Primary Arteriovenous Fistula Creation as the Primary Dialysis Option (CON)

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Disclosures

- No financial disclosures (but I'd consider offers)
- >4,000 open fistulas and grafts (just shy of 47 years experience)
- I have never performed an endovascular fistula

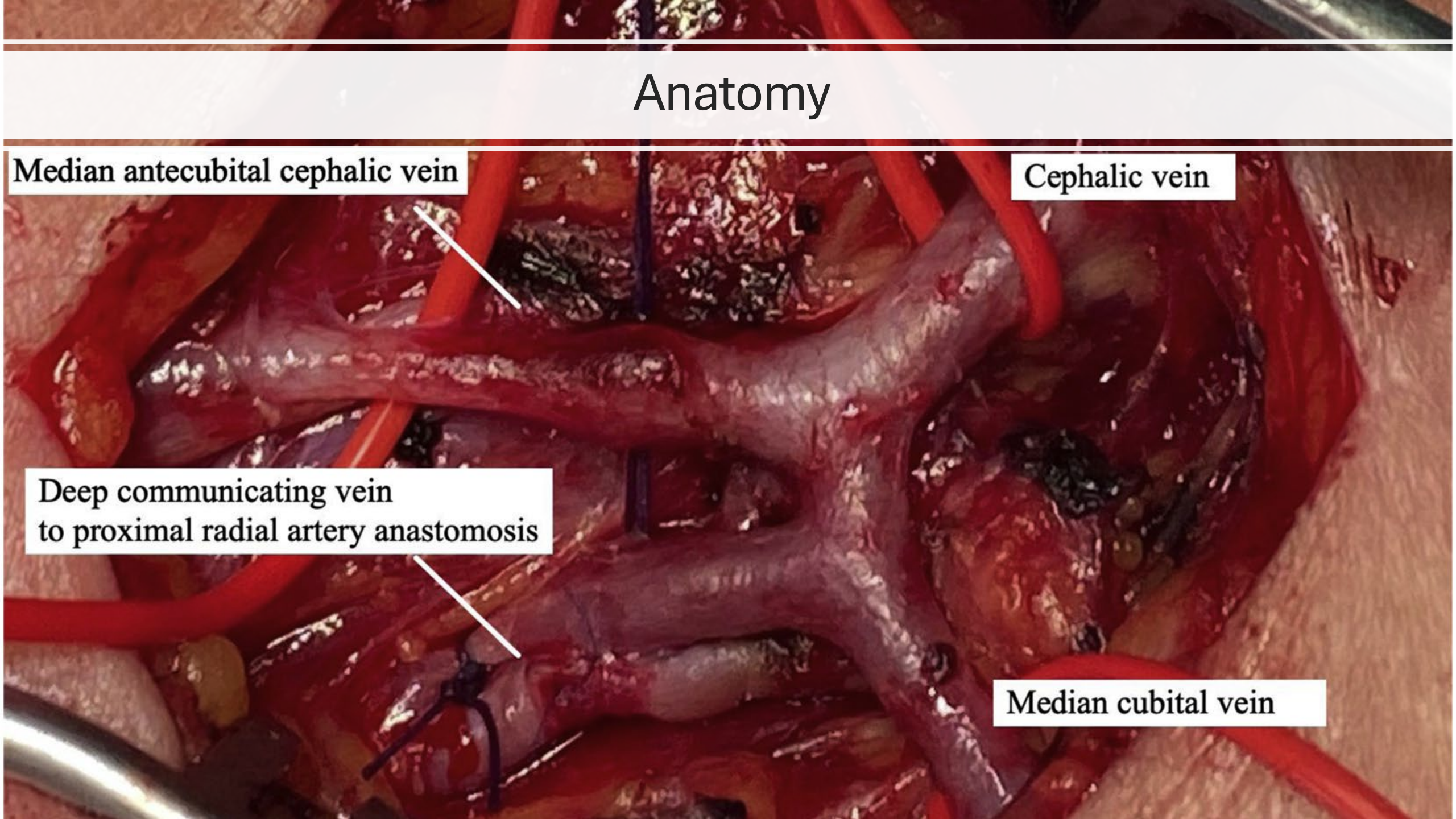
Patient Selection

- Anatomic Suitability: vein lies next to the artery
- 55% for WavelinQ met criteria
- 44% for Ellipsys
- Obesity
- More predialysis patients (44% vs. 28%)
- Brachial artery >2.5 mm
- Vein >2.0 mm
- No proximal venous occlusions

