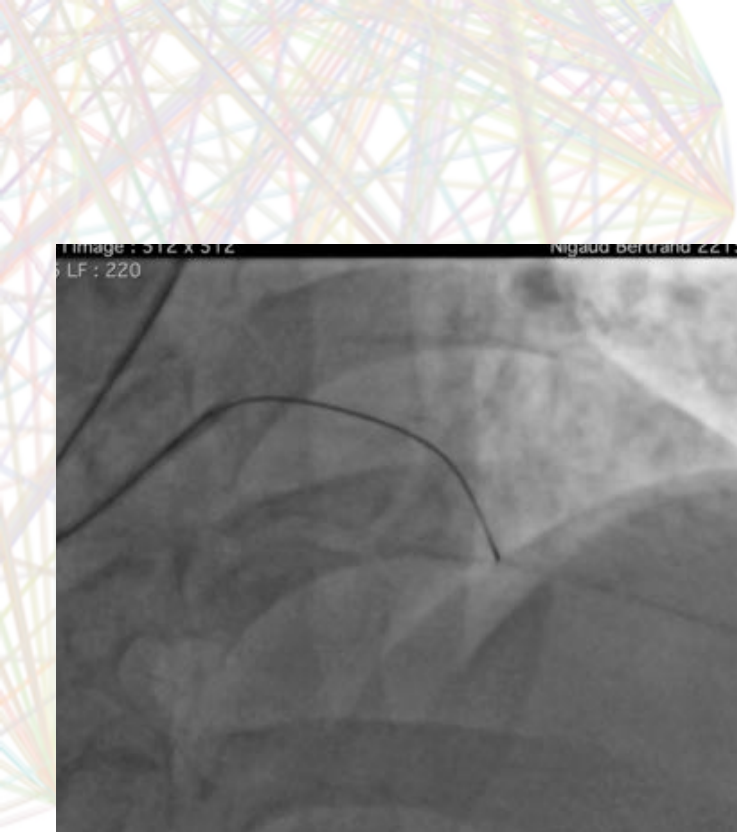


Primary endpoint

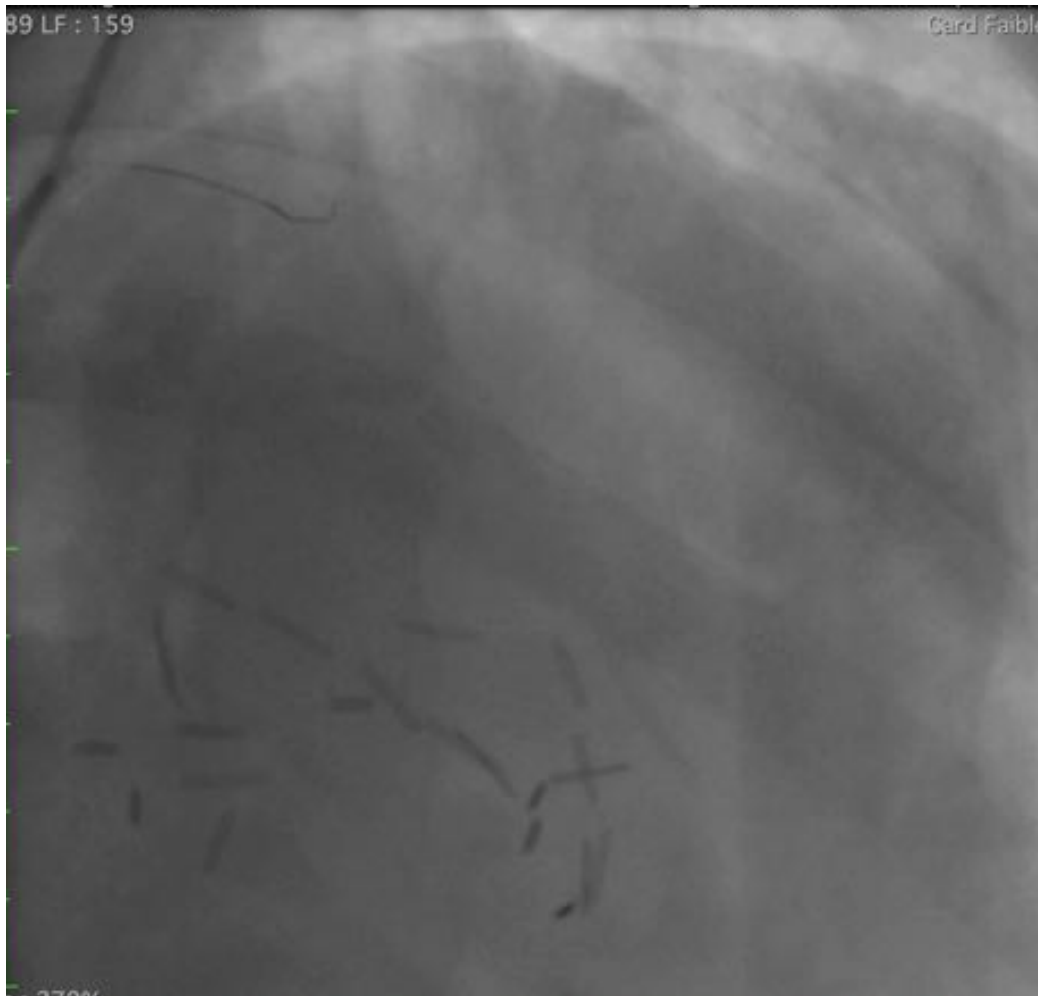
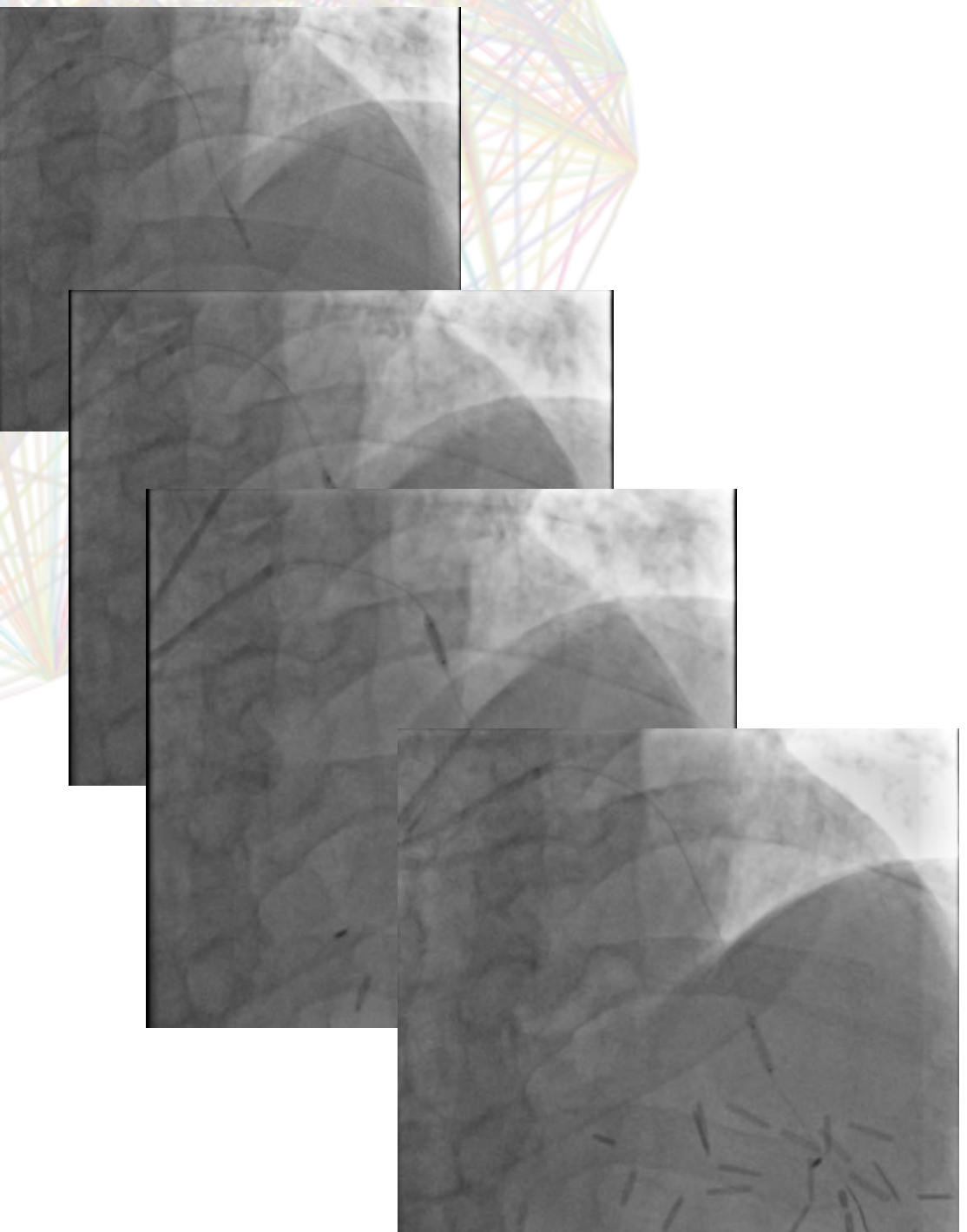


- Difference -3.73%
(95% CI -7.01 to -0.45)
 $p < 0.001$ for noninferiority

- HR 0.65 (95% CI 0.44 to 0.96)
 $p = 0.030$ for superiority







ORIGINAL CONTRIBUTION

Treatment of Very Small *De Novo* Coronary Artery Disease With 2.0 mm Drug-Coated Balloons Showed 1-Year Clinical Outcome Comparable With 2.0 mm Drug-Eluting Stents

