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THE 24TH INTERNATIONAL EXPERTS SYMPOSIUM

CRITICAL ISSUES

IN AORTIC ENDOGRAFTING

DECEMBER 17 & 18 2021

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PULLMAN PARIS BERCY PARIS - FRANCE

Long term outcomes of bridging stents

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- I have no disclosure to declare

Complex endovascular aortic repair

Improvement of results on mortality and morbidity with f/bEVAR

Issues from TV complications

TV patency rates 92 to 99%

Re-intervention rates 8 to 26%

Verhoeven EL et al. Editor's Choice - Ten-year Experience with Endovascular Repair of Thoracoabdominal Aortic Aneurysms: Results from 166 Consecutive Patients. *Eur J Vasc Endovasc Surg.* 2015

Eagleton M et al. Fenestrated and branched endovascular aneurysm repair outcomes for type II and III thoracoabdominal aortic aneurysms. *J Vasc Surg.* 2016

Kotelis D et al. Operative and Midterm Outcomes of the Fenestrated Anaconda Stent-Graft in the Endovascular Treatment of Juxtarenal, Suprarenal, and Type IV Thoracoabdominal Aortic Aneurysms. *J Endovasc Ther.* 2016

Oikonomou Ket al. Graft Complexity-Related Outcomes of Fenestrated Endografting for Abdominal Aortic Aneurysms. *J Endovasc Ther.* 2017

Huang IKH, Renani SA, Morgan RA. Complications and Reinterventions After Fenestrated and Branched EVAR in Patients with Paravisceral and Thoracoabdominal Aneurysms. *Cardiovasc Intervent Radiol.* 2018

Dossabhoy SS et al. Reinterventions after fenestrated or branched endovascular aortic aneurysm repair. *J Vasc Surg.* 2018

- Bridging stents in complex aortic repair

What do we expect ?

Less reintervention

Renal arteries 3% (95% CI 2–4)

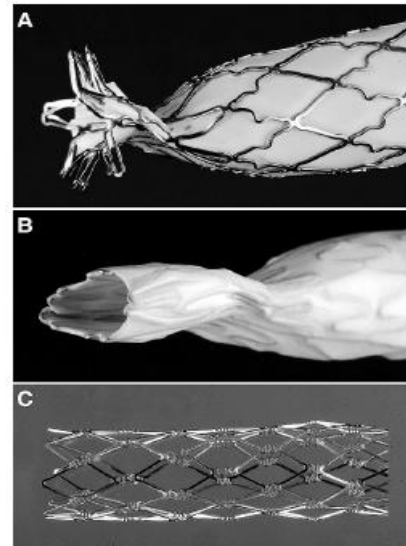
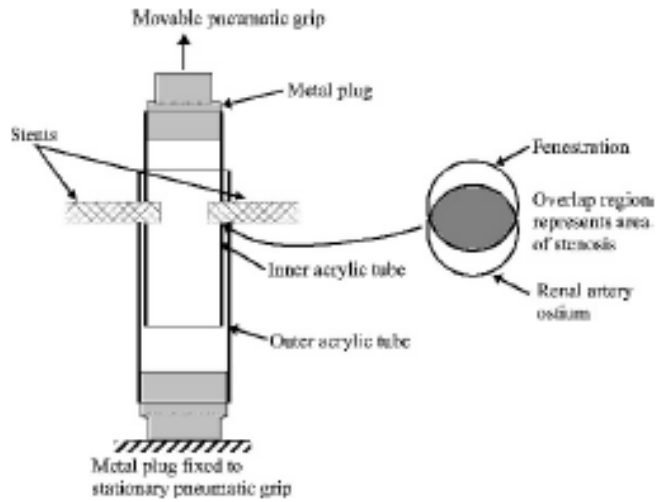
Visceral arteries 2% (95% CI 1–3)

Less target artery complications

Renal arteries 6% (95% CI 4–8)

Visceral arteries 2% (95% CI 1–3)

- Which bridging stents?