Goal: Secondary Patency 1 year

- Hemodialysis Maturation Study (AJKD 2017): 67%
- Jaishi, AA, et al, (AJKD 2014): 71%
- Bylsma, LC, et al, (Eur J Vasc Endovasc Surg 2017): 79%

Anatomy


Median antecubital cephalic vein
Cephalic vein
Deep communicating vein
to proximal radial artery anastomosis
Median cubital vein

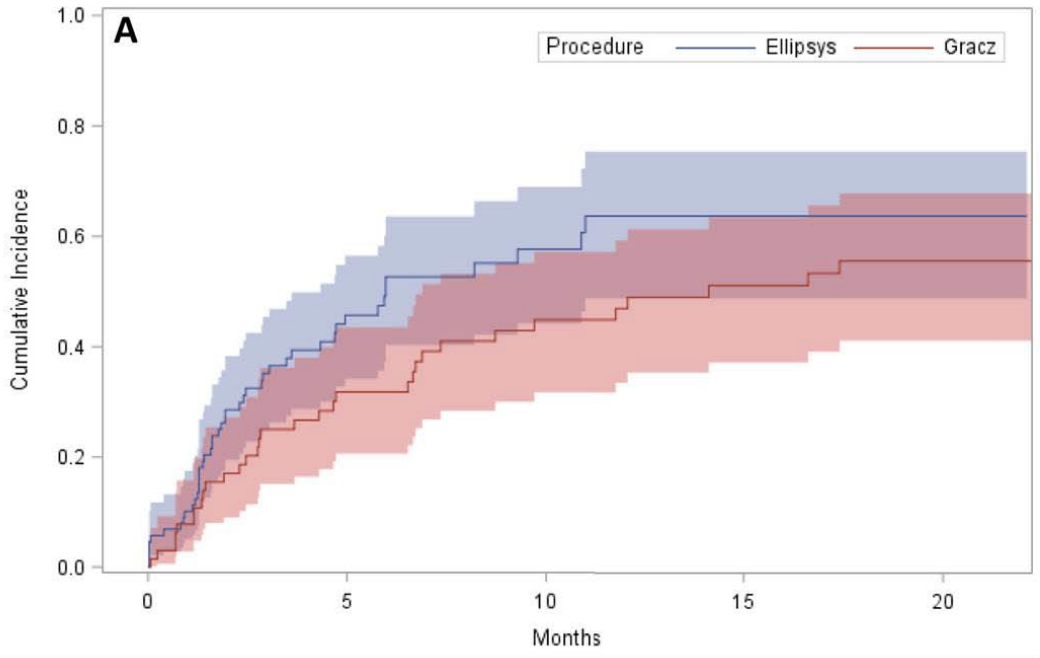
Ellipsys (proximal radio-cephalic)