Hui Wen Sim, MBBS¹; Rajiv Ananthakrishna, MBBS¹; Siew Pang Chan, PhD, MSIAab²; Adrian E Low, MBBS^{1,3}; Chi-Hang Lee, MBBS, MD^{1,3}; Mark Y. Chan, MBBS, MHS^{1,2}; Edgar L. Tay, MBBS^{1,3}; Poay Huan Loh, MBBS¹; Koo Hui Chan, MD¹; Huay Cheem Tan, MBBS^{1,2,3}; Joshua P. Loh, MBBS^{1,3}

J Invasive Cardiol. 2018 Apr 15
 [Epub ahead of print]

- DES : 4 (2.0%) definite ST (all presented with AMI at index procedure)
- DCB : No vessel thrombosis

Age/gender	Duration	Lesion/devices	Causes of ST
44 Male	Definite ST <24 hr	dLAD Resolute ONYX 2x30	Residual disease in the distal stent edge
57 Male	Definite ST 8 days	mLCx Xience Xpedition SV 2.0x28	Non-compliance to DAPT
45 Male	Definite ST 7 days	mRCA Xience Xpedition SV 2x12	positive remodeling in the mid RCA and gap at distal stent edge
67 Female	Definite ST 2 months	pLCx Xience Xpedition SV 2 x18	Stent under-expansion

- 2.0 mm DCB and 2.0 mm DES yield similar 1-year TLF rate in patients with very small vessel CAD undergoing PCI
- 1-year TLF was primarily driven by TLR in both groups.
- Our cohort : high-risk population with > 50% diabetics, hypertension, presented with MI, had complex lesions (ACC/AHA type B2/C).

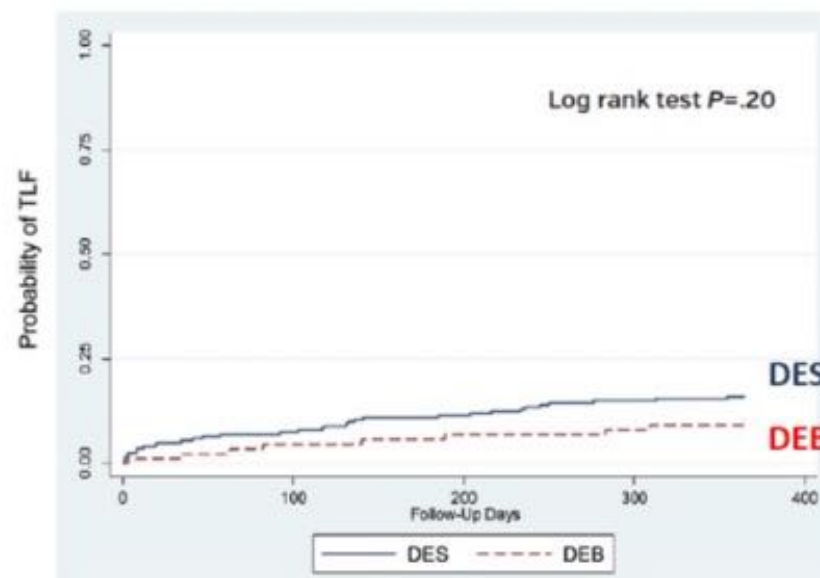


FIGURE 1. Kaplan-Meier curves for time to target-lesion failure (TLF) between drug-eluting balloon (DEB) and drug-eluting stent.

TABLE 3 Randomized Controlled Trials of DCB Only in De Novo Lesions of Small Coronary Vessels

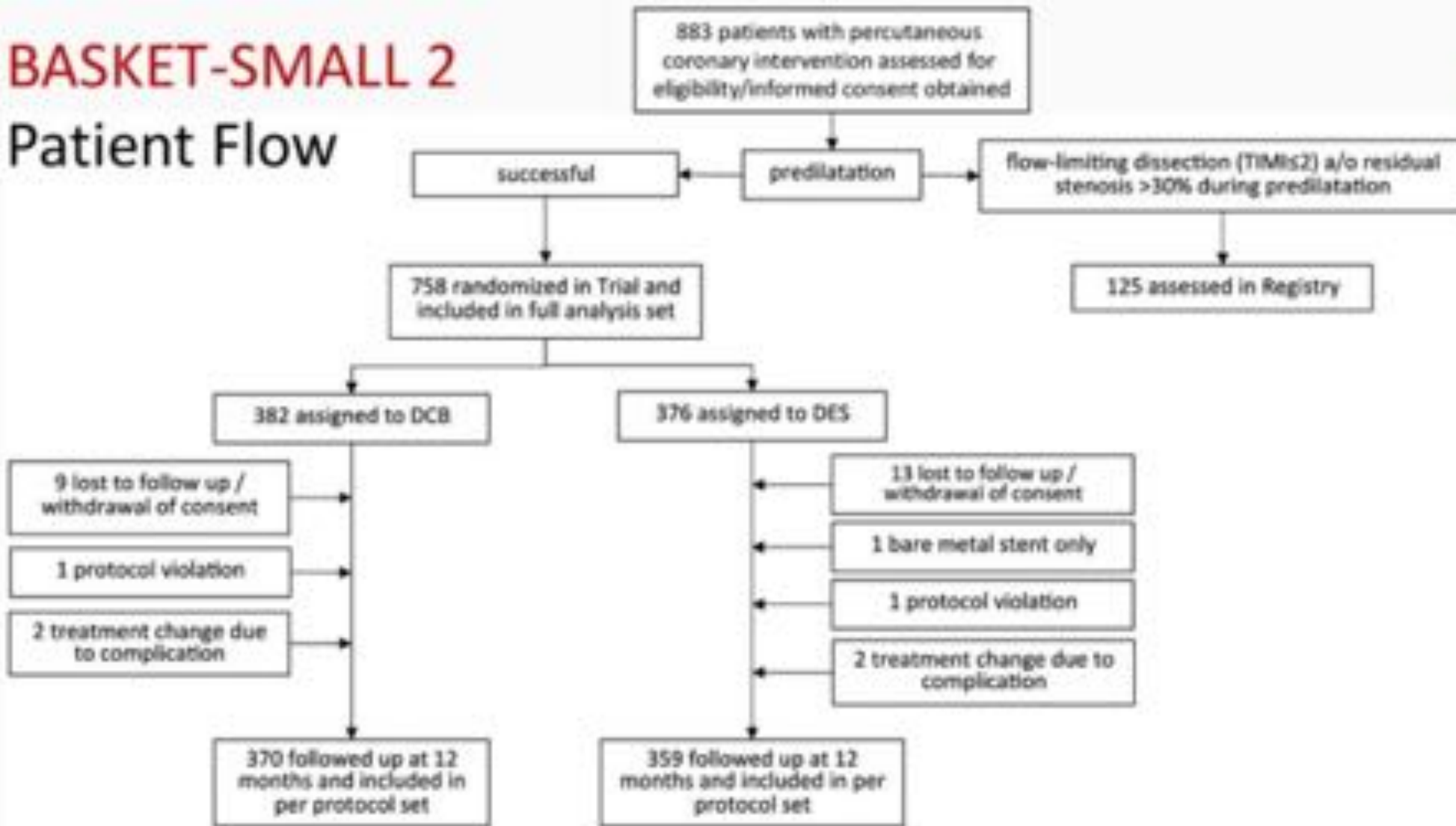
Study Name (Ref. #)	Comparators	n	Follow-Up Duration	Angiographic Follow-Up	p Value	MACE (%)	p Value	TLR (%)	p Value
PICCOLETO (58)	Dior PCB vs. TAXUS Liberté PES	57	6 months (angio) 9 months (clinical)	MLD 1.11 ± 0.65 mm vs. 1.94 ± 0.72 mm	0.0002	35.7 vs. 13.8	0.054	32.1 vs. 10.3	0.15
BELLO (59,66)	IN.PACT Falcon PCB vs. TAXUS Liberté PES	182	6 months (angio) 12 months (clinical) 3 yrs (clinical)	LLL 0.08 ± 0.38 mm vs. 0.29 ± 0.44 mm	0.001	10 vs. 16.3 14.4 vs. 30.4	0.21 0.015	4.4 vs. 7.6	0.37
RESTORE SVD (61)	Restore PCB vs. Resolute Integrity ZES	230	9-12 months (angio) 12 months (clinical)	LLL 0.26 ± 0.42 mm vs. 0.30 ± 0.35 mm, diameter stenosis $29.6 \pm 2.0\%$ vs. $24.1 \pm 2.0\%$	0.41, <0.001	9.6 vs. 9.6	1.0	4.4 vs. 2.6	0.72
BASKET-SMALL 2 (60)	Sequent Please PCB vs. TAXUS Element PES and Xience EES	758	6 months (angio)* 12 months (clinical)	LLL 0.13 mm (-0.14 to 0.57 mm) vs. 0.10 mm (-0.16 to 0.34 mm)	0.72	8 vs. 8	0.918, 0.0152†	3.4 vs. 4.5	0.438

TABLE 4 DCB Only in De Novo Lesions of Large Coronary Vessels

Study Name/ First Author et al. (Ref. #)	DCB	n	≥2.75-mm DCB (%)	≥3.0-mm DCB (%)	Bailout Stent (%)	MACE (%)	TLR (%)
DELUX (70)	Pantera Lux	105		23	22	9.4 (12 months)	3.1 (12 months) (TVR)
FALCON (69)	In.Pact Falcon	326	25		4.8	8.0 (12 months)	4.9 (12 months)
Venetsanos et al. (53)	SeQuent Please, In.Pact Falcon, Pantera Lux	985		6	8		3 (12 months)
Rosenberg et al. (54)	Sequent Please	731	21		6	5.6 (9 months)	2.3 (9 months)
Uskela et al. (68)	Sequent Please	463	79	60	12	6.1 (stable CAD, 12 months)	1.4 (stable CAD, 12 months)
Yu et al.(108)	Sequent Please	595	36		0.5	0 (10 months)	0 (10 months)
DEBUT (57)	Sequent Please vs. BMS (RCT)	103	76	64	2	1.9 (9 months)	0 (9 months)
PERCAD-NSTEMI (62)	Sequent Please vs. BMS and DES (RCT)	104			17.4	3.8 (9 months)	1.0 (9 months)