Jostent
(Abbott)

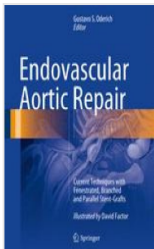
V12
(Atrium)

Genesis
(Cordis)

[Endovascular Aortic Repair](#) pp 359-374 | [Cite as](#)

Selection of Optimal Bridging Stents for Fenestrations and Branches

Flexibility
Radial force
Attachment



Brand	Cover	Stent	Diameter (mm)	Length (mm)	Introducer sheath
Jostent 	PTFE	Stainless steel	2.8 mm to 4.8mm	16, 19, 26	6Fr - 7Fr
Advanta V12 	PTFE	Stainless steel	5mm à 10/12mm	18, 22, 38, 59	6Fr - 9Fr
Lifestream 	ePTFE	Stainless steel	5mm à 12mm	16, 26, 37/38, 58	6Fr - 8Fr
Begrift 	ePTFE	Chrome-Cobalt	5mm à 10mm	18,22, 23, 27, 28, 37, 38, 57,58	6Fr-7Fr
iCover 	ePTFE	Chrome-Cobalt	5mm à 10mm	17, 27, 37, 57	6Fr-7Fr

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Covered stents are still used off label

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Nov 2015- Sept 2016

39 consecutive pts

fEVAR + BeGraft stents

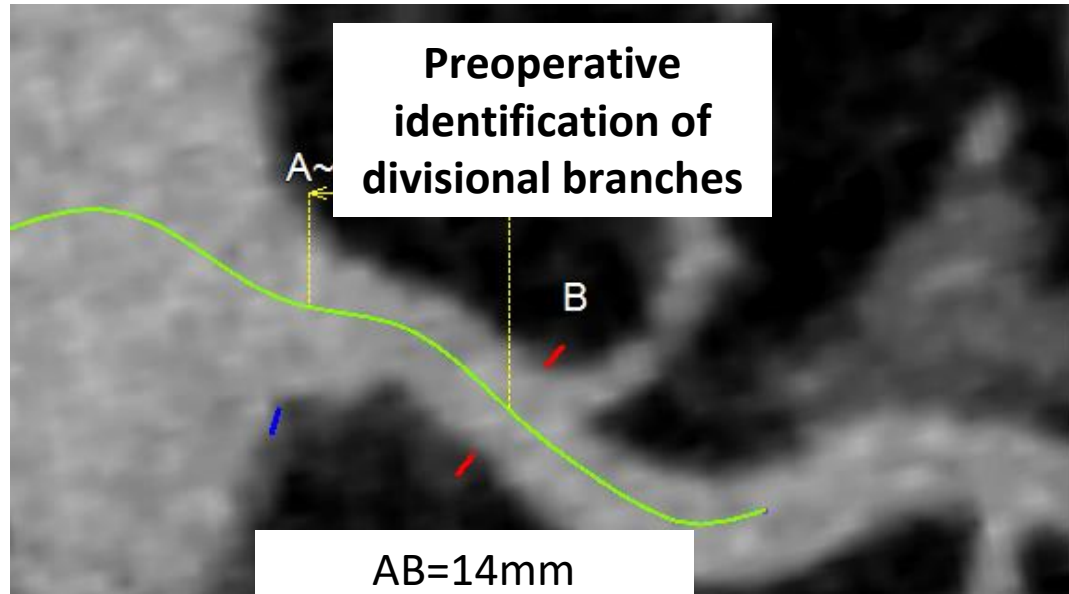
Medical History	Total
	n = 39
Gender: male	38 (97.4)
Age (y)	69.0 (66.0 – 74.5)
Body mass index (kg/m ²)	28.9 (26.1-32.0)
High blood pressure	35 (89.7)
Dyslipidemia	30 (76.9)
Diabetes mellitus	9 (23.1)
Chronic obstructive pulmonary disease	13 (33.3)
Prior myocardial infarction	16 (41.0)
Renal insufficiency	10 (25.6)
Dialysis	1 (2.5)
Previous smoker	24 (61.5)
Current smoker	11 (28.2)
Sleep apnea syndrom	8 (20.5)
American society of anesthesiologists score ≥ 3	34 (87.2)
Prior aortic surgery	16 (41.0)
Prior thoracic endograft	6 (15.4)
Prior abdominal endograft	6 (15.4)
Prior abdominal aortic surgery	4 (10.2)