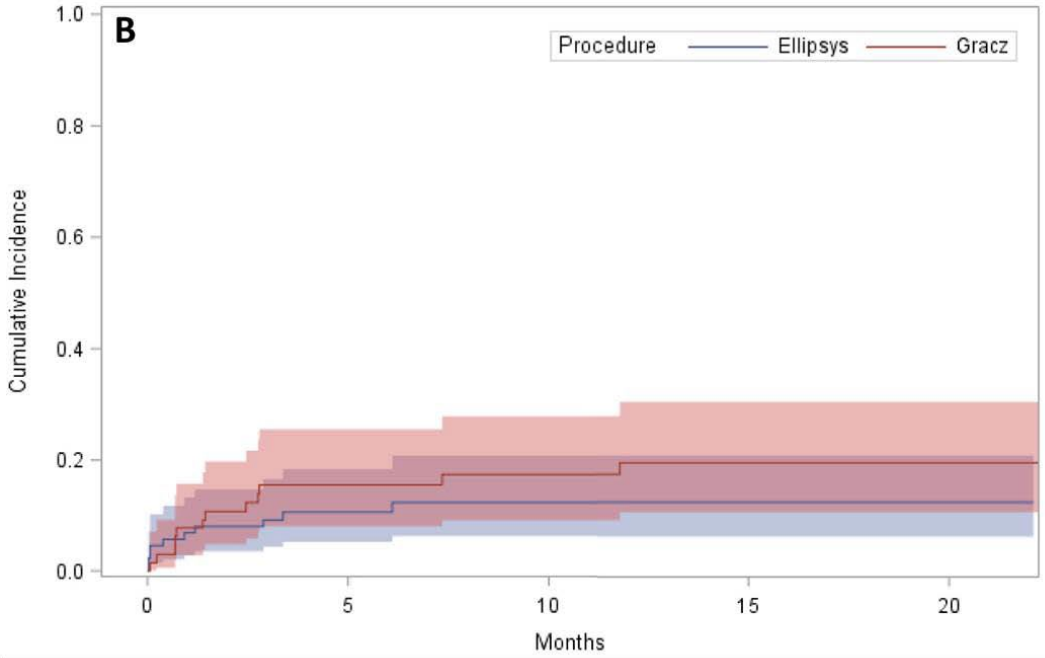
Results: Ellipsys/Gracz

Primary failure

Secondary failure

Shadhverdyan, R. et al. Am. J Kidney Dis 2021 pp. 520-529)





Procedure Type		Months							
		0	3	6	9	12	15	18	21
Ellipsys (pAVF)	Number at risk	89	48	27	18	11	8	5	2
	Cumulative incidence	0	0.35	0.53	0.55	0.64	0.64	0.64	0.64
Gracz (sAVF)	Number at risk	69	46	37	30	26	23	20	15
	Cumulative incidence	0	0.25	0.32	0.43	0.47	0.51	0.56	0.56