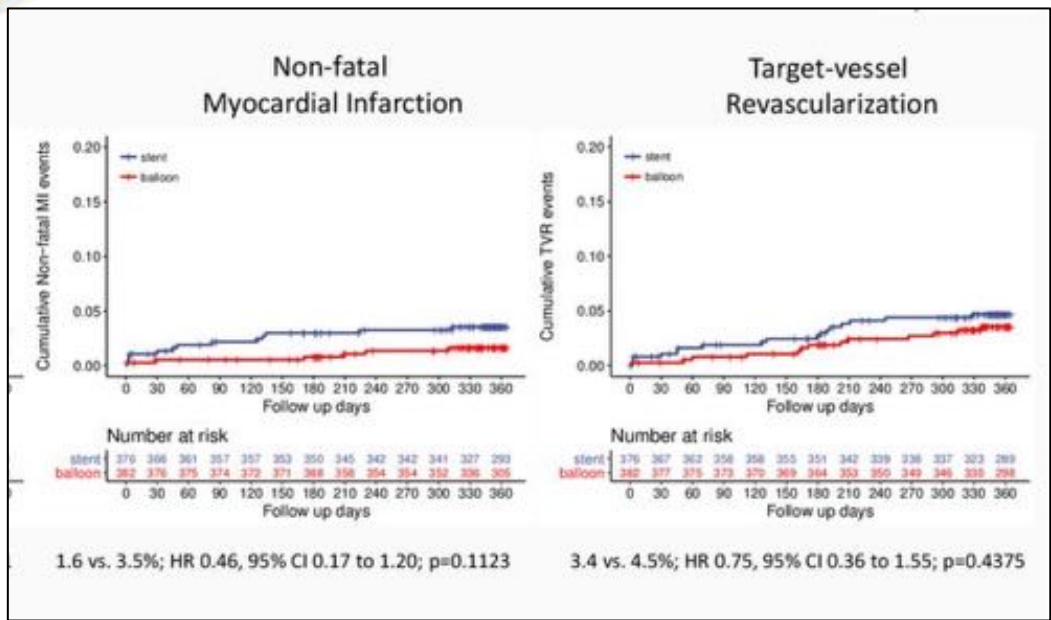
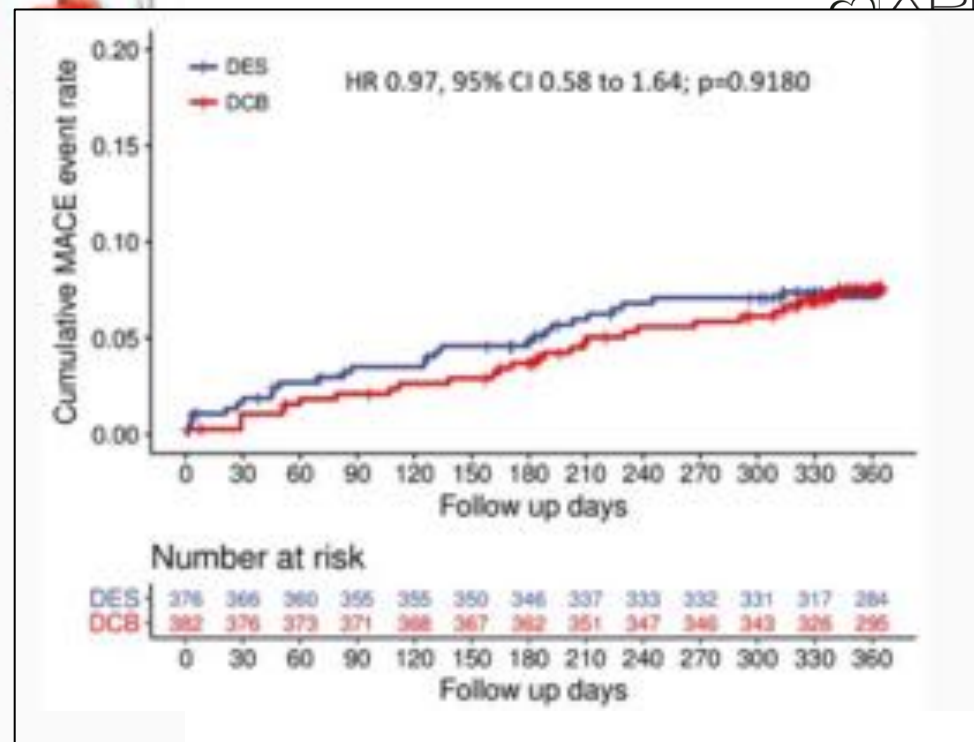
BASKET-SMALL 2

Patient Flow

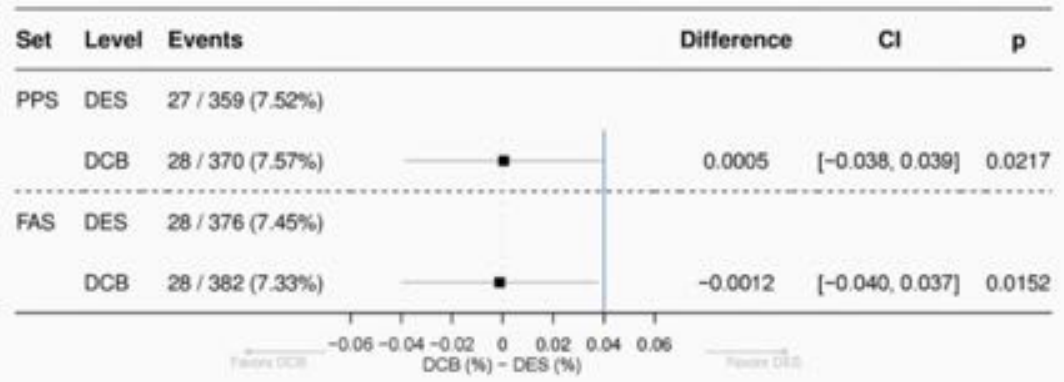


Angiographic Baseline Characteristics

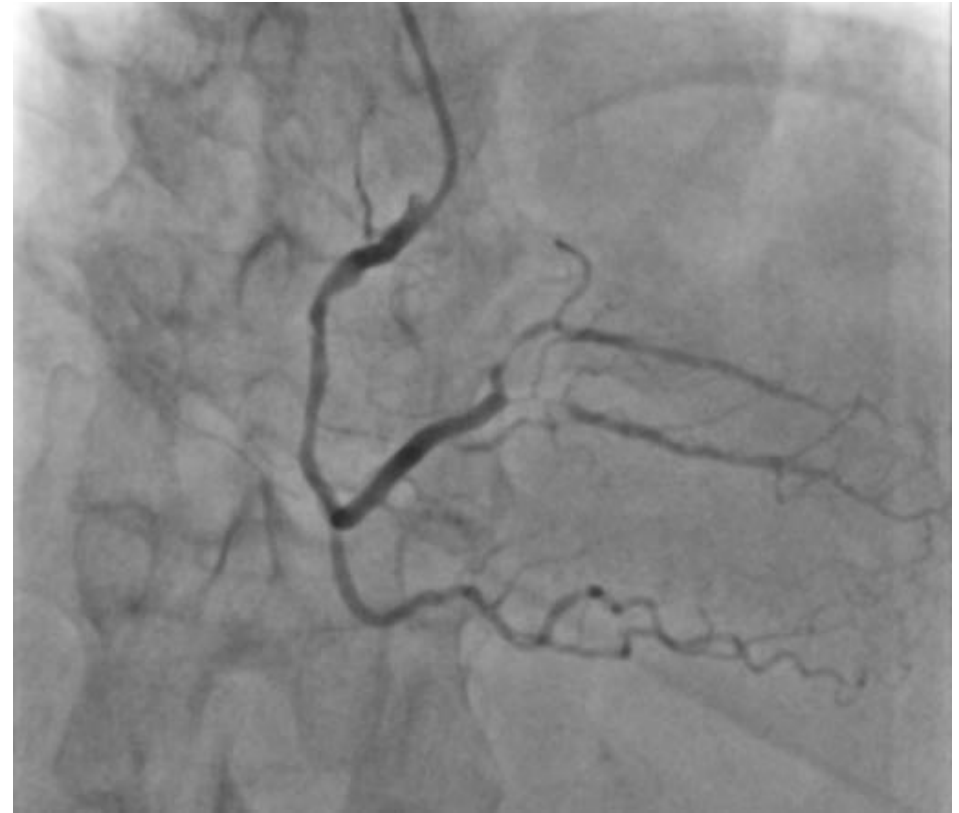
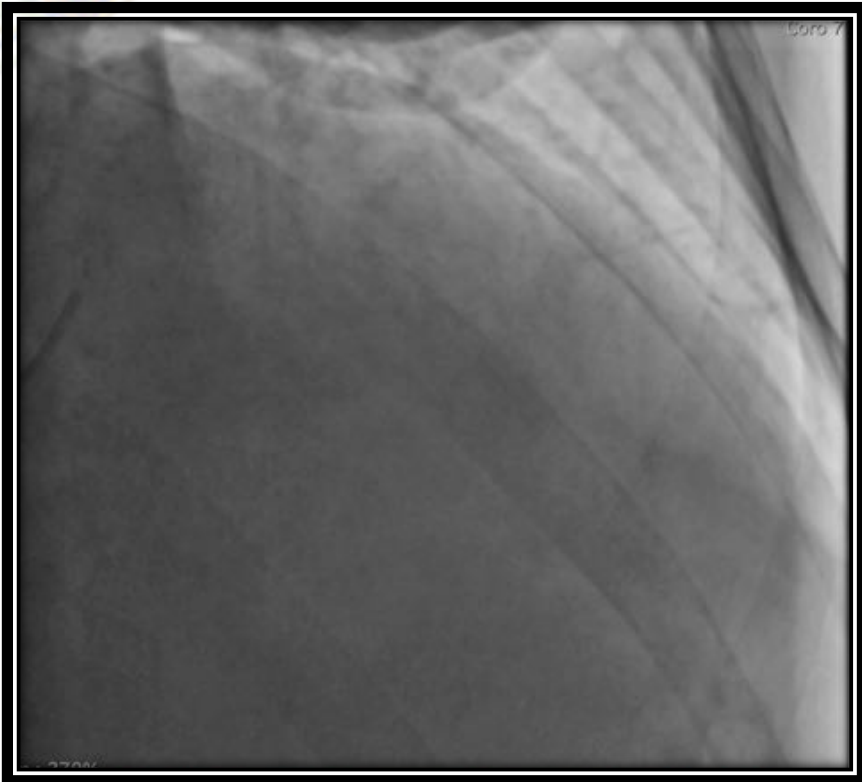
	DCB (n=382)		DES (n=376)	
Target vessel				
Left anterior descending artery (%)	128	(33.5)	116	(30.9)
Left circumflex artery (%)	179	(46.9)	183	(48.7)
Right coronary artery (%)	75	(19.6)	77	(20.5)
Bifurcation lesion (%)	22	(5.8)	29	(8.0)
Procedural success (%; mean, SD)	96	(19)	98	(13)
Number of DCB or DES (mean, SD)	1.68	(0.82)	1.26	(0.55)
Length of DCB or DES (mm; mean, SD)	23.93	(11.74)	23.18	(12.85)
Effective size of DCB or DES (mm; mean, SD)	2.75	(2.14)	2.57	(0.25)
Max. inflation pressure (atm; mean, SD)	11.06	(3.54)	13.58	(3.90)
Duration of inflation (sec; mean, SD)	48.45	(28.24)	23.36	(18.92)

