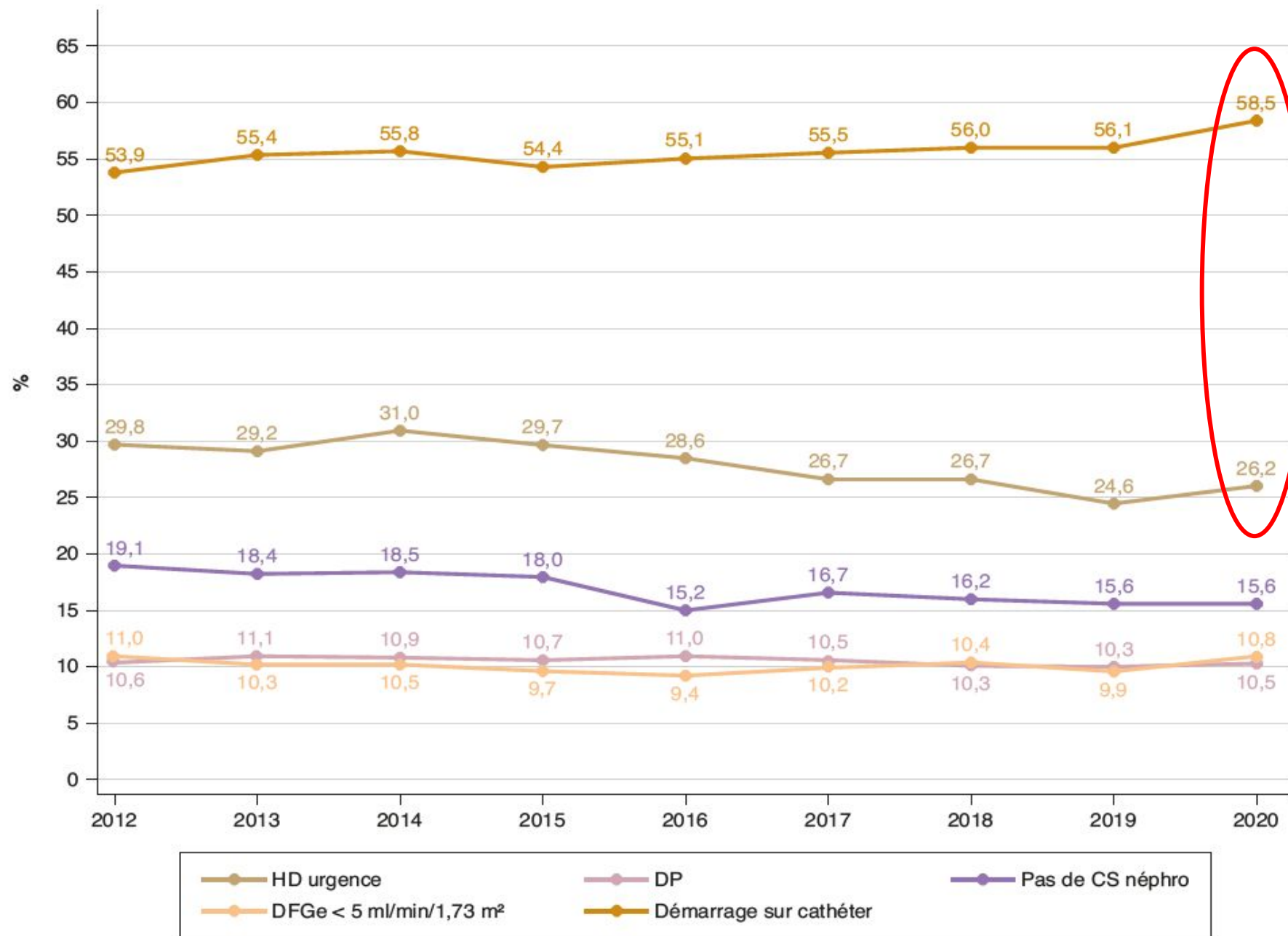


Abords vasculaires : Les 10 principales publications de 2021-2022

(Le point de vue du néphrologue)

Dorian NEZAM
Néphrologie Dialyse et Transplantation rénale
Bois Guillaume
10/12/22





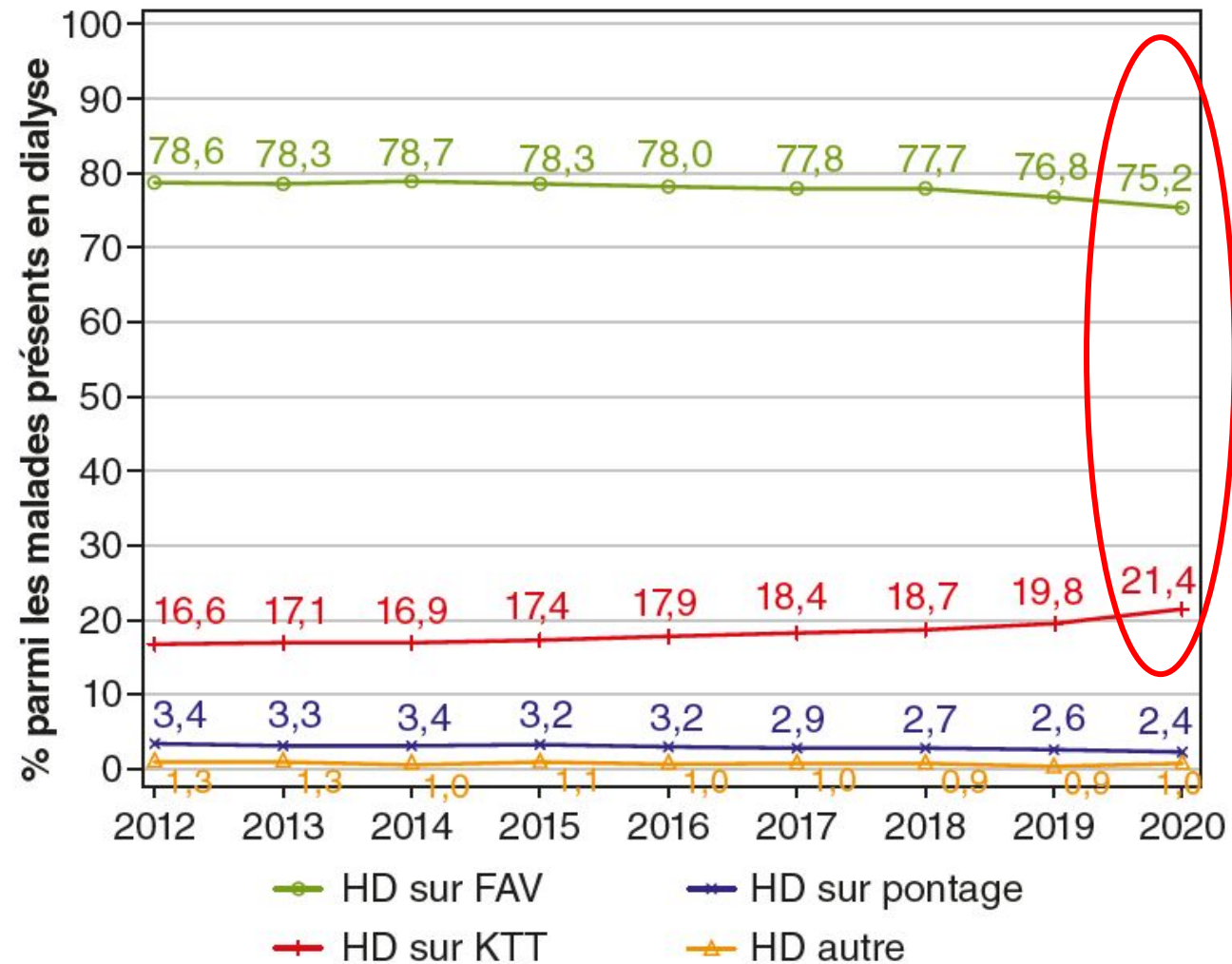
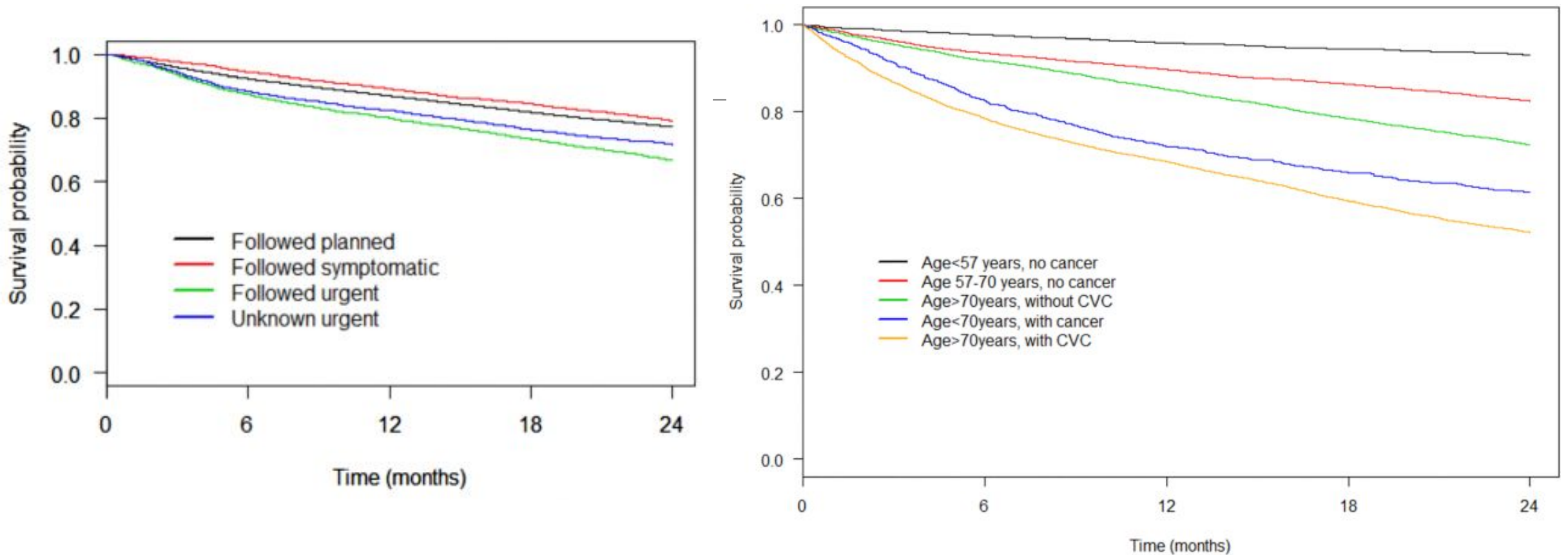