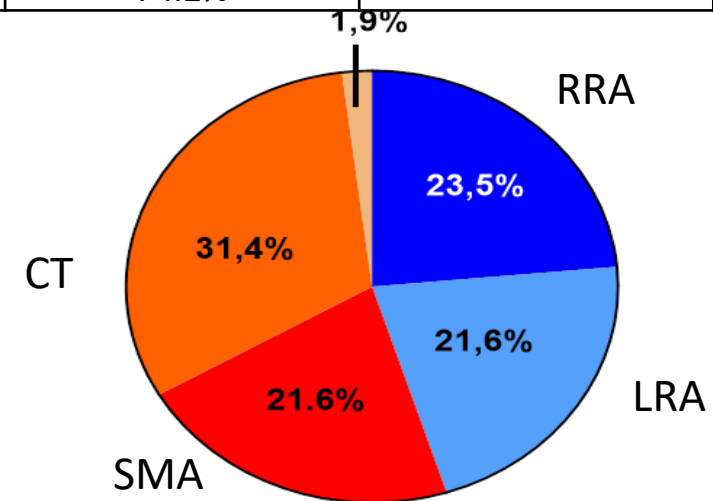
GRUPE
HOSPITALIER
PARIS
SAINT-JOSEPH

Anatomical characteristics	
Type 1 endoleak after EVAR	6 (15.4)
Pararenal aneurysm	10 (25.6)
Juxtarenal aneurysm	9 (23.1)
Thoracoabdominal aneurysm	
Type 1	2 (5.1)
Type 2	3 (7.7)
Type 3	2 (5.1)
Type 4	3 (7.7)
Type 5	4 (10.2)
Preoperative diameter (mm)	60.0 (54.5 - 67.0)

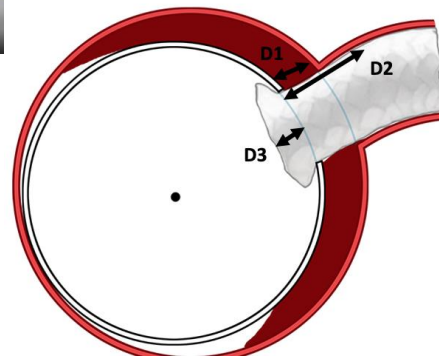
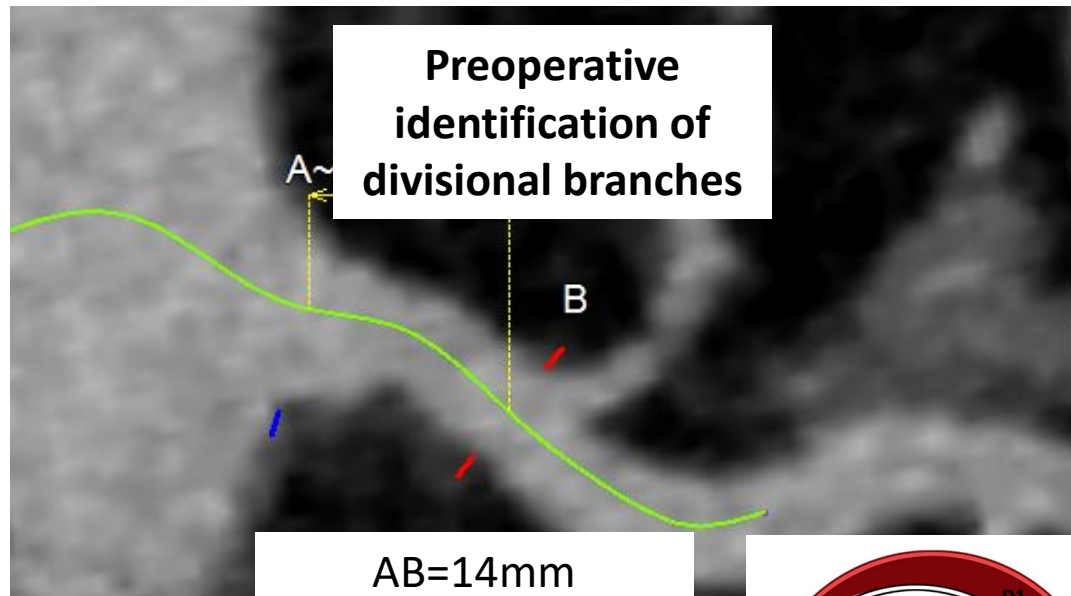
Planned bridging stents