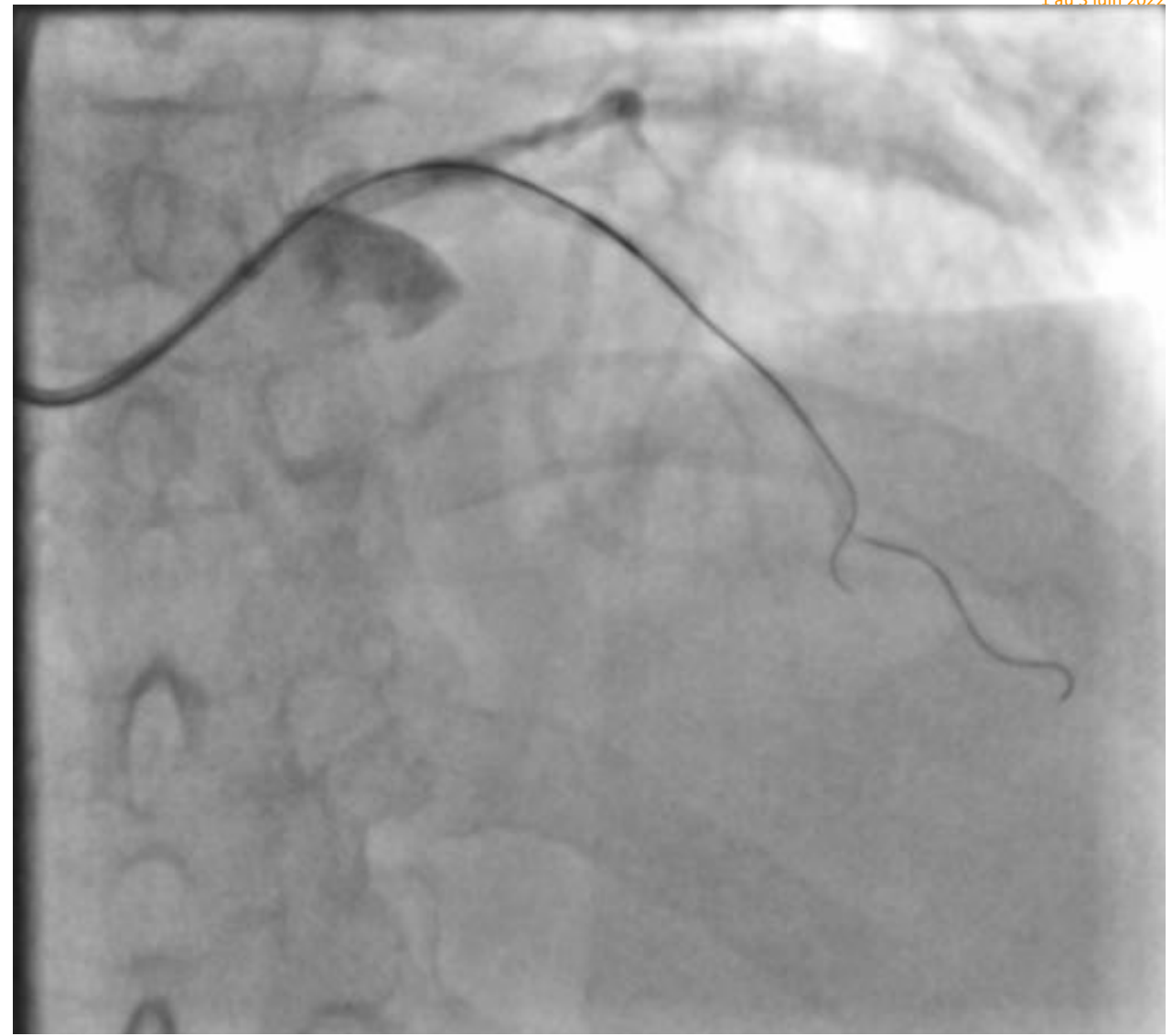
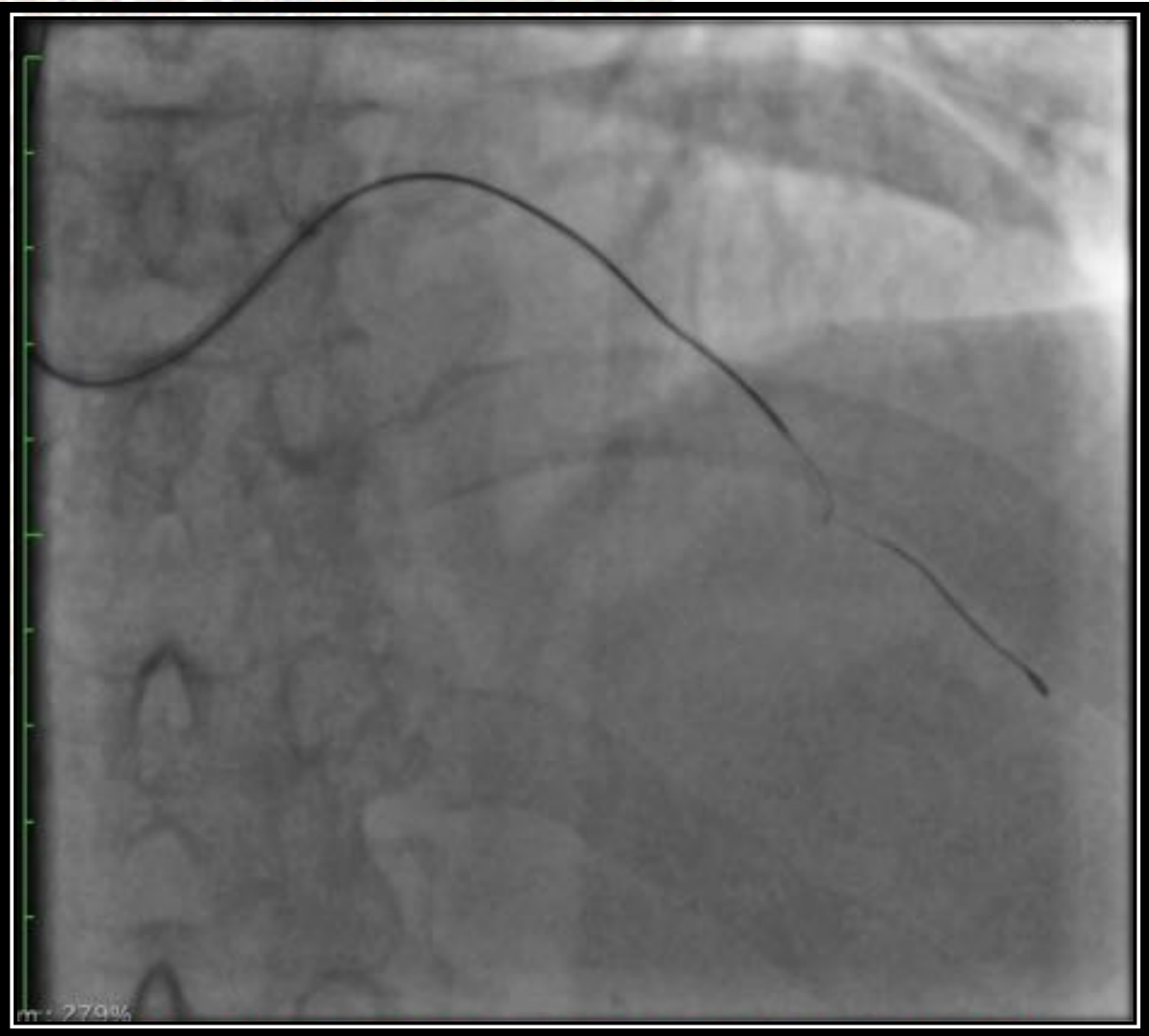