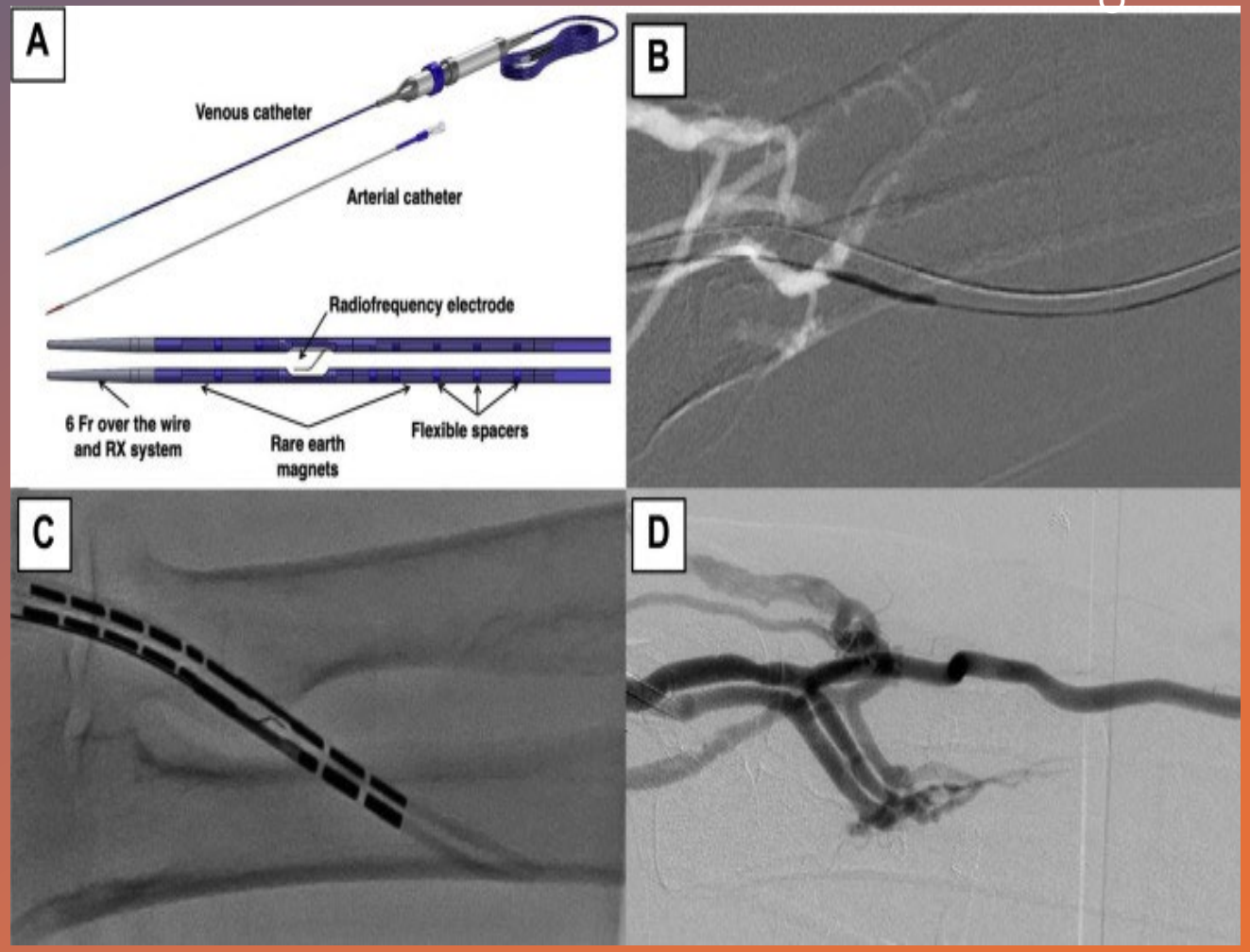
Procedure Type		Months							
		0	3	6	9	12	15	18	21
Ellipsys (pAVF)	Number at risk	89	67	51	38	30	18	10	4
	Cumulative incidence	0	0.09	0.11	0.12	0.12	0.12	0.12	0.12
Gracz (sAVF)	Number at risk	69	52	45	42	39	38	35	26
	Cumulative incidence	0	0.16	0.16	0.17	0.20	0.20	0.20	0.20