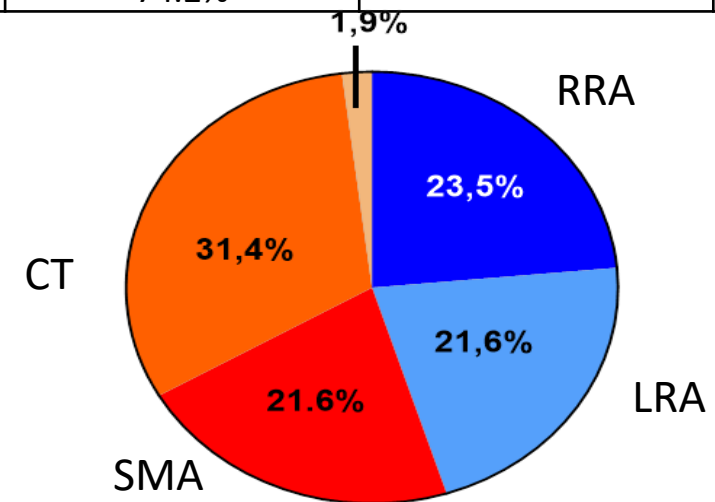
	All stents	Visceral arteries	Renal arteries
	N %	N, %	N, %
BeGraft Stents	101 100%	55, 54,5%	46, 45.5%
Stent length ≤ 23mm	20 19.8%	3, 2,9% 5,3%	17, 16.8%
Stent diameter ≤ 8mm	75 74.2%	29, 28%	46, 45.5%



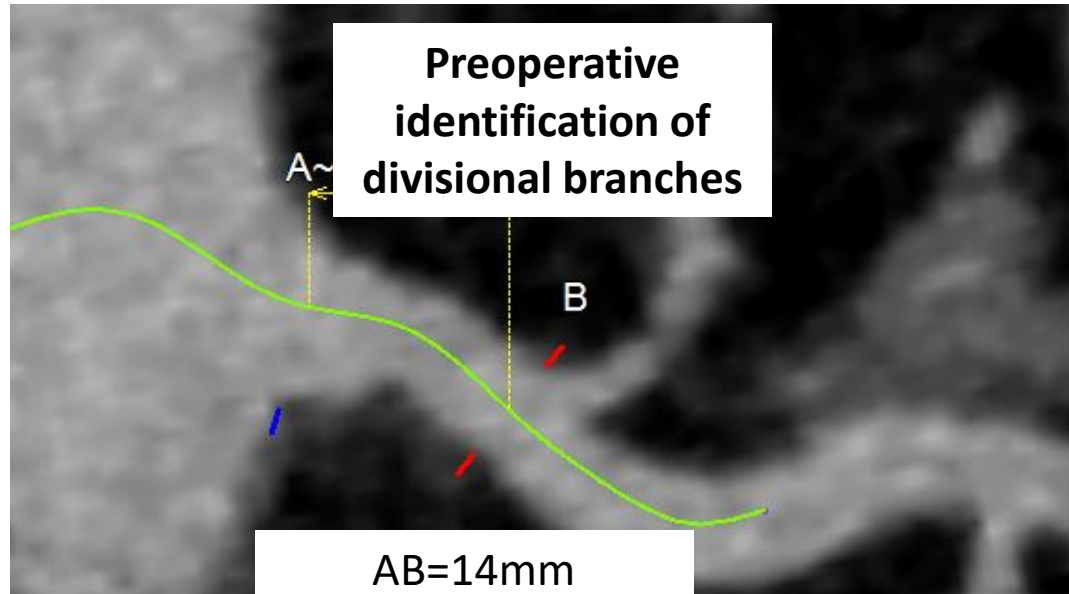
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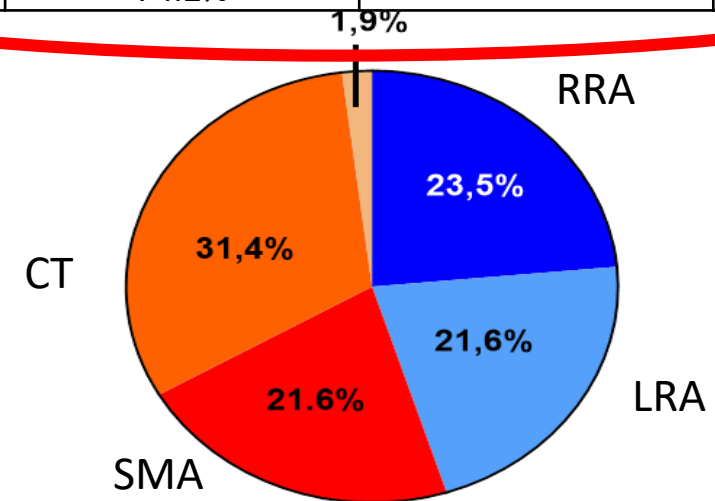