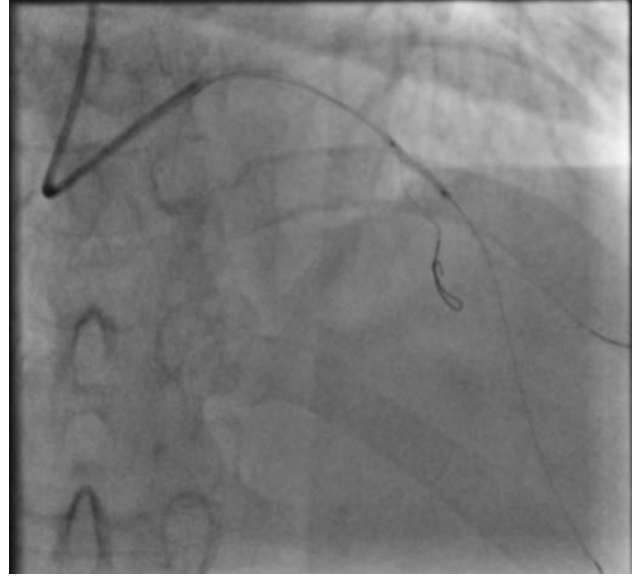
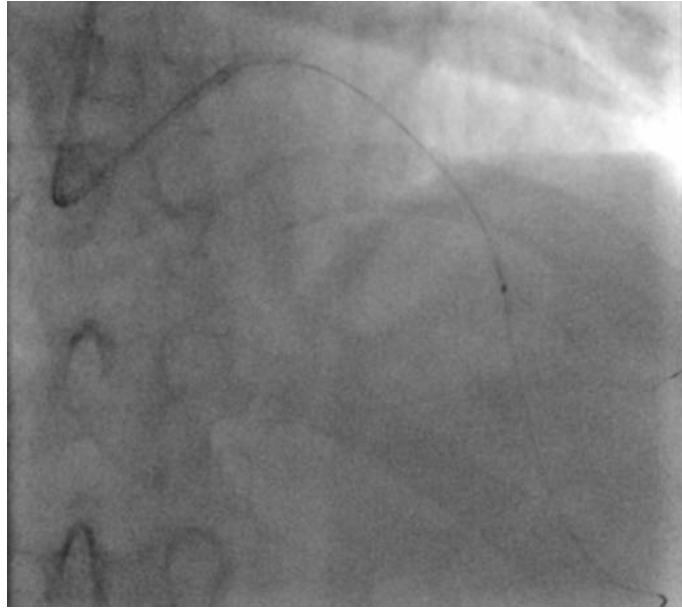
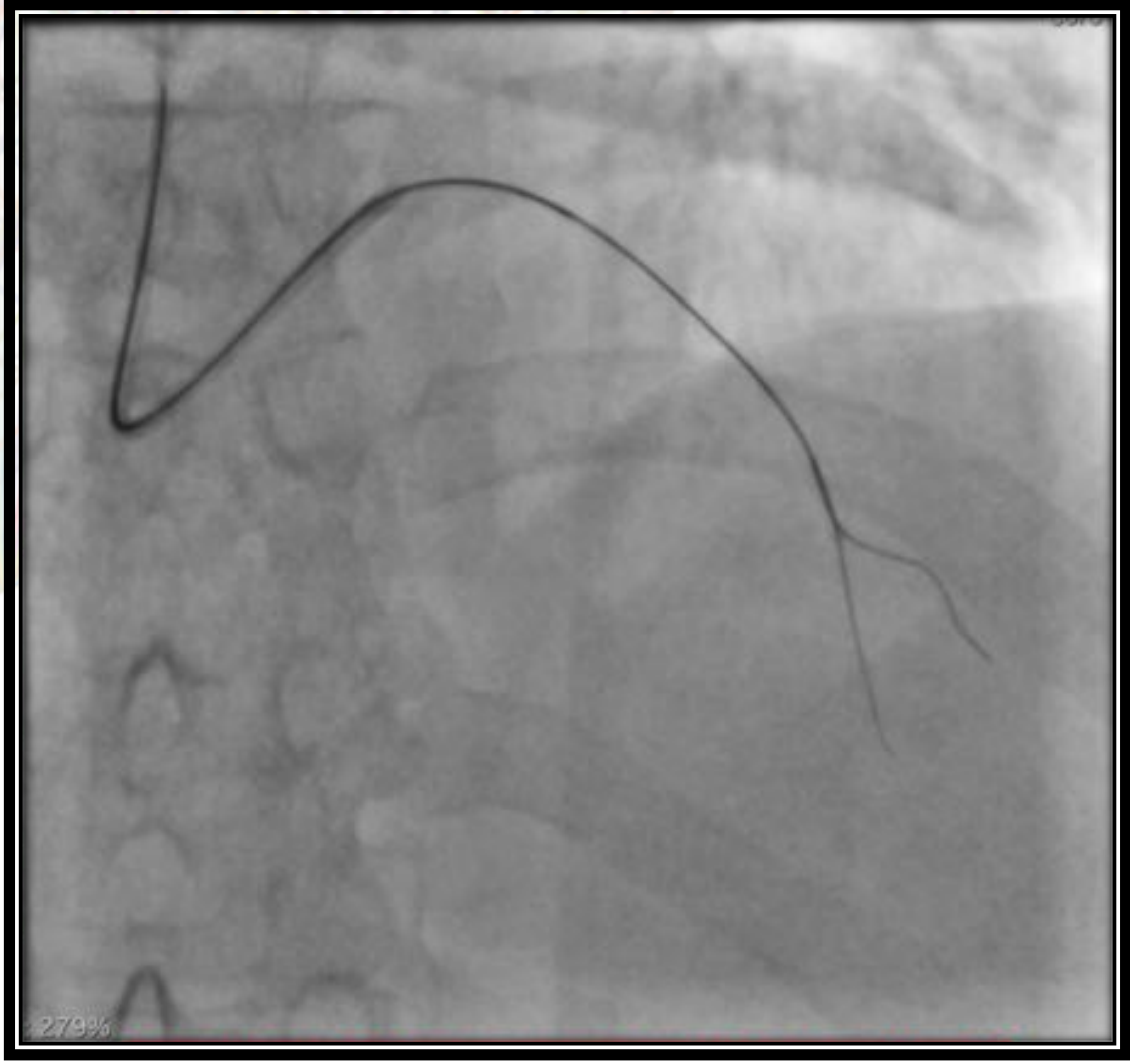
BASKET-SMALL 2 Primary Endpoint (Non-Inferiority MACE 12 Months)



- Homme 60 ans NSTEMI
- HTA
- IR chronique non suivie (néphropathie glomérulaire à dépôt IgA)
- trouble de la personnalité schizotypique
- **Histoire de la maladie:**
- 12/05/2022 pour OAP hypertensif sur IRC terminale HD . FEVG 55%
- 1ere séance le 18/05 : survenue d'une douleurs thoraciques irradiant au bras gauche et a la mâchoire .

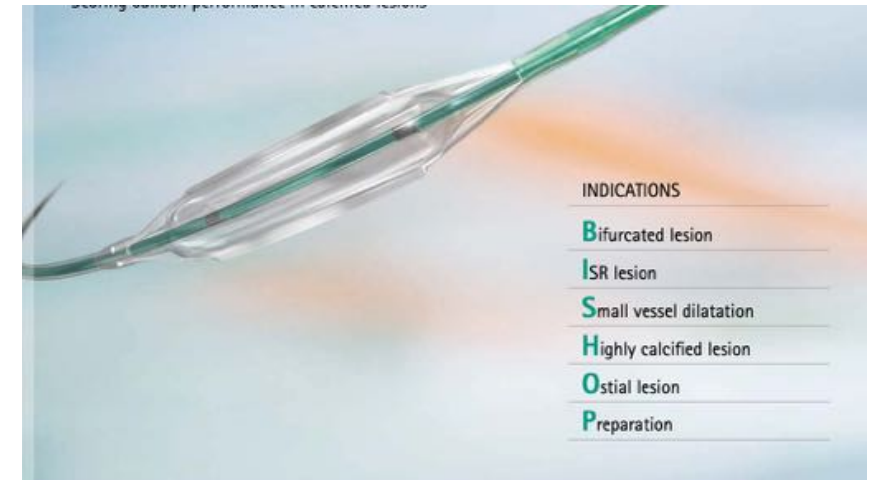
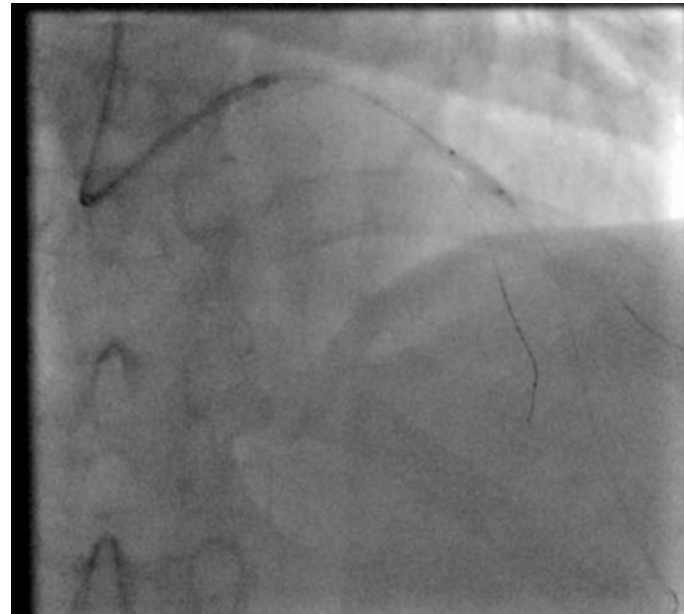






Scoring Ballon NSE Alpha 2.5 x 13 mm 8 atm

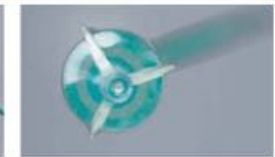
Controlled intima cutting



HIGH FLEXIBILITY AND MECHANICAL PERFORMANCE



Flexible scoring elements are only attached at the distal and proximal ends and lead to a PICA balloon-like tracking.