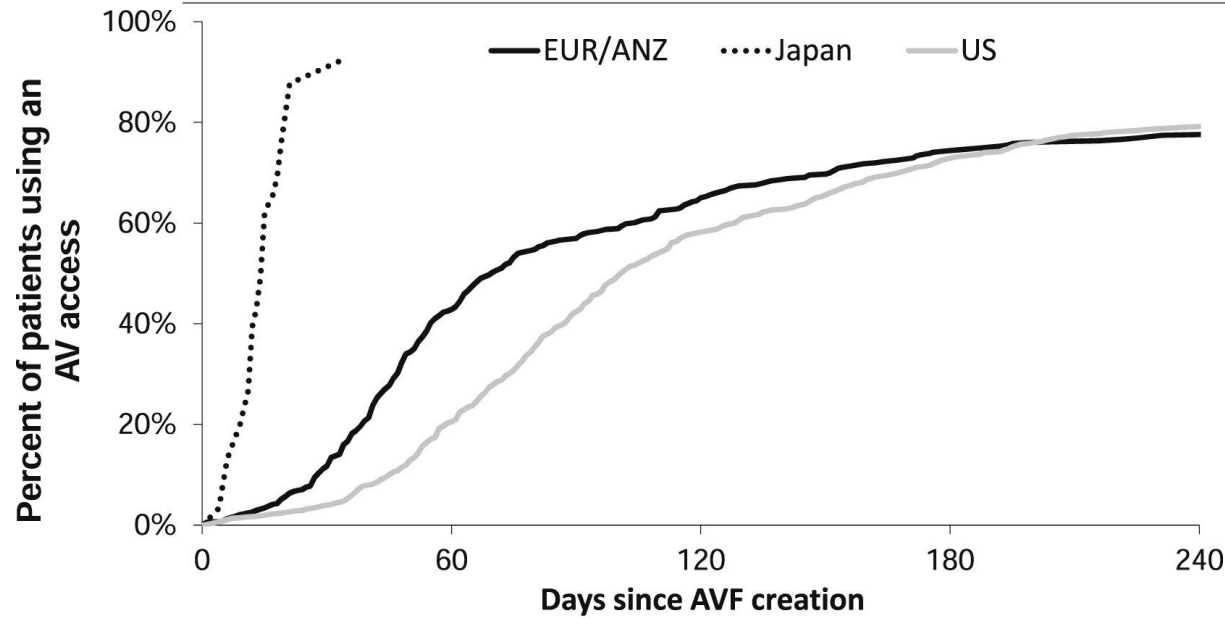
Fig. 3. Évolution en pourcentage des voies d'abord utilisées chez les patients présents en hémodialyse au 31 décembre de chaque année.

Démarrage en urgence sur KT

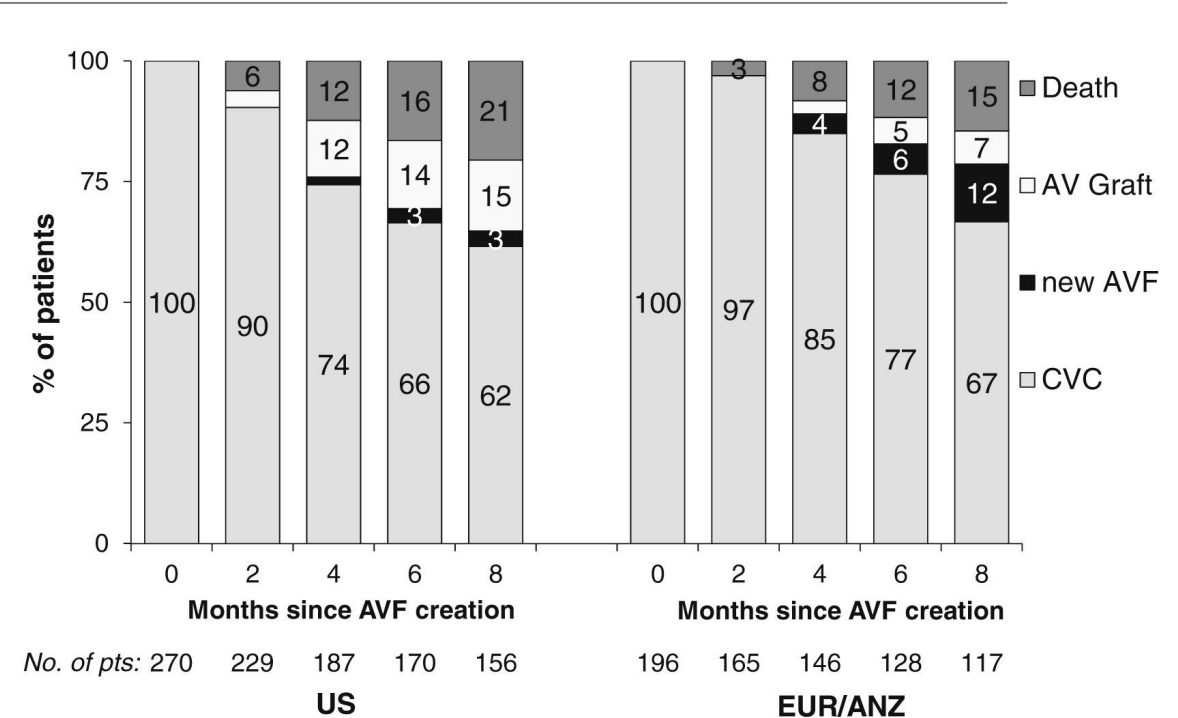


Alizada, U., et al. (2022) *Journal of nephrology*, 35(3), 977–988.