Planned bridging stents



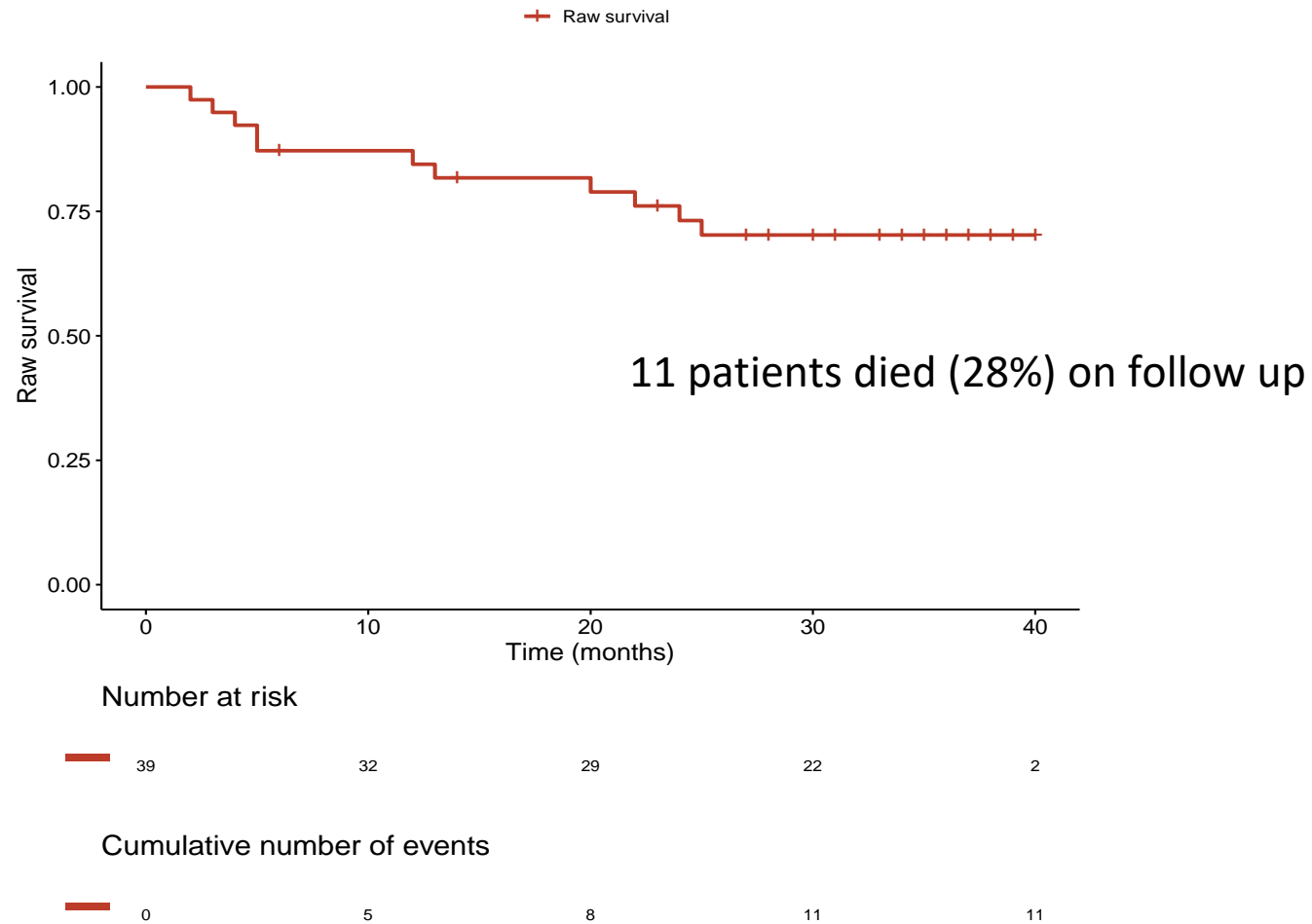
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6Fr compatibility

