

The **ME**mmingen **C**oronary **A**rtery bypass **S**tenosis **T**rial (MECAST)

**Self-expanding coronary stent versus balloon expanding stent
in the interventional therapy of stenoses in degenerated SVG**

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I have the following potential conflicts of interest to declare:

Receipt of grants / research supports: Stentys

Saphenous vein graft (SVG) intervention

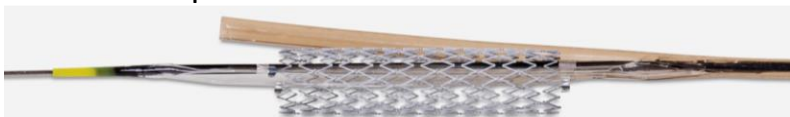
- 3-5% of all coronary interventions are saphenous vein graft interventions
- **Different vessel compared to native coronaries**
 - High debris burden, friable plaques
 - SVG –degeneration, less calcification
 - SVG diameter variations (stent sizing!)
- **Challenging intervention - poor long term results**
 - **High risk of distal embolization** during intervention leading to slow or no reflow → embolic protection device (EPD) recom., SAFER-trial, Baim et al., Circulation 2002
 - **Risk of graft rupture** by oversize-ballooning
 - Stent-underexpansion to reduce distal embolisation → **no full apposition** (Chu et al. Am J Cardiol 2006)
 - **High rate of restenosis** (approx. 10%, year)
 - TLR:
 - 7%/12month, DES, ISAR-CABG, Mehilli et al, Lancet 2011
 - 11,2%/12month, DES, US-veterans, Pokala et al, Catheter Cardiovasc Interv. 2016
 - 12,0%/12month, DES, DIVA-Trial, Brilakis et al, Lancet 2018



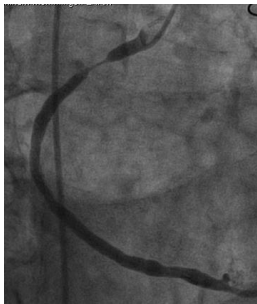
SVG, the forgotten stenosis

Self-expanding coronary stent

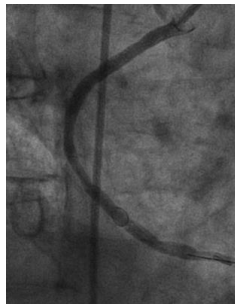
Xposition-S® : STENTYS



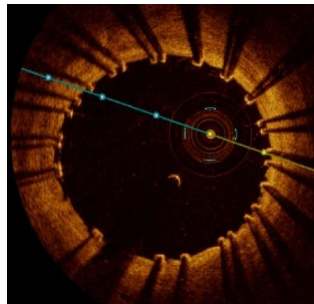
Gold-marker at the end of the stent
 Delivery like balloon-expandable stent
 Nitinol, DES (sirolimus),
 6 French, 14/1000 inch wire, rapid exchange (monorail)



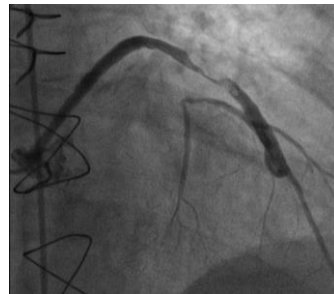
SVG-RCA pre-intervention



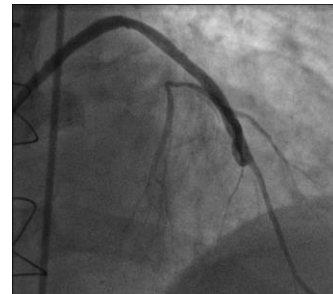
SVG-RCA post-intervention



OCT SVG-RCA



SVG-LAD pre-intervention



SVG-LAD post-intervention

Potential advantages of self-expanding stents (X-position) in SVG interventions

- Complete coverage of all stent struts in all segments, even with varying diameter by its self-expanding force (full-apposition).
- Low risk of distal embolization due to the soft-expansion and tight stent struts
- Need for embolic protection device (?)
- Low risk of graft rupture
- Low rate of restenosis (?)

Self-expanding coronary stent versus balloon expanding stent in the interventional therapy of stenoses in degenerated SVG

Single center retrospective analysis:

Self-expanding stents versus **balloon expanding stents** in patients with **SVG-stenoses**.