Maturation FAV



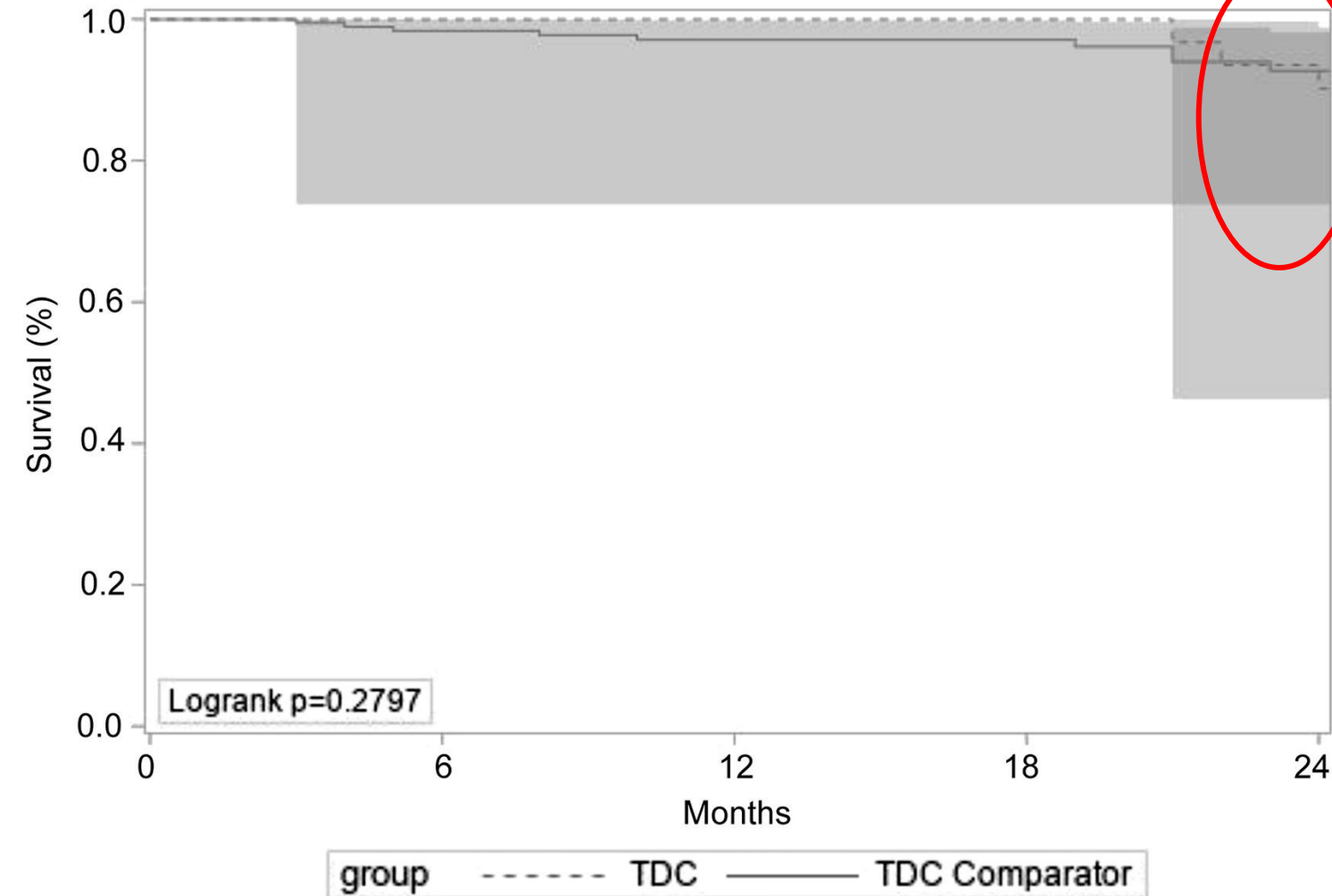
N (AVFs) at day 0 were: EUR/ANZ (579), Japan (29), and US (755)



2191 FAV créées chez 2040 patients
466 centres de dialyse (US, Japon, Europe/océanie)

Pisoni RL, et al. Am J Kidney Dis. 2021

Product-Limit Survival Estimates
With 95% Hall-Wellner Bands



Survie à long terme des patients avec KT tunnelisé

Etude rétrospective monocentrique (Boston)

KT > 180 jours

groupe KT : 50 patients

groupe contrôle : 200 patients

complications chez 46% des porteurs de KT dont :

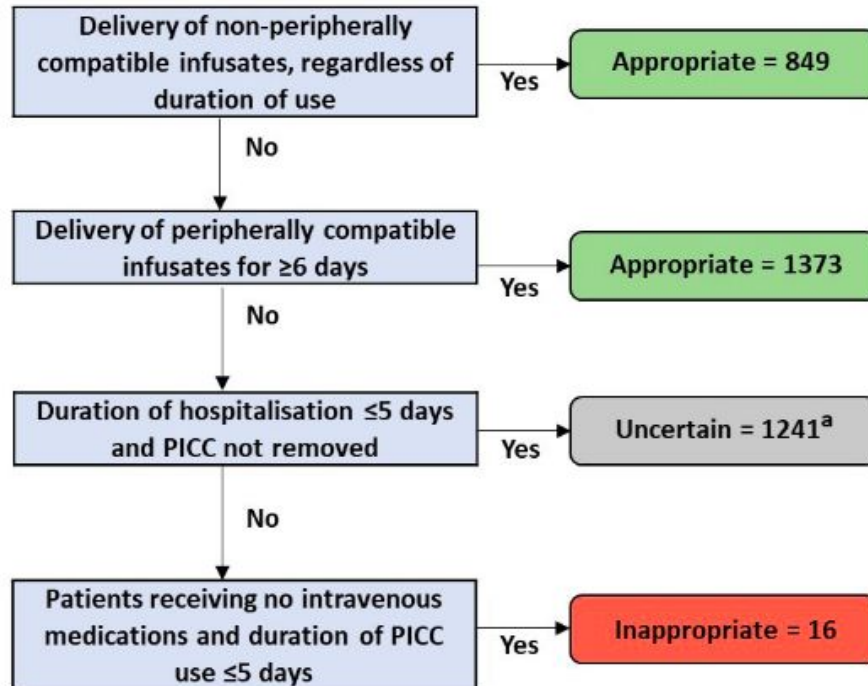
- sténose veineuse centrale 33,4%
- infection 29,6%
- déplacement du KT 27,8%
- thrombose 7,9%

Castro V, *et al.* Reasons for long-term tunneled dialysis catheter use and associated morbidity. J Vasc Surg. 2021