Results: Ellipsys/Gracz

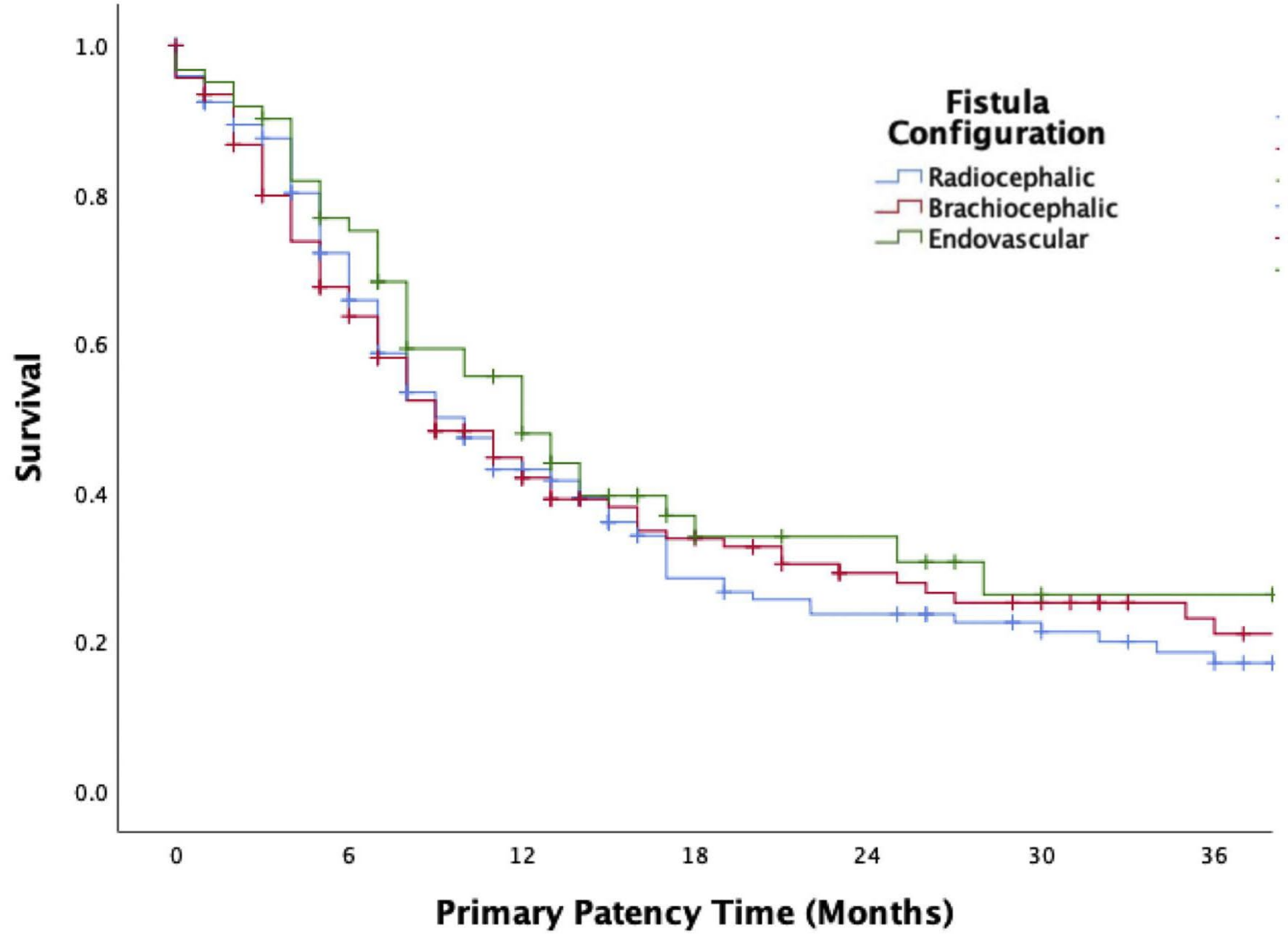
Shadhverdyan, R. et al. Am. J Kidney Dis 2021 pp. 520-529

	Patients	Primary Patency	Secondary Patency	Time
Ellipsys Perc	89	53 %	63 %	14 min
Brachiocephalic Surg	69	36 %	88 %	74 min

Everlinq System (ulnar artery vein- with coiling of brachial vein/veins)