Primary endpoint: MACE (cardiac death, MI, TLR, TVR) within 30 days and at one year follow-up

Jan. 2012 - April 2018: 118 SVG-interventions in 101 patients with DES at our institution.

group A: 50 patients: Self-expanding coronary stents, mainly second-generation DES

group B: 51 patients: Second-generation balloon expanding DES

MECAST Trial: Patient characteristics

	Group A Self-expanding stent (n=50)		Group B Balloon expanding stent (n=51)	
	n	%	n	%
Male	40	80.0	44	86.3
Age, years	76.7 \pm 13.2		74.2 \pm 12.7	
Diabetes	25	50.0	22	43.1
Peripheral artery disease	15	30.0	14	27.5
LVEF <45%	24	48.0	15	29.4
Median EF (%)	47.2 \pm 12.4		50.4 \pm 11.2	
Chronic kidney disease (Creatinine >1.5mg/dl)	26	52.0	17	33.3
ACS	20	40.0	24	47.1
SVG, age, years	17.0 \pm 13.4		15.2 \pm 12.1	
SVG intervention previously	11	22.0	15	29.4

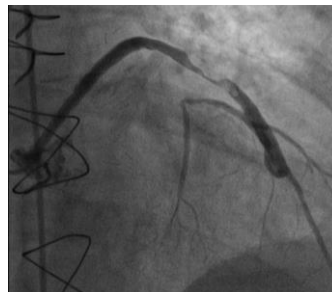
MECAST Trial: Procedural characteristics

		Group A Self-expanding stent (n=63)		Group B Balloon expanding stent (n=55)	
		n (per graft)	%	n (per graft)	%
DES	first generation		6.8		0.0
	second generation		93.2		100.0
		Overall 88 stents implanted, stent size: 2.5 - 4.5 mm		Overall 85 stents implanted, stent size :2.25 – 5.0 mm	
Number of stents per procedure, median		1.4		1.5	
Number of stents per patient, median		1.8		1.7	
Embolic protection device (EPD)		6	9.5	7	12.7
SVG degeneration score	0: 0-25	27	42.9	24	43.6
	1: 26-50	21	33.3	14	25.5
	3: 51-75	9	14.3	10	18.2
	4: 76-100	6	9.5	6	10.9
Stenosis location	ostium	13	20.6	16	29.1
	shaft	42	66.7	29	52.7
	distal anastomosis	3	4.7	10	18.2

		Group A Self-expanding stent (n=63)		Group B Balloon expanding stent (n=55)	
		n (per graft)	%	n (per graft)	%
TIMI-flow pre-procedure	III	49	77.8	42	76.4
	II	8	12.8	8	14.5
	I	3	4.7	1	1.8
	0	3	4.7	4	7.3
TIMI-flow post-procedure	III	62	98.3	53	96.4
	II	1	1.6	1	1.8
	I	0	0.0	0	0.0
	0	0	0.0	1	1.8
Diameter stenosis (%)	pre-intervention	85.7		88.7	
	post-intervention	1.4		4.0	
Procedural success (TIMI II or III flow at the end of proc.)		63	100.0	54	98.2

	Group A Self-expanding stent (n=50)		Group B Balloon expanding stent (n=55)		P-value
	n	(%)	n	(%)	
MACE within 30 days	1	2.0	8	14.5	<0.05
MACE within one year	9	18.0	16	31.4	n.s.
- Cardiac death	5	10.0	6	11.8	n.s.
- MI	1	2.0	9	17.6	<0.05
- TLR	1	2.0	9	17.6	<0.05
- TVR	4	8.0	11	21.6	n.s.
- Stent thrombosis (possible)	1	2.0	3	5.9	n.s.
(definite)	0	0.0	3	5.9	n.s.

- The intervention of degenerated saphenous vein graft stenoses with self-expanding stent might be of advantage compared to balloon expanding stents in short and long term results.
 - Low risk of distal embolization
 - No routine need for embolic protection device
 - Significantly lower MACE rate within 30 days follow-up
 - Significantly lower rate of restenosis/TLR at 12 months follow-up
 - Significantly lower rate of myocardial infarction at 12 months follow-up
- The trial is limited (no randomization, single center analysis, retrospective)
- Further data are needed.



SVG-stenosis

Thank you for your attention