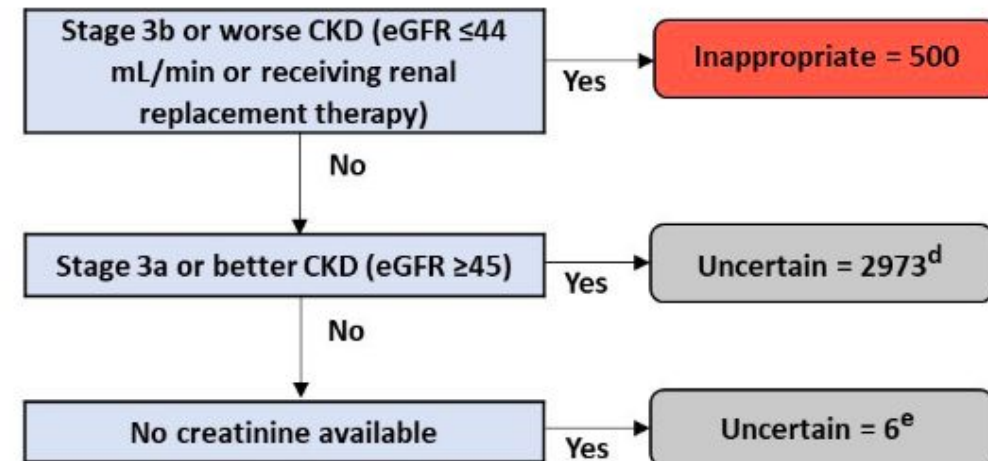
picc-line

Michigan appropriateness guide for intravenous access (MAGIC)
Etude rétrospective dans 5 services de médecine polyvalente canadiens
3479 implantations de PICC line

Infused Medications



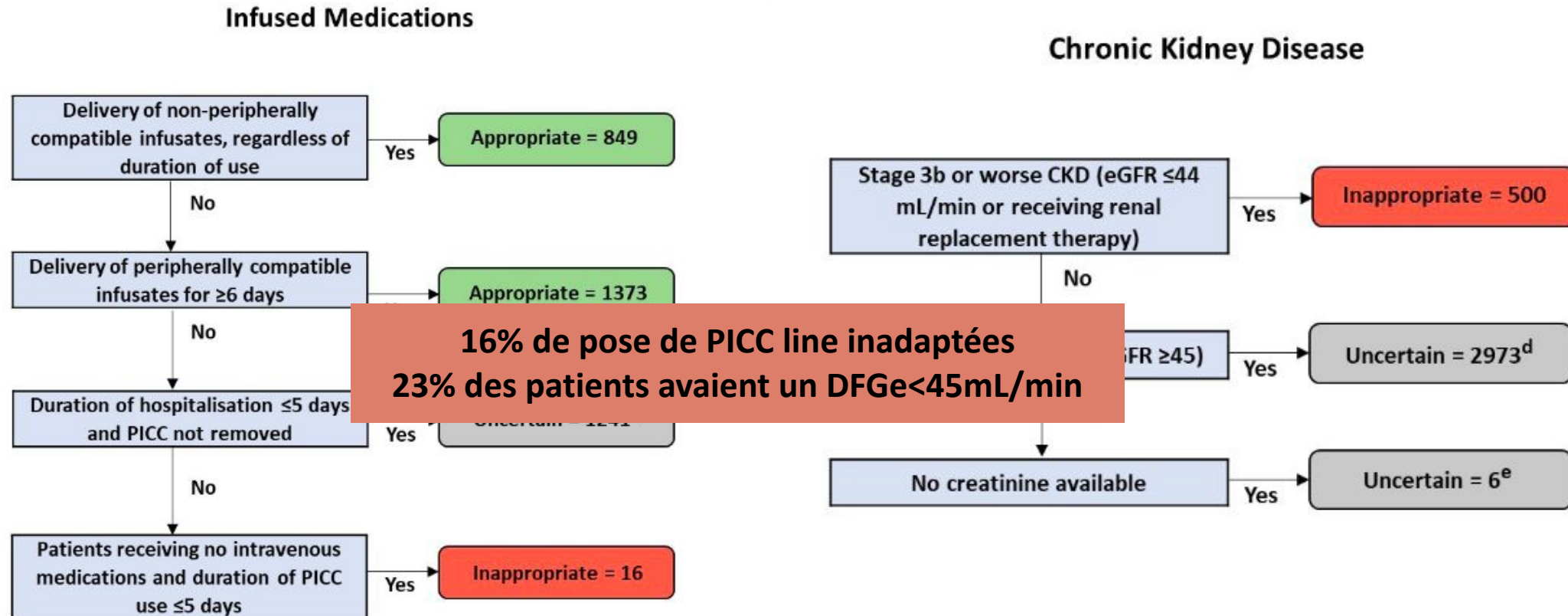
Chronic Kidney Disease



Verma, A. et al. (2020). *BMJ quality & safety*, 29(11), 905–911.

picc-line

Michigan appropriateness guide for intravenous access (MAGIC)
Etude rétrospective dans 5 services de médecine polyvalente canadiens
3479 implantations de PICC line



Verma, A. et al. (2020). *BMJ quality & safety*, 29(11), 905–911.

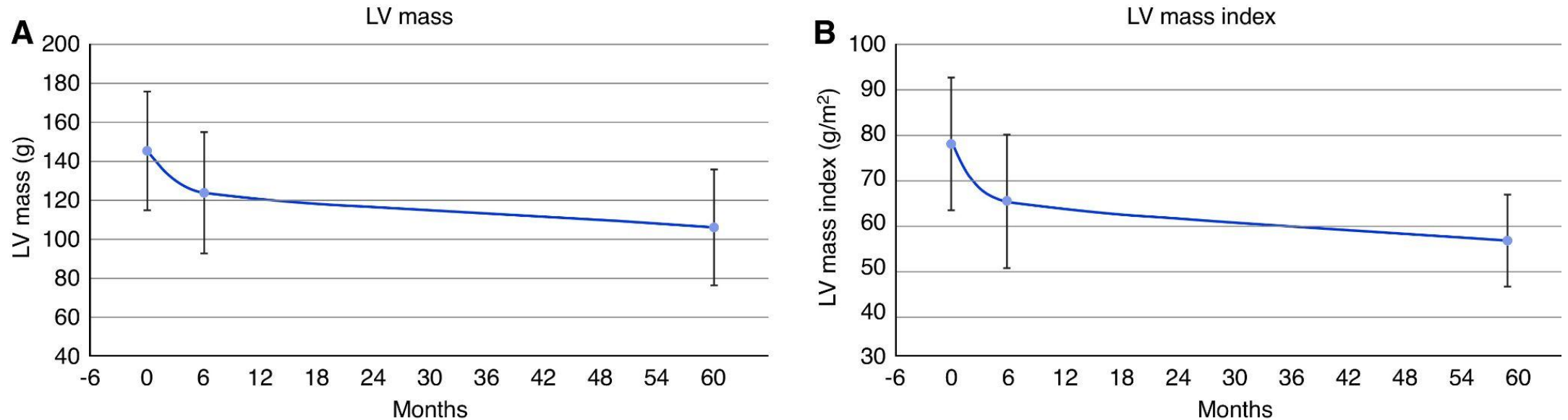
Thrombose de FAV : facteurs de risque

Risk factors	Study details	Effect measure		Heterogeneity	Publication bias		
	studies, <i>n</i>	OR (95% CI)	<i>p</i> value		Egger <i>p</i> value	trim-and-fill-imputed studies	trim-and-fill-adjusted OR (95% CI)
AVG	4	6.28 (1.79–22.02)	0.004	87	0.896	1	1.600 (0.323–8.523)
Age	5	1.06 (1.00–1.13)	0.05	98	0.070	2	1.002 (0.937–1.071)
Female	3	2.62 (2.56–2.69)	<0.00001	0	0.520	0	–
Diabetes	6	1.49 (0.95–2.34)	0.08	76	0.378	2	1.288 (0.804–2.065)
CRP	6	1.18 (1.08–1.30)	0.0005	90	0.324	0	–
Fistula site (distal)	3	3.64 (1.74–7.62)	0.0006	47	0.052	0	–
Hypertension	2	1.21 (1.00–1.47)	0.05	46	–	1	1.149 (0.963–1.371)
SBP	3	0.94 (0.73–1.21)	0.63	91	0.450	0	–
CD34 ⁺ KDR ⁺ cell	2	1.85 (1.33–2.57)	0.0002	0	–	1	1.799 (1.372–2.359)
Eprex use	2	5.36 (1.82–15.77)	0.002	0	–	1	4.050 (1.562–10.499)
Albumin	2	0.58 (0.21–1.56)	0.28	46	–	–	–