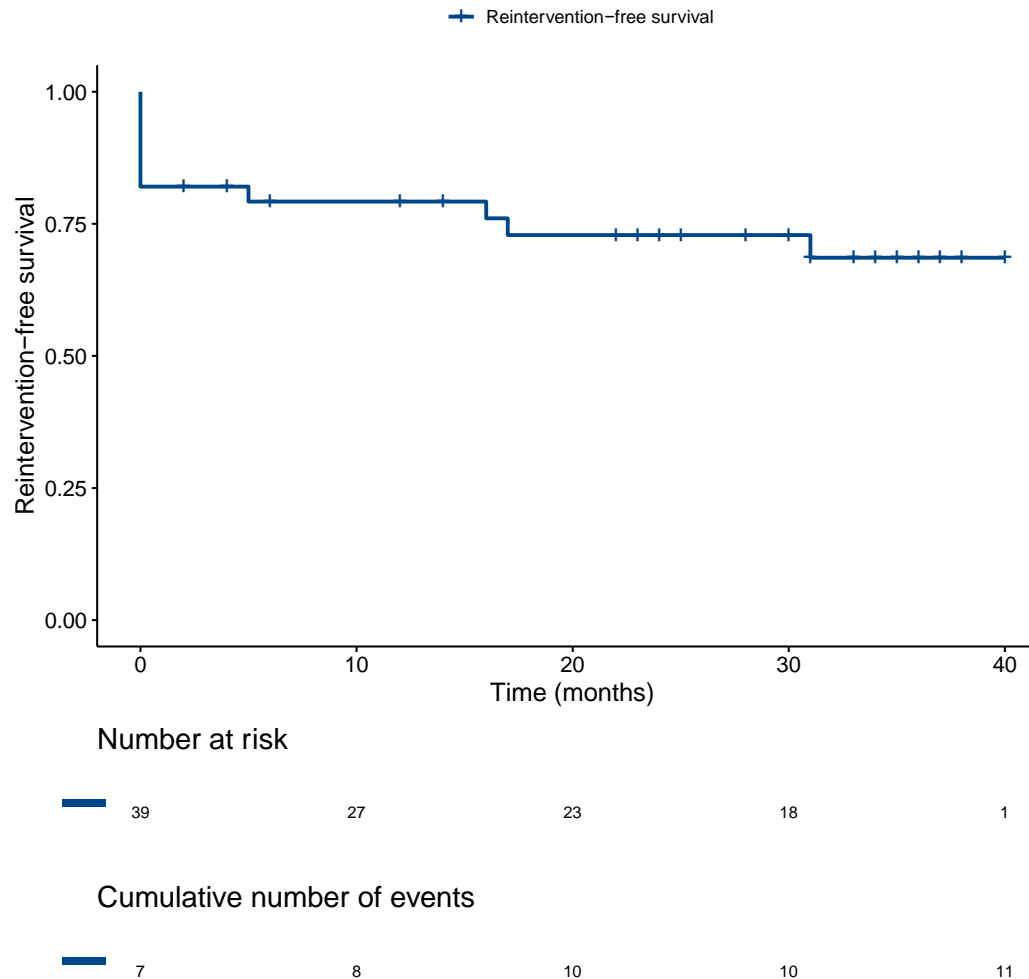


Intra operative events	Total n (%)	Begraft stents n (%)	Other stents n (%)
Bridging stents	149 (100)	97 (65.1)	52 (34.9)
Stent misplacement during deployment	4 (2.8)	0	4 (2.8)
Additional angioplasty	8 (5.4)	2 (1.3)	6 (4)
Additional covered stent	8 (5.4)	2 (1.3)	6 (4)
Additional nitinol stent	4 (2.8)	1 (0.7)	3 (2)
Stent kinking	2 (1.3)	1 (0.7)	1 (0.7)

- Median follow-up 33 months (IQ25 17 - IQ75 36)