Once the balloons is inflated, the nylon elements find the final position for best mechanical performance.

Prepare the lesion !

JACC: CARDIOVASCULAR INTERVENTIONS

VOL. 13, NO. 12, 2020

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STATE-OF-THE-ART REVIEW

Drug-Coated Balloons for Coronary Artery Disease

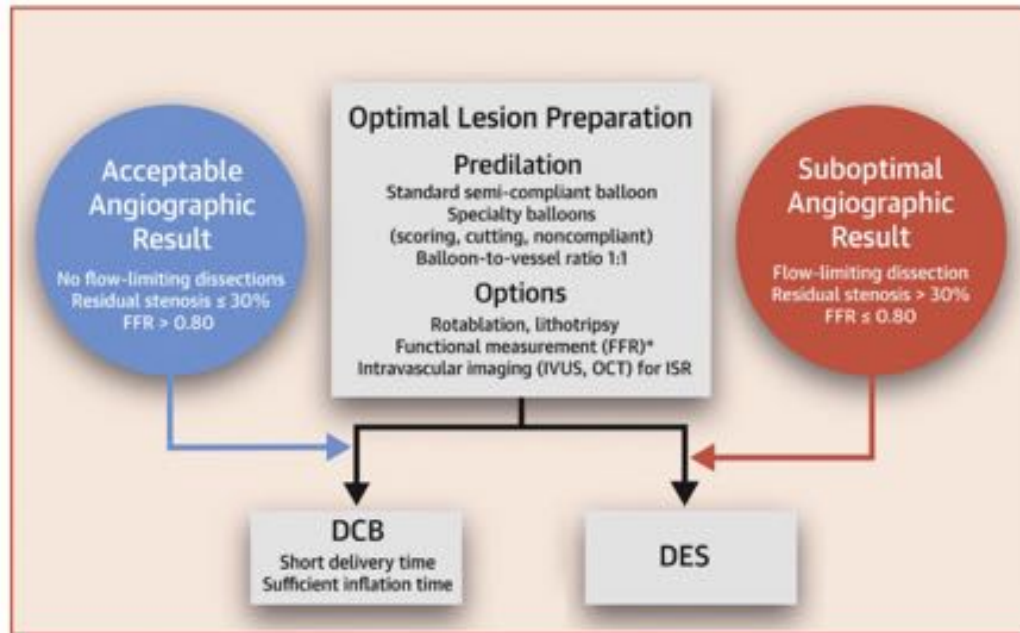


Third Report of the International DCB Consensus Group

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

Prepare the lesion

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



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

- Take your time (you will earn later !)
- No stent like result (stenosis $< 30\%$)
- 1/1 ratio
- Lesion modification device (scoring balloon, cutting balloon, atherectomy)
- Learn to leave subintimal lesion result (30% ?) with type A or B dissection (Angio-guided)

Dissection after POBA: NHLBI classification¹

- Type A dissections represent radiolucent areas within the coronary lumen during contrast injection, with minimal or no persistence of contrast after dye has cleared.
- Type B dissections are parallel tracts or double lumen separated by a radiolucent area during contrast injection, with minimal or no persistence after dye clearance.
- Type C dissections appear angiographically as contrast outside the coronary lumen ("extraluminal cap") with persistence of contrast in the area after clearance of dye from the coronary lumen.
- Type D dissections represent spiral ("barber shop pole") luminal filling defects, frequently with extensive contrast staining of the vessel.
- Type E dissections appear as new, persistent filling defects and may be caused by [thrombus](#).
- Type F dissections represent those that lead to total [occlusion](#) of the [coronary artery](#), without distal antegrade flow

1. Huber, MS.; Mooney, JF.; Madison, J.; Mooney, MR. (1991). "Use of a morphologic classification to predict clinical outcome after dissection from coronary angioplasty". *Am J Cardiol.* 68 (5): 467-71.



ORIGINAL RESEARCH

Systematic Scoring Balloon Lesion Preparation for Drug-Coated Balloon Angioplasty in Clinical Routine: Results of the PASSWORD Observational Study

Klaus Bonaventura · Markus Schwefer · Ahmad Khairuddin Mohamed Yusof · Matthias Waliszewski · Florian Krackhardt · Philip Steen · Raymundo Ocaranza · Ahmad Syadi Zuhdi · Liew Hounq Bang · Kristof Graf · Ulrich Böck · Kenneth Chin

Received: February 24, 2020 / Published online: April 9, 2020



Table 1 Patient demographics

Variable	All	De novo	BMS-ISR	DES-ISR	<i>p</i> value
Number of patients	481 (100%)	377 (78.4%)	19 (4.0%)	85 (17.6%)	–
Number of lesions	496	386	19	91	–
Reference diameter (mm) ^a	2.74 ± 0.44	2.63 ± 0.37	3.05 ± 0.29	3.15 ± 0.42	< 0.001
Predilatation with scoring balloon	496 (100%)	386 (100%)	19 (100%)	91 (100%)	–
Scoring balloon diameter (mm) ^a	2.53 ± 0.45	2.43 ± 0.41	2.71 ± 0.31	2.92 ± 0.42	< 0.001
Predilatation scoring balloon pressure (atm) ^a	11.6 ± 3.3	11.0 ± 3.0	15.4 ± 3.9	13.4 ± 3.1	< 0.001
DCB diameter (mm) ^a	2.71 ± 0.45	2.60 ± 0.39	3.00 ± 0.35	3.10 ± 0.43	< 0.001
DCB length (mm) ^a	24.1 ± 7.1	24.4 ± 7.0	22.7 ± 7.0	22.7 ± 7.0	0.070
DCB inflation pressure (atm) ^a	9.4 ± 3.2	8.7 ± 2.6	12.9 ± 4.3	11.5 ± 3.9	< 0.001
In hospital MI	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	–
In hospital cardiac death	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	–
Accumulated TLF	14 (3.0%)	4 (1.1%)	2 (10.5%)	8 (9.5%)	< 0.001



ORIGINAL RESEARCH

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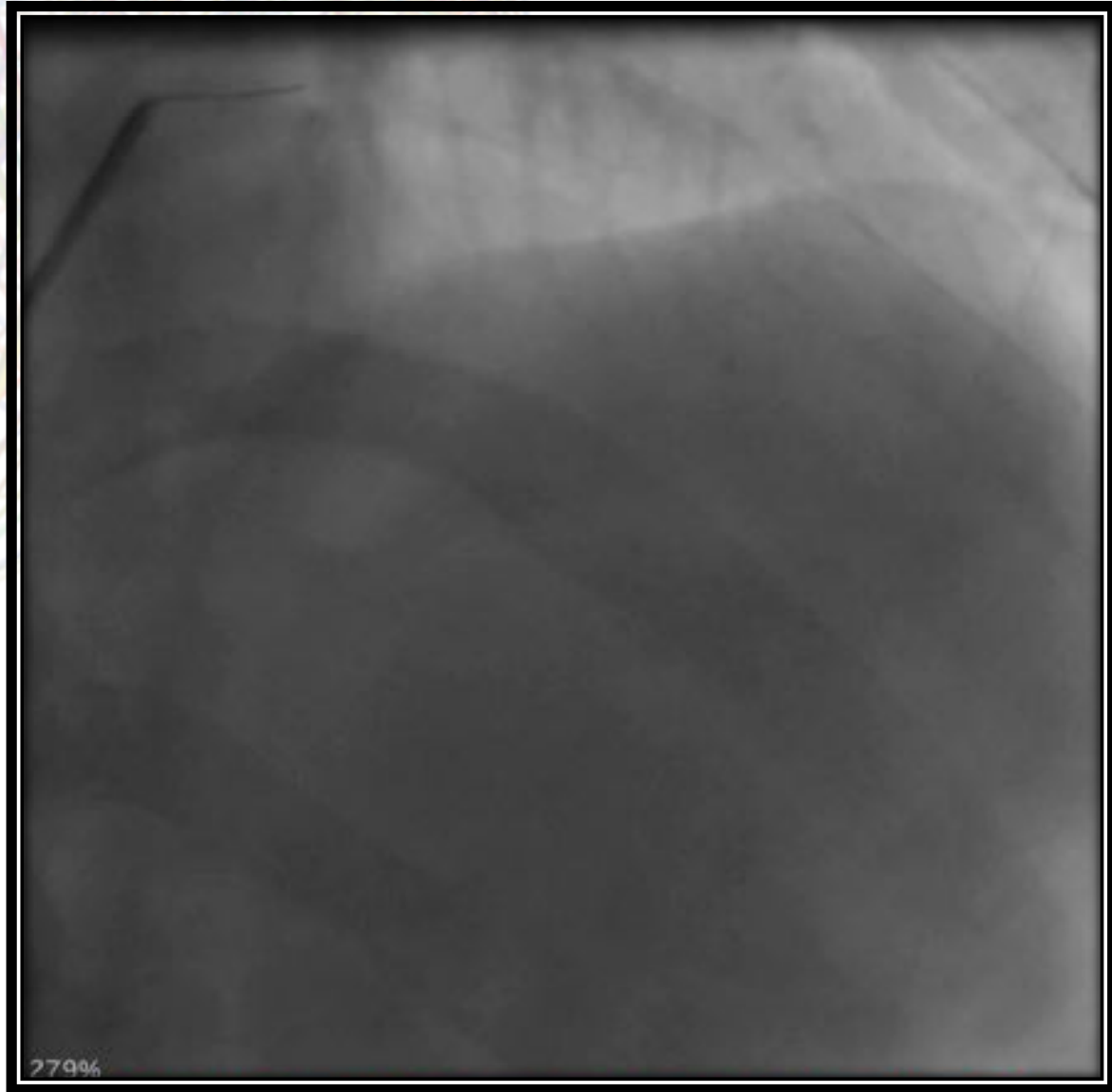