Méta-analyse
27 études de 2003 à 2022
49 688 patients

Zhang Y, Yi J, et al. Kidney Blood Press Res. 2022;47(11):643-653

Ligature FAV chez le transplanté



Etude randomisée initiale : 27 patients groupe ligature et 27 groupe contrôle
FAV au bras et à l'avant-bras : 50/50
IRM cardiaque à M0, M6
IRM cardiaque à 5 ans (seulement dans le groupe ligature à 5 ans, n=17)

Salehi T, et al. Kidney360. 2021

Ligature FAV chez le transplanté

End Points	Baseline	6-mo Follow-Up	Long-Term Follow-Up	Δ^a	P Value ^a
LV mass, g	145.7±30.5	124.0±31.1	106.4±29.6	-17.6±23.0	0.006
LV mass index, g/m ²	77.8±14.9	66.1±15.2	56.1±10.3	-10.0±13.0	0.006
LV end diastolic volume, ml	152.6±53.8	127.5±48.1	135.5±41.5	8.0±24.7	0.20
LV end systolic volume, ml	51.4±24.3	42.4±30.9	53.7±20.3	11.3±20.0	0.03
LV ejection fraction, %	69.9±9.7	68.1±11.8	60.6±8.0	-7.5±10.3	0.009
LV cardiac output, L/min	6.8±2.3	5.7±1.4	5.2±1.5	-0.5±1.4	0.14
LV cardiac index, L·min ⁻¹ ·m ⁻²	3.9±0.7	3.1±0.6	2.7±0.6	-0.4±0.8	0.05
LA volume, ml	93.2±26.8	76.4±28.0	67.8±26.9	-8.6±17.0	0.05
LA volume index, ml/m ²	49.1±9.9	40.2±12.0	35.3±10.9	-4.9±9.4	0.05
RA area, cm ²	22.2±5.2	20.2±5.7	18.5±6.0	-1.8±4.5	0.13
Serum creatinine, μ mol/L	117.0±56.5	107.2±51.5	112.8±50.2	5.6±29.8	0.45
BP, mm Hg					
Systolic	125.4±13.5	125.8±8.3	143.0±20.7	17.2±21.5	0.005
Diastolic	74.5±7.8	74.5±8.0	85.4±9.0	10.9±12.1	0.002

Plus-minus values are means $\pm$ SD. LV, left ventricle; LA, left atrium; RA, right atrium.

^aComparison of cardiac parameters at 6-month and long-term follow-up.

Salehi T, et al. Kidney360. 2021

Ligature FAV chez le transplanté

End Points	Baseline	6-mo Follow-Up	Long-Term Follow-Up	Δ^a	P Value ^a
LV mass, g	145.7±30.5	124.0±31.1	106.4±29.6	-17.6±23.0	0.006
LV mass index, g/m ²	77.8±14.9	66.1±15.2	56.1±10.3	-10.0±13.0	0.006
LV end diastolic volume, ml	152.6±53.8	127.5±48.1	135.5±41.5	8.0±24.7	0.20
LV end systolic volume, ml	51.4±24.3	42.4±30.9	53.7±20.3	11.3±20.0	0.03
LV ejection fraction, %	69.9±9.7	68.1±11.8	60.6±8.0	-7.5±10.3	0.009
LV cardiac output, L/min	6.8±2.3	5.7±1.4	5.2±1.5	-0.5±1.4	0.14
LV cardiac index, L·min ⁻¹ ·m ⁻²	3.9±0.7	3.1±0.6	2.7±0.6	-0.4±0.8	0.05
LA volume, ml	93.2±26.8	76.4±28.0	67.8±26.9	-8.6±17.0	0.05
LA volume index, ml/m ²	44.2±14.5	35.7±15.2	31.5±10.3	-8.6±17.0	0.05
RA area, cm ²	21.5±5.5	19.5±5.5	18.5±5.5	-3.0±5.5	0.13
Serum creatinine, $\mu\text{mol/L}$	117.0±56.5	107.2±51.5	112.8±50.2	5.6±29.8	0.45
BP, mm Hg					
Systolic	125.4±13.5	125.8±8.3	143.0±20.7	17.2±21.5	0.005
Diastolic	74.5±7.8	74.5±8.0	85.4±9.0	10.9±12.1	0.002

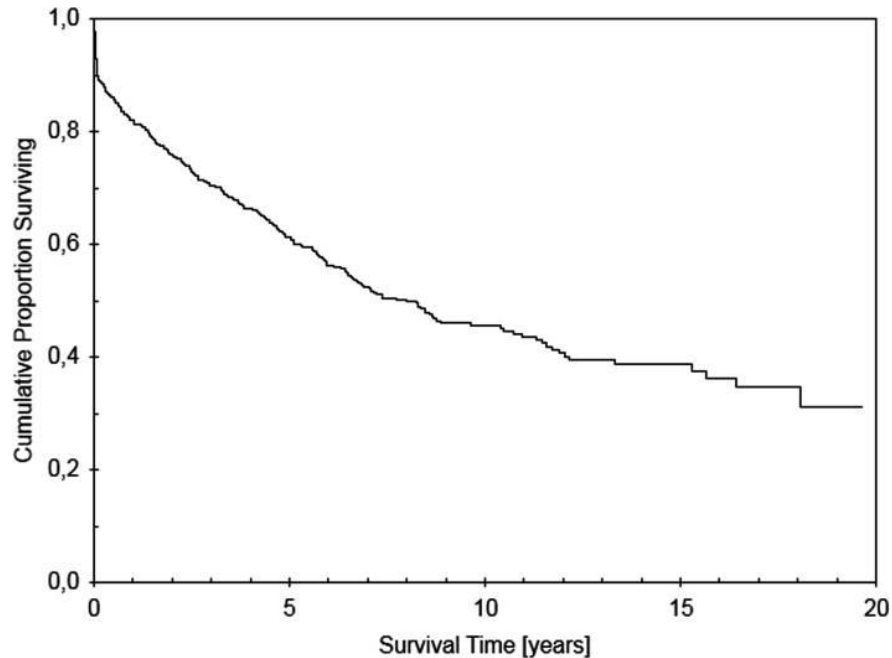
Pas de différence mortalité toutes causes, mortalité cardio-vasculaire, MACE

Plus-minus values are means $\pm$ SD. LV, left ventricle; LA, left atrium; RA, right atrium.

^aComparison of cardiac parameters at 6-month and long-term follow-up.