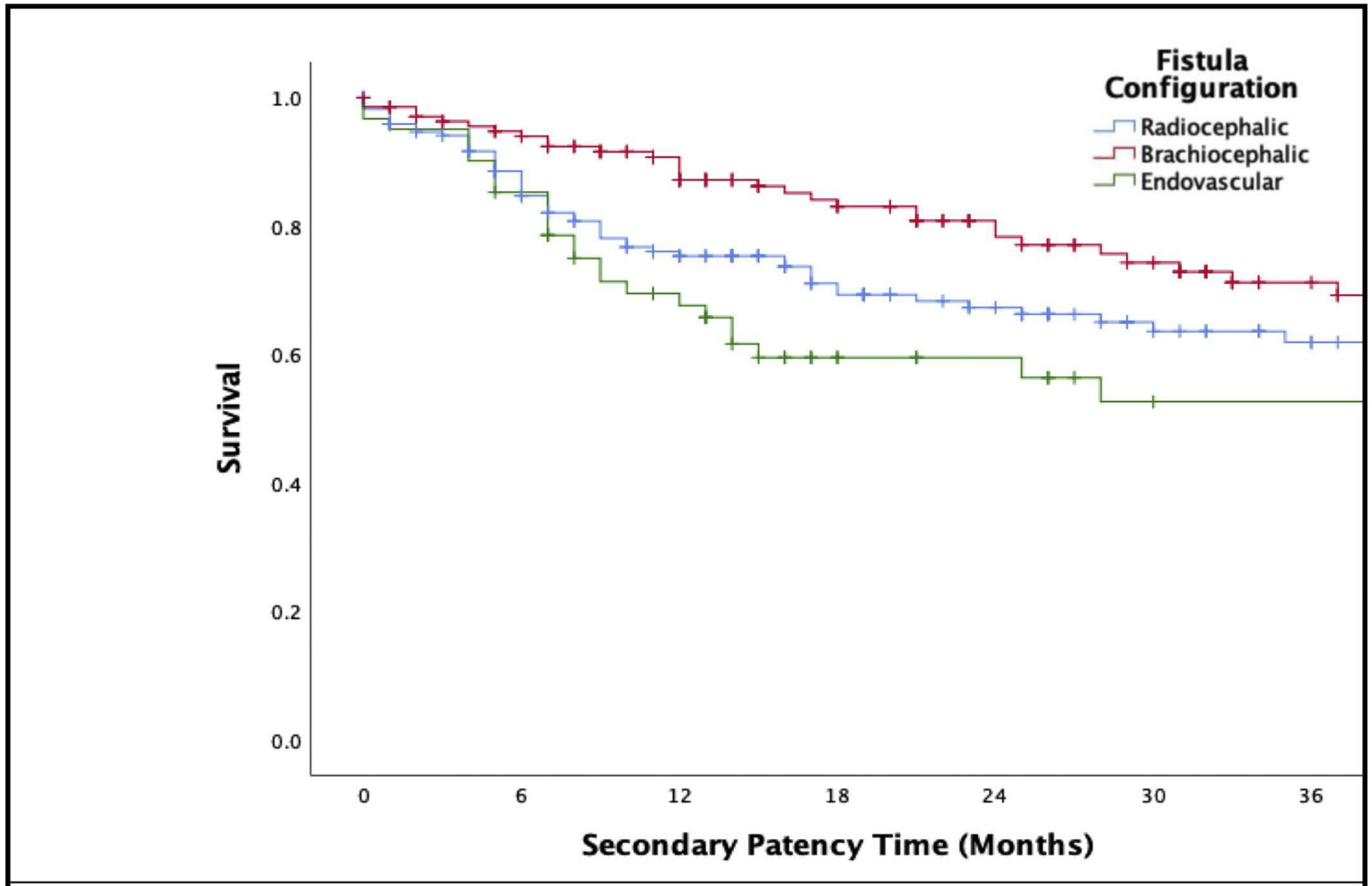


Results: Everlinq. (Primary Patency) Mordhorst, A et al. JVS 2022: 75:238-47



iocephalic Access NAR	171	113	58	30	24	14	12
ary patency (SEM)%	**100**	**72 (4)**	**43 (4)**	**29 (4)**	**24 (4)**	**21 (4)**	**17 (4)**
hiocephalic Access NAR	137	91	48	32	22	17	10
ary patency (SEM)%	**100**	**64 (4)**	**45 (4)**	**34 (4)**	**30 (4)**	**25 (4)**	**21 (5)**
ovascular Access NAR	61	44	28	11	10	8	5
ary patency (SEM)%	**100**	**75 (6)**	**56 (7)**	**34 (7)**	**34 (7)**	**26 (7)**	**53 (8)**