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Accumulated TLF	14 (3.0%)	4 (1.1%)	2 (10.5%)	8 (9.5%)	< 0.001



DCB 2.0 x 30 mm
et 2.5 x 30 mm



Sortie J1

Asprine + clopidogrel

MARQUEURS CARDIOVASCULAIRES

Plasma hépariné

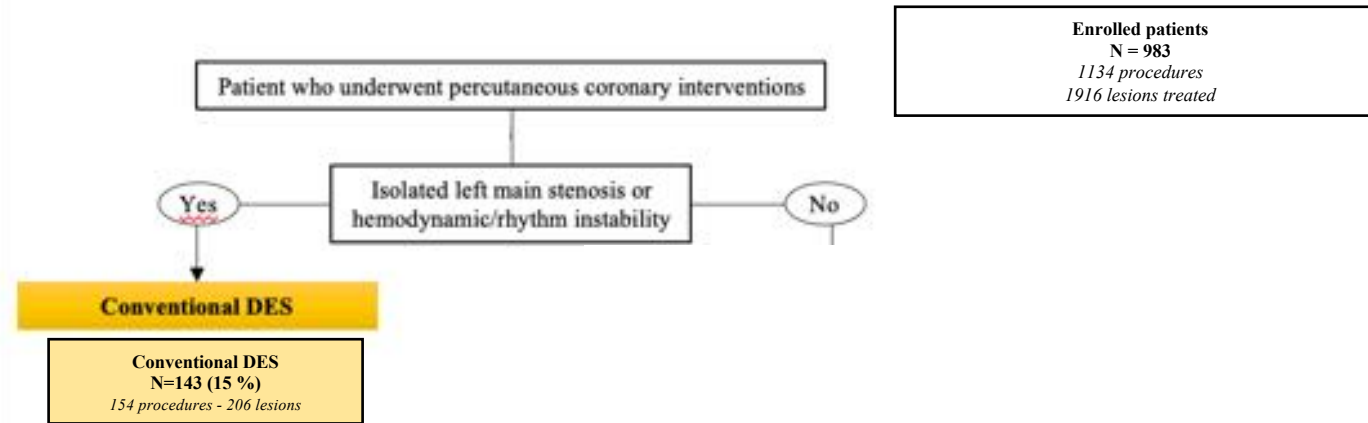
CPK (Creatine Phospho-kinase) ^[AC] <small>(Méthode enzymatique IFCC de l'activité CK à 37°)</small>	84 U/L	(39-308)	20-05-2022 112
Troponine I ^[AC] <small>(Immunoessai TNIH par chimiluminescence LOCI)</small> <small>Attention, changement de technique et de valeur de référence depuis le 31/01/22</small>	1 946.2 ng/L	(<60.4)	20-05-2022 3 414.7

Conclusion : Angioplastie Petits Vaisseaux

- Bien évaluer taille de l'artère
- Dilater et prédilater avec précaution
- Matériel adapté
- Stratégie sans stent ?

Petits vaisseaux

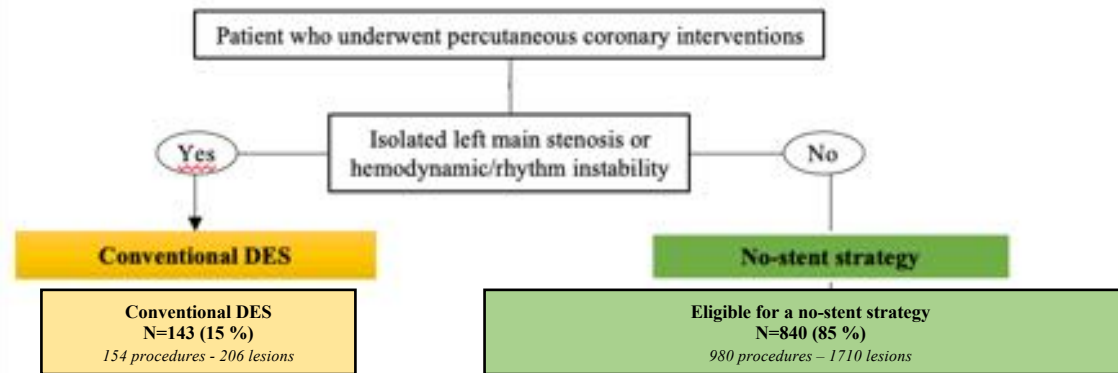
To evaluate the efficacy and security of angioplasty using DCB in de novo lesions



Monocentric study
CH La Rochelle Fr
Dr Meunier

April 19- March 20

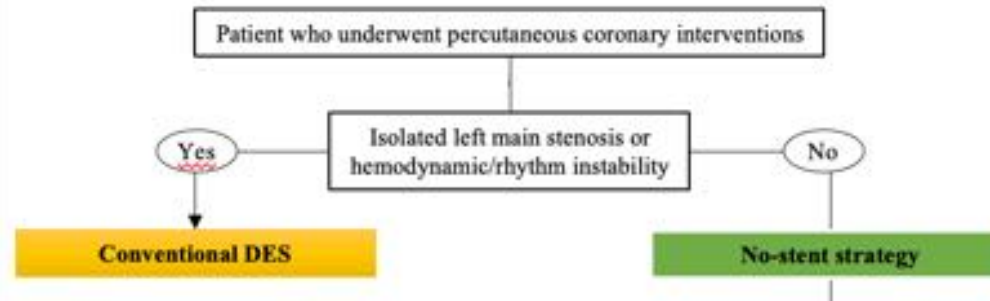
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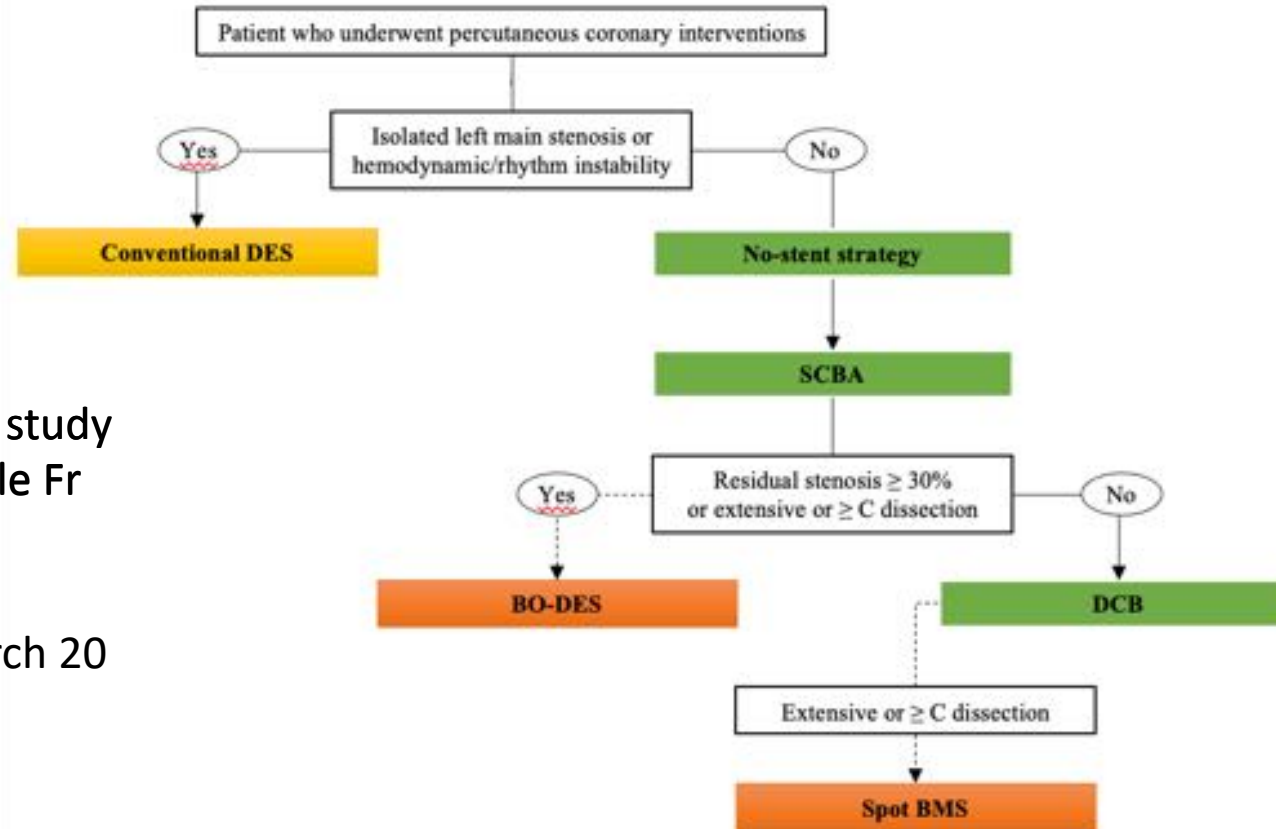
Monocentric study
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April 19- March 20