Salehi T, et al. Kidney360. 2021

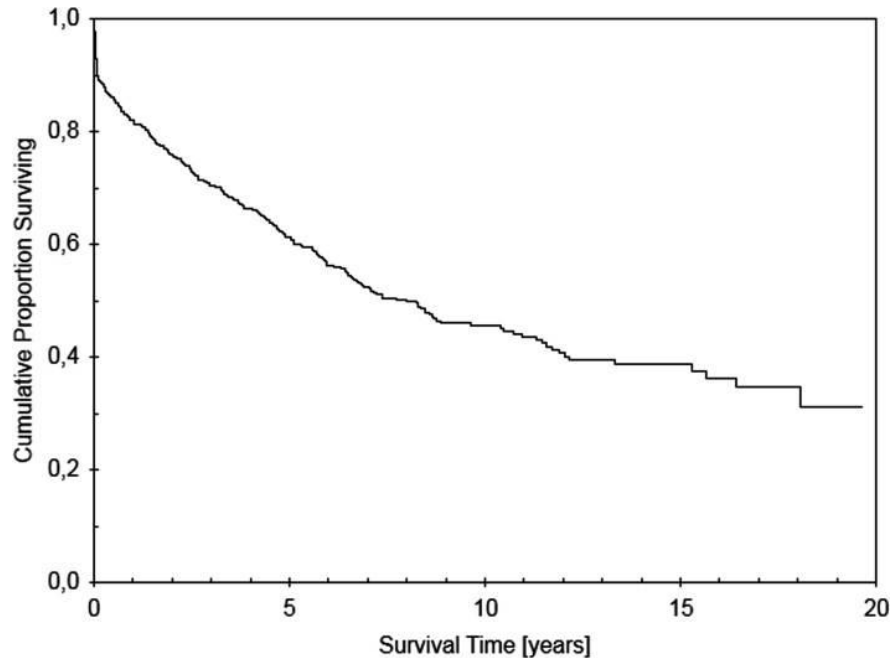
FAV après Transplantation rénale



Etude rétrospective monocentrique en Slovénie
626 patients greffés avec FAV fonctionnelle
60% d'hommes, moyenne d'âge 48 ans, 7,5% de diabétiques
FAV : 96,7% dont au bras (16,8%), à l'avant bras (83,2%)
PTFE : 3,3%
Médiane de suivi = 5 ans

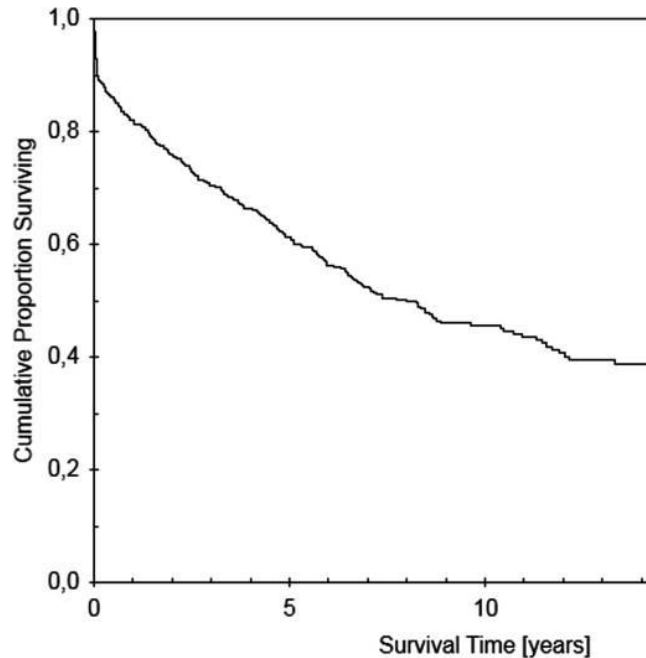
Vajdič Trampuž, B., et al. (2021). *BMC nephrology*, 22(1), 344.

FAV après Transplantation rénale



Extracorporeal procedure	N of patients (%)
Hemodialysis	
for delayed graft function	150 (23.9%)
for graft failure	53 (8.4%)
Therapeutic plasma exchange	
for antibody-mediated rejection	27 (4.3%)
for recurrent focal segmental glomerulosclerosis	6 (0.9%)

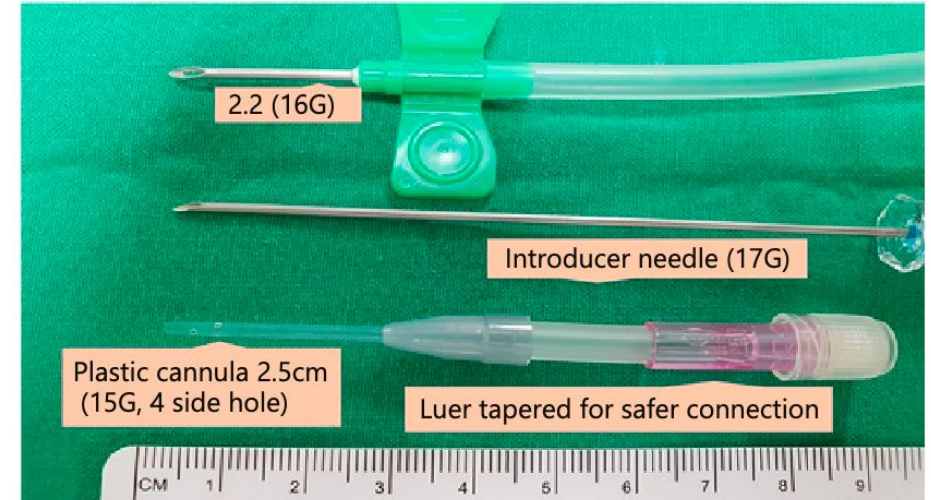
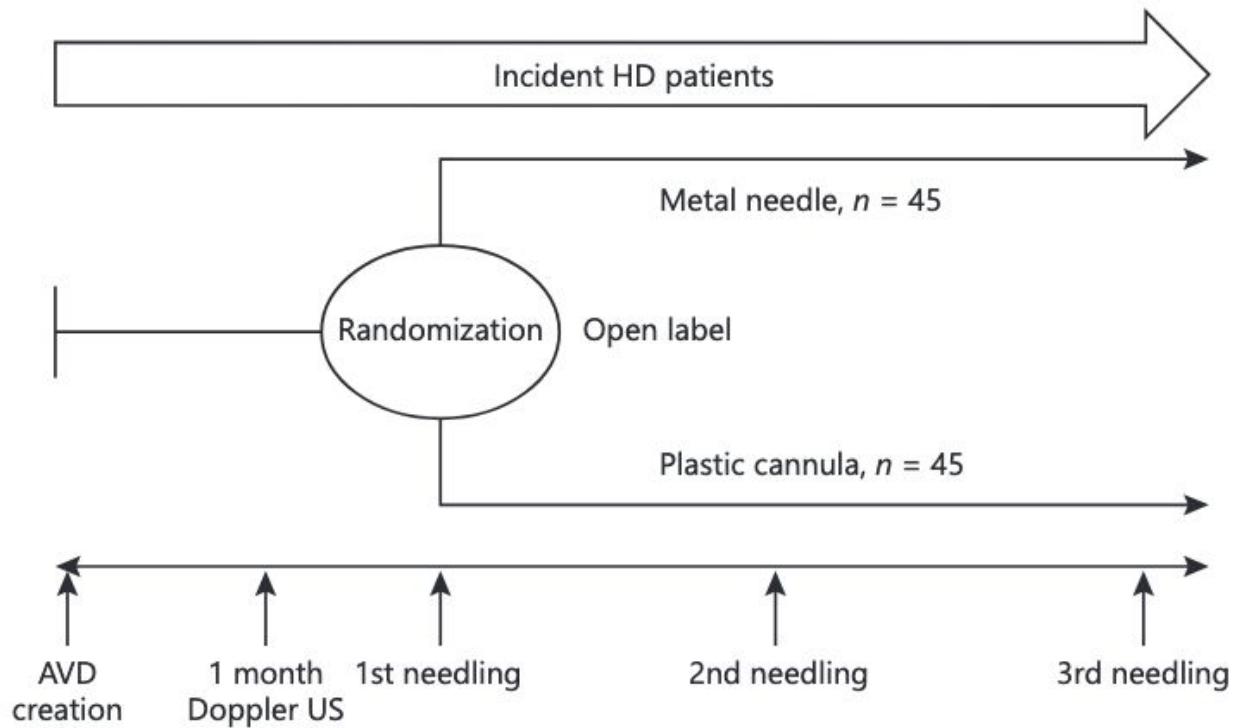
FAV après Transplantation rénale