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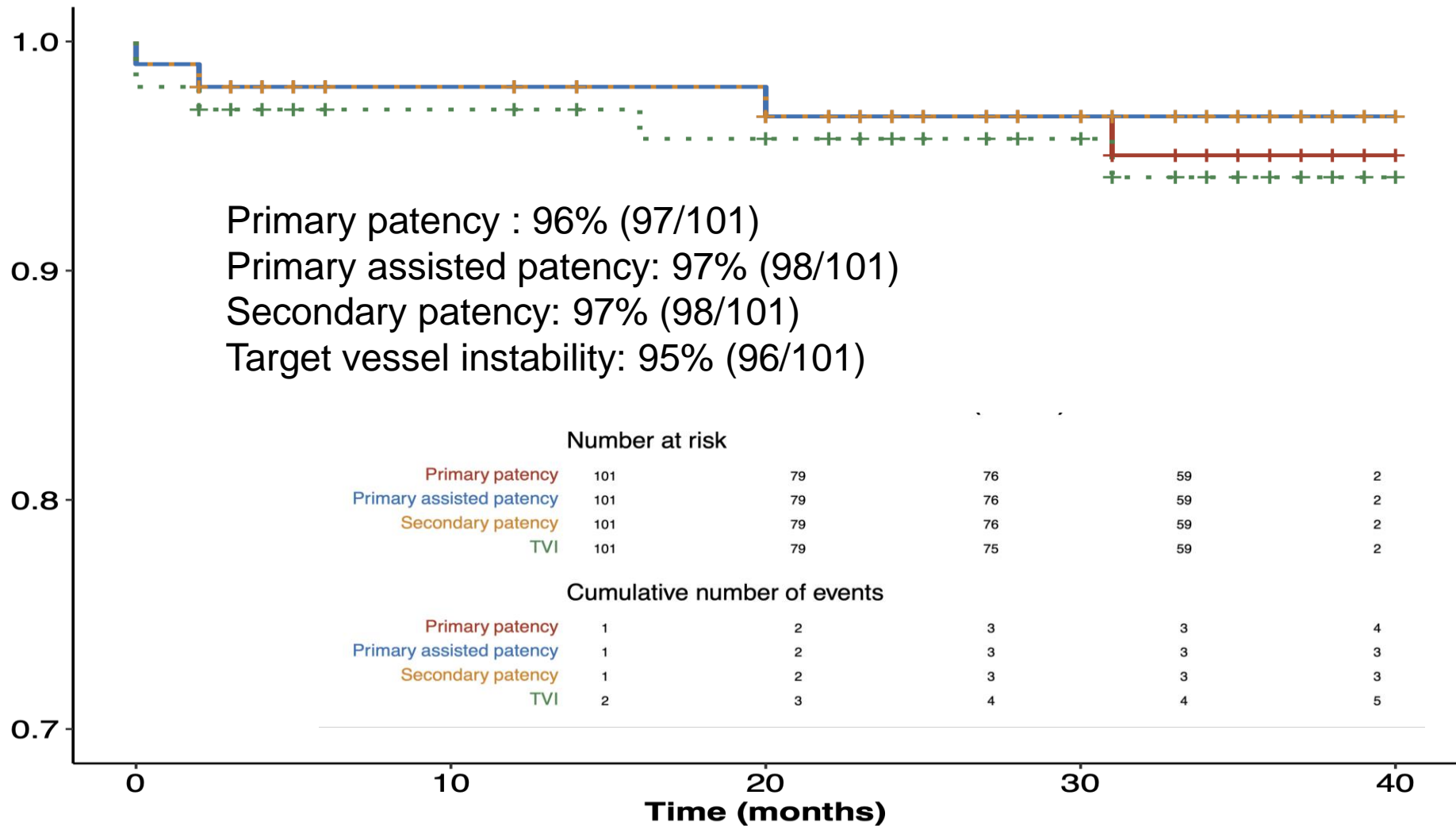


- Median follow-up 33 months (IQ25 17 - IQ75 36)

Secondary procedures (N=39)	Early [\leq 30 post-operative days]	Late [$>$ 30 postoperative days]
Overall	8 (20.5)	7 (18)
- for access complications	2 (5.1)	1 (2.6)
- for emboli complications	2 (5.1)	1 (2.6)
- for bowel surgery	1 (2.6)	1 (2.6)
- for haemorrhage	2 (5.1)	
- for type 2 endoleak	1 (2.6)	
Freedom from secondary procedure rate on BeGraft graft stents of 96% (97/101)		
- for stent complications	1 (2.6)	2 (5)
	Renal stents salvage	1c endoleak (16mo) kinking of LRA stent (31mo)
- endograft explant	0	1 (2.6)
^a Data are presented as median (Q1 - Q3) or n(%)		