1) Preparation of the lesion
Rotational Atherectomy possible before in case of major calcification (4%)
Pre dilatation with scoring balloon NSE alpha (ratio 1:1)
Cutting balloon in case of recoil post Scoring balloon

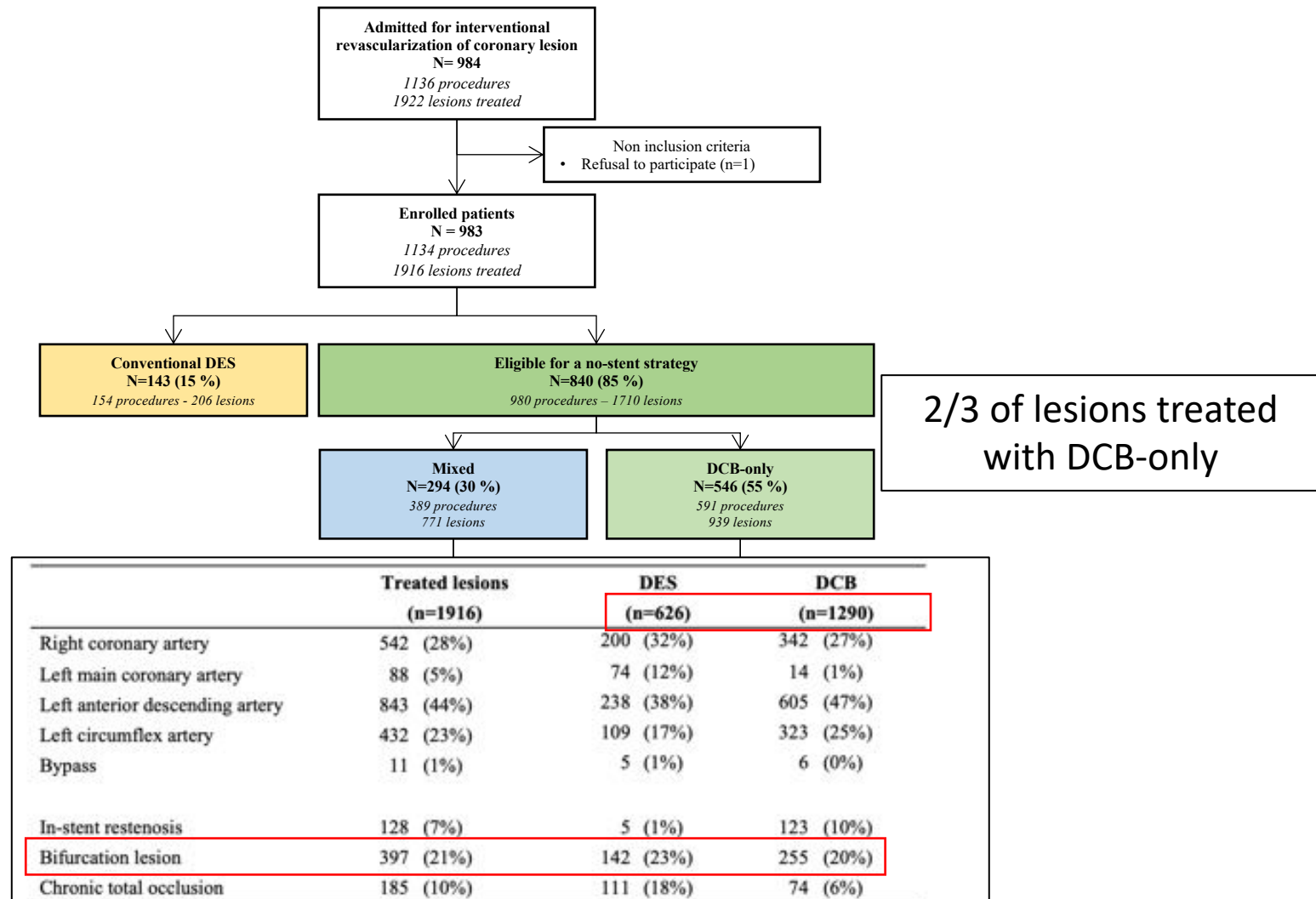
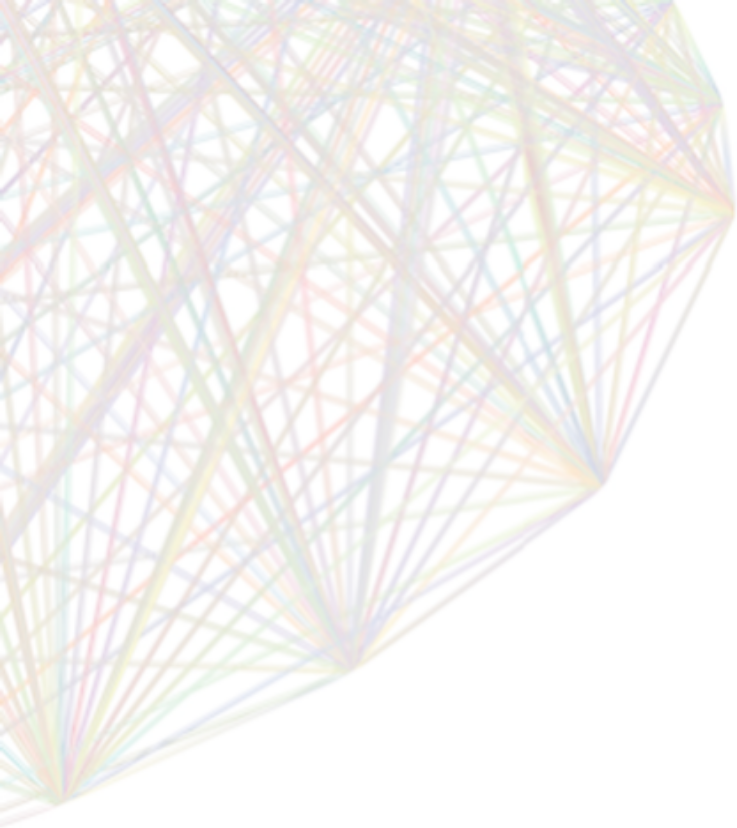
2) Dilatation with DCB
1/1 - 6 atm
60 sec

To evaluate the efficacy and security of angioplasty using DCB in de novo lesions



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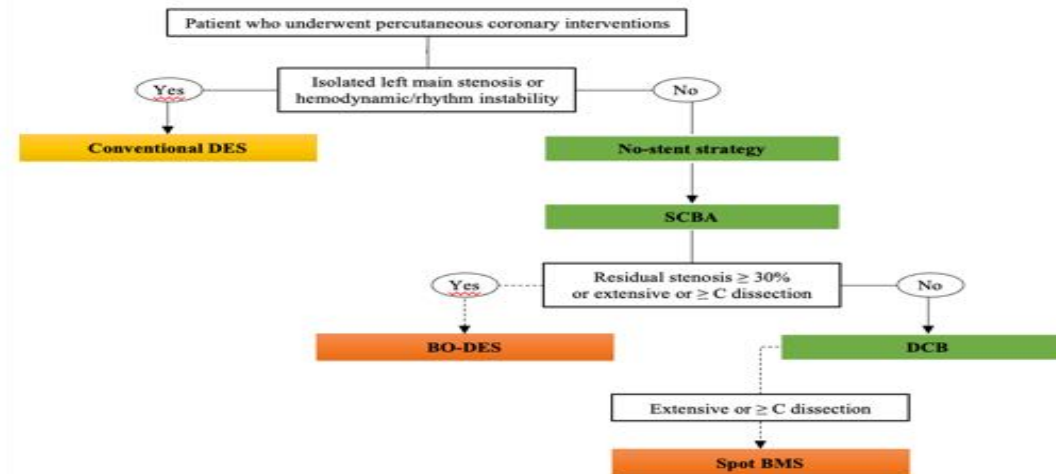


Unfortunately, due to the exclusive clinical follow-up it's not possible to analyze the results by lesions

FOLLOW-Up at 1 year

	Global population (n=949)	CS	NSS		
		DES (n=138)	BO-DES only (n=107)	DCB only (n=547)	Mixed (n=157)
TLR	20(2,1%)	2(1,4%)	1(0,9%)	9(1,6%)	8(5,1%)
Stroke	5(0,5%)	2(1,4%)	0	1(0,2%)	2(1,3%)
MI	2(0,2%)	0	0	2(0,4%)	0
Death after discharge	23(2,4%)	2(1,4%)	2(1,9%)	9(1,6%)	6(3,8%)
In-Hospital death	17(1,8%)	13(9,4%)	4(3,7%)	2(0,4%)	2(1,3%)
Total MACE	67(7,1%)	19(13,8%)	7(6,5%)	23(4,2%)	18(11,5%)

CS: conventional stenting
NSS : No Stent Strategy



A new paradigm ?

- No stent Strategy : feasible in 2/3 of lesions
- Predilatation with low atm, scoring balloon
- Low MACE rate. No acute MI

- Interest in:

- low Late loss and remodeling artery
- Preserve arterial physiology
- Avoid scaffold complications

- Simplify the bifurcation angioplasty



Same benefits than BVS
expected benefits