Type of AVF-related complication	Patients with complications, referred to a vascular access specialist ^a	Patients with complications requiring surgery ^b
Growing aneurysms ^c	84 (46%)	33 (39%)
Complicated thrombosis	53 (29%)	27 (51%)
• with thrombophlebitis • central vein / artery involvement		
High-flow AVF ^d	29 (16%)	23 (79%)
Distal hypoperfusion	7 (4%)	7 (100%)
Venous hypertension with arm edema	7 (4%)	5 (71%)
Trauma/Pain	3 (2%)	2 (66%)

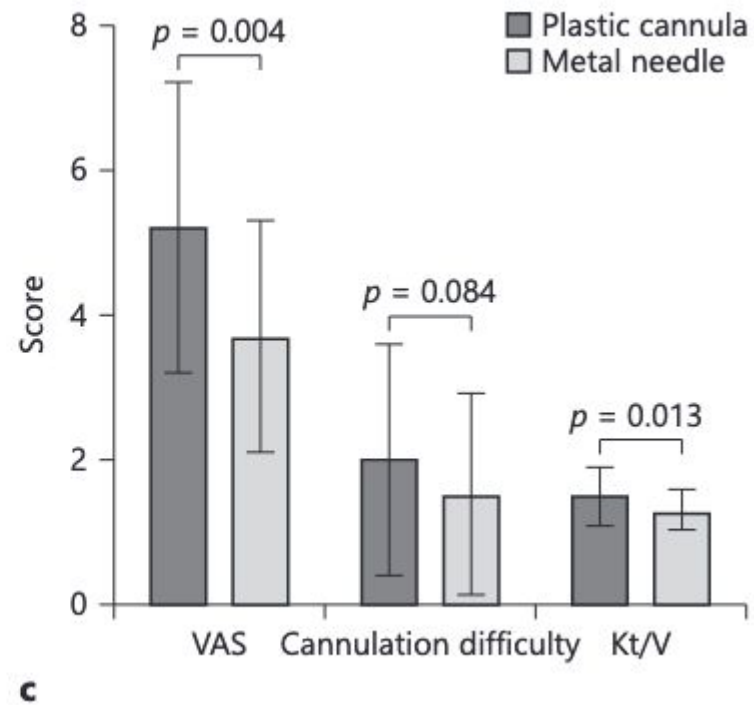
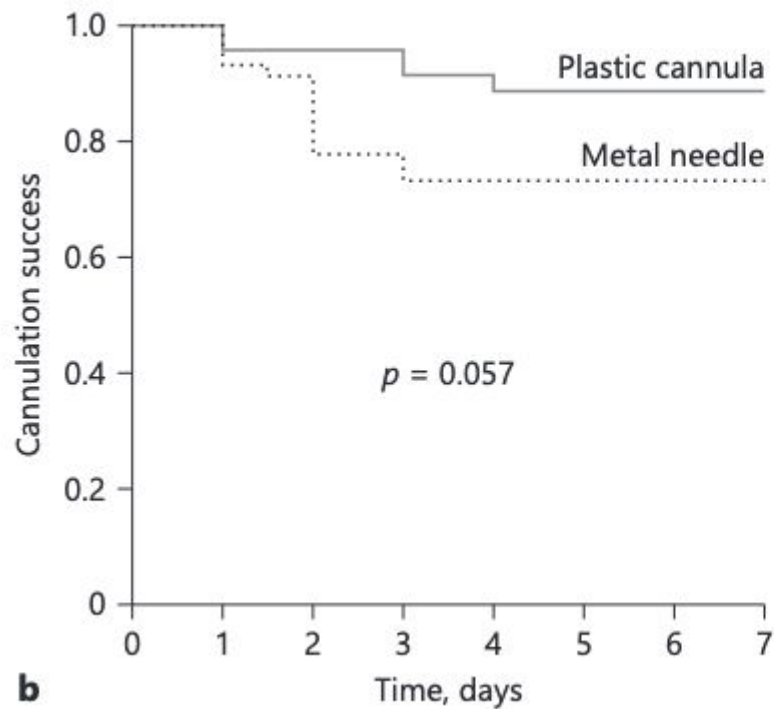
Vajdič Trampuž, B., et al. (2021). *BMC nephrology*, 22(1), 344.

Cathlons vs. Aiguilles



Choi, Y. S., et al. (2021). *American journal of nephrology*

Cathlons vs. Aiguilles

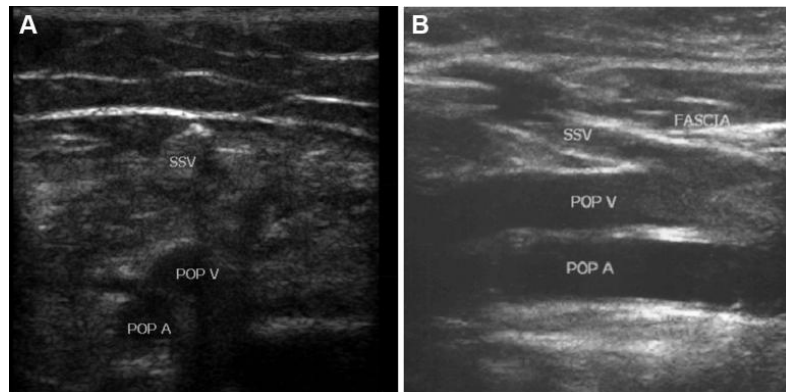
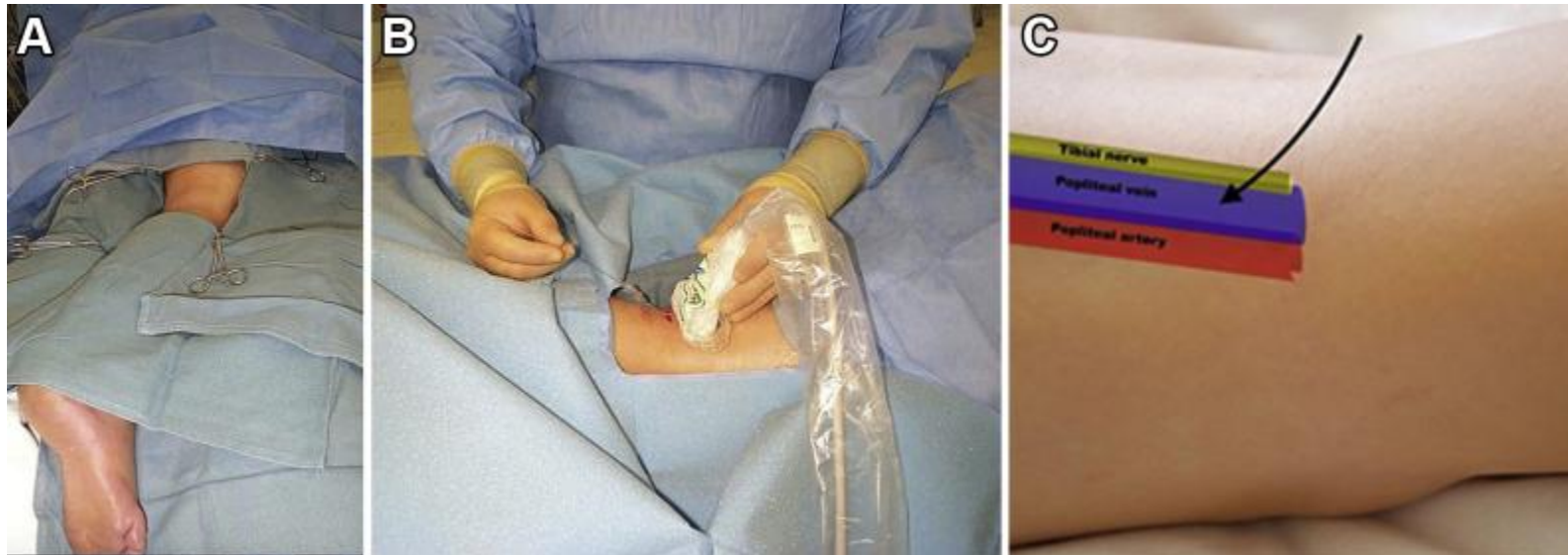


Choi, Y. S., et al. (2021). *American journal of nephrology*

Merci de votre attention



COVID et cathéter



Adams E, Mousa AY. J Vasc Surg Cases
Innov Tech. 2020 Apr 22;6(2):266-268

infection de KT

durée et risque d'infection <https://pubmed.ncbi.nlm.nih.gov/35841083/>

facteurs de risque <https://pubmed.ncbi.nlm.nih.gov/31151433/>

prévention

1: Fisher M, Golestaneh L, Allon M, Abreo K, Mokrzycki MH. Prevention of Bloodstream Infections in Patients Undergoing Hemodialysis. Clin J Am Soc Nephrol. 2020 Jan 7;15(1):132-151. doi: 10.2215/CJN.06820619. Epub 2019 Dec 5. Erratum in: Clin J Am Soc Nephrol. 2022 Apr;17(4):568-569. PMID: 31806658; PMCID: PMC6946076.