Results: Everlinq. (Secondary Patency) Mordhorst, A et al. JVS 2022: 75:238-47



Radiocephalic Access NAR	171	137	107	79	64	44	35
Secondary patency (SEM)%	**100**	**89 (3)**	**75 (3)**	**71 (4)**	**67 (4)**	**64 (4)**	**62 (5)**
Brachiocephalic Access NAR	137	120	102	79	61	54	43
Secondary patency (SEM)%	**100**	**94 (2)**	**91 (2)**	**83 (4)**	**81 (4)**	**74 (4)**	**71 (4)**
Endovascular Access NAR	61	52	36	22	19	13	12
Secondary patency (SEM)%	**100**	**85 (5)**	**68 (6)**	**66 (7)**	**60 (7)**	**53 (8)**	**53 (8)**

Comparison Open/Endovascular AVF Creation
Mordhorst, A et al. JVS 2022: 75:238-47

ONE YEAR	Patients 369	Failure to mature	Secondary patency
Endovascular	61	27%	68%
Radio cephalic Surgery	171	27%	75%
Brachiocephalic Surgery	137	4%	91%

CONCLUSION

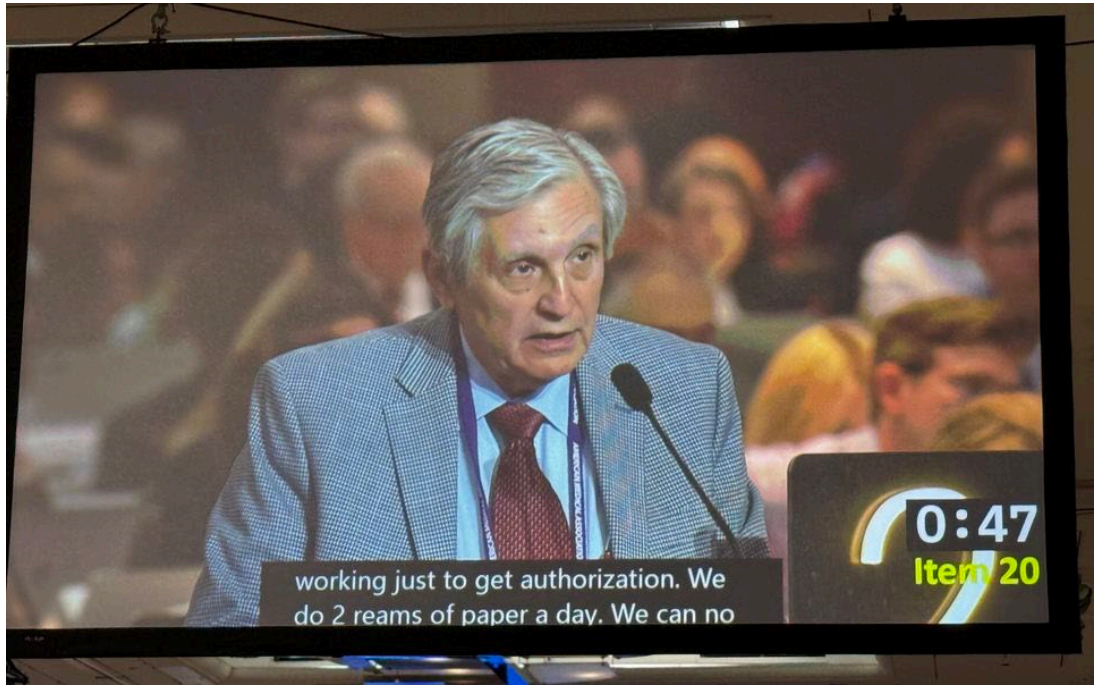
- Higher patency with Ellipsys than EverlinQ/WavelinQ
- Endovascular AVFs showed lower flow rates
- Percutaneous AVFs are INFERIOR to arteriovenous fistula (with respect to maturation and secondary patency
- Average per patient ENDO AVF cost is $30,129
- PLUS cost of coiling branches
- Average SURGICAL AVF cost is $12,987

Final

Endovascular Arteriovenous Fistulas should NOT be seen as a replacement for surgically created AVFs

THANK YOU!!

Leonidas. Battle of Thermopylae



Palamara: Battle of Prior Authorizations