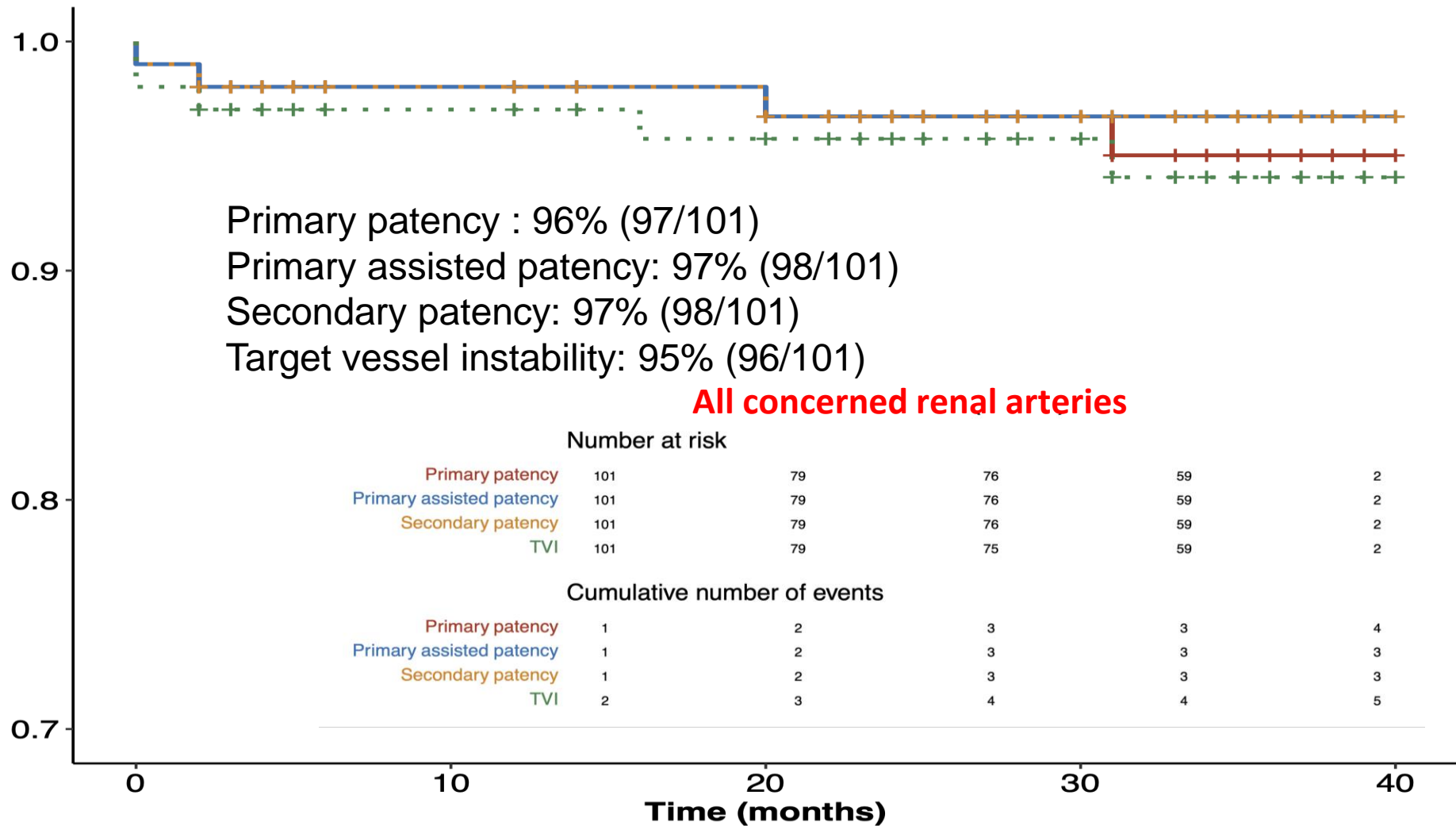
Survival definition — Primary patency — Primary assisted patency — Secondary patency — TVI

Survival probability



Survival definition — Primary patency — Primary assisted patency — Secondary patency — TVI

Survival probability



Conclusions

- Favorable mid-term outcomes with begraft stents used as bridging stents during fEVAR
- TV stability remains an issue in complex endo aortic repair
- Specific indication of bridging stents in f/bEVAR
- Appropriate bridging stents depending on anatomy of TV

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