5: Ono K, Karube M, Kaname S. Dialysis Catheter Site-Related Tenderness and Erythema. Kidney360. 2022 Apr 26;3(5):979-980. doi: 10.34067/KID.0000592022. PMID: 36128475; PMCID: PMC9438414.

<https://pubmed.ncbi.nlm.nih.gov/32648807/>

risque d'infection associé au buttonhole

1. Lyman M, Nguyen DB, Shugart A, et al. Risk of Vascular Access Infection Associated With Buttonhole Cannulation of Fistulas: Data From the National Healthcare Safety Network. Am J Kidney Dis 2020; 76:82.

pose de Kt en musique

<https://pubmed.ncbi.nlm.nih.gov/35299213/>

inflammation et sténose

[Relationship Between Arteriovenous Fistula Stenosis and Circulating Levels of Neutrophil Granule Proteins in Chronic Hemodialysis Patients - PubMed \(nih.gov\)](#)

anesthésie locale vs régionale

[Anaesthesia Choice for Creation of Arteriovenous Fistula \(ACCess\) study protocol : a randomised controlled trial comparing primary unassisted patency at 1 year of primary arteriovenous fistulae created under regional compared to local anaesthesia - PubMed \(nih.gov\)](#)

cathlon vs aiguilles

[Efficacy and Safety of Plastic Cannulae Compared with Metal Needles in the Initial Use of an Arteriovenous Fistulae in Incident Hemodialysis Patients: A Randomized Controlled Study - PubMed \(nih.gov\)](#)

Surveillance débit

<https://pubmed.ncbi.nlm.nih.gov/33163714/>

difficulté de ponction

[Difficult cannulation of hemodialysis arteriovenous fistula - Role of imaging in access management \(DICAF STUDY\) - PubMed \(nih.gov\)](#)

thrombose de FAV

[Surgical versus endovascular intervention for vascular access thrombosis: a nationwide observational cohort study - PubMed \(nih.gov\)](#)

Angioplastie

<https://pubmed.ncbi.nlm.nih.gov/32813949/>

[Efficacy and Safety of Paclitaxel-Coated Balloon Angioplasty for Dysfunctional Arteriovenous Fistulas: A Multicenter Randomized Controlled Trial - PubMed \(nih.gov\)](#)

[A multicenter randomized controlled trial indicates that paclitaxel-coated balloons provide no benefit for arteriovenous fistulas - PubMed \(nih.gov\)](#)

[Drug-Coated Balloon Versus Plain Balloon Angioplasty for Hemodialysis Dysfunction: A Meta-Analysis of Randomized Controlled Trials - PubMed \(nih.gov\)](#)

FAV après 80 ans

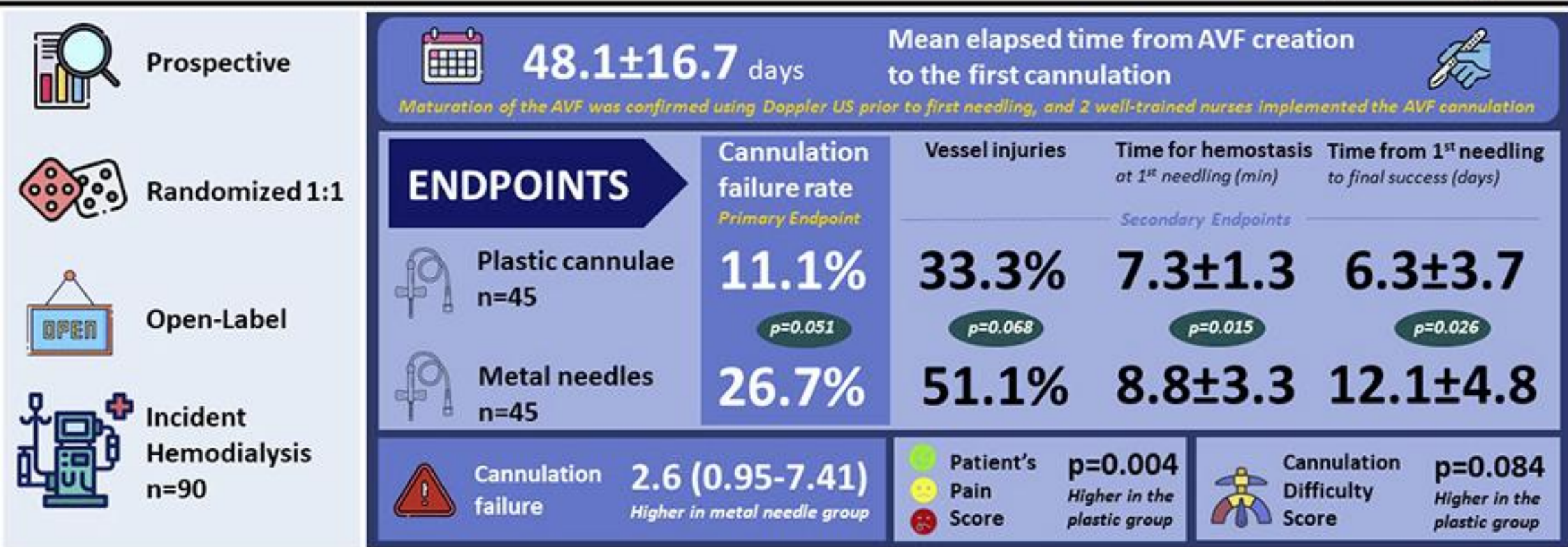
[Feasibility and outcomes of native arteriovenous fistula in octogenarians - PubMed \(nih.gov\)](#)

[Arteriovenous Access Type and Risk of Mortality, Hospitalization, and Sepsis Among Elderly Hemodialysis Patients: A Target Trial Emulation Approach - PubMed \(nih.gov\)](#)

[Optimising Access Surgery in Senior Haemodialysis Patients \(OASIS\): study protocol for a multicentre randomised controlled trial - PubMed \(nih.gov\)](#)

Efficacy and Safety of Plastic Cannulae Compared with Metal Needles in the Initial Use of an Arteriovenous Fistulae in Incident Hemodialysis Patients: A Randomized Controlled Study

AJN
American Journal
of Nephrology



Conclusion: The vascular outcomes of plastic cannulae were much favorable compared to metal needles in incident HD patients. The use of plastic cannulae could be a new and innovative way to improve the quality of dialysis.

Choi YS, Lee HS, Joo N, Park P, Cho SN, Youn IJ, Song YR, Kim SG, Kim J-K: Efficacy and Safety of Plastic Cannulae Compared with Metal Needles in the Initial Use of an Arteriovenous Fistulae in Incident Hemodialysis Patients: A Randomized Controlled Study. Am J Nephrol DOI: 10.1159/000516212

Visual Abstract by Edgar Lerma @edgarlermamd 