

Arteriovenous Access in the Elderly

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■ **No Conflict of Interest/ No Disclosure**

Background

- **The old age population is increasing (19%)**
- **The fastest growing group is >80 years old (5%)**
- **the number of elderly patients diagnosed with Stage 5 chronic kidney disease requiring haemodialysis is increasing**

Geriatric Giants

- PVD
- Fitness/Co-morbidities
- Falls
- Confusion/Dementia
- Immobility
- Infection
- Incontinence
- Socioeconomics
- Tissue integrity/Healing
- Life expectancy
- Quality of life/Dialysis/Medical ttt

The choice of angioaccess type

Need for different work up

Surgical skill mix/MDT

Surveillance

Background

- All national and international guidelines recommend dialysis through Autogenous angioaccess:

- ↓ Complications
- ↓ Cost
- ↑ Patency

Autogenous —→ Prosthetic —→ CVC

1- Vascular Access Work Group, Clinical practice guidelines for vascular access, Am J Kidney Dis, 2006;48(Suppl 1):S248–S73.

2- NKF: KDOQI Clinical Practice Guidelines and Clinical Practice Recommendations 2008. Available online at <http://www.kidney.org/professionals>

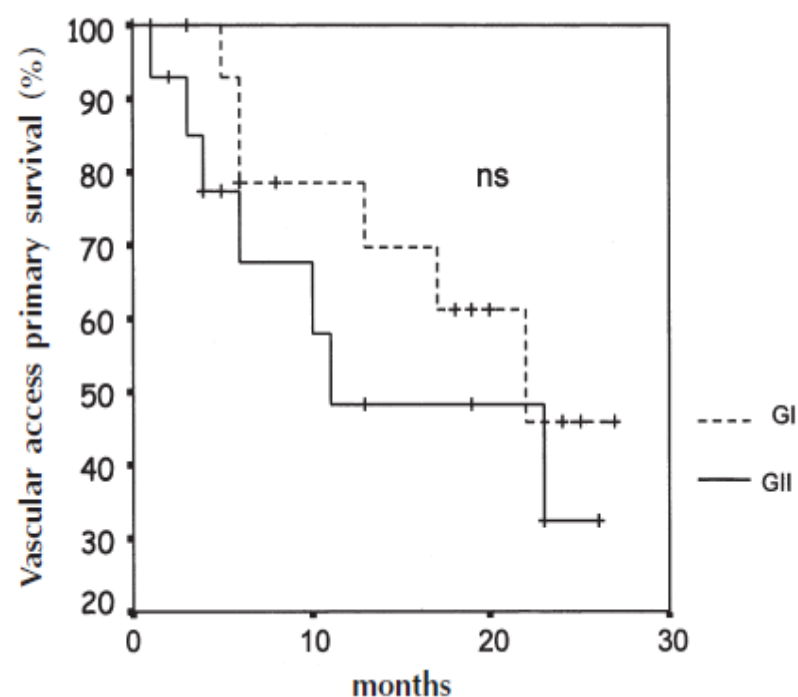
1- Fluck R, Kumwenda M, UK Renal Association Clinical Practice Guidelines for Vascular Access, 2011, Final Version, 2011. Available at: www.renal.org/Libraries/Guidelines/Vascular_Access_for_Haemodialysis_-_FINAL_VERSION_-_05_January_2011

Permanent vascular access in the elderly patient who starts on hemodialysis: fistulae or catheter?

M^a. J. García Cortés, G. Viedma, M. C. Sánchez Perales, F. J. Borrego, J. Borrego, P. Pérez del Barrio, J. M. Gil Cunqueiro, A. Liébana and V. Pérez Bañasco
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Table II. Incidence of vascular access-derived complications in both groups

Complications	GI	GII	sig
Infections/100 year-year	48	24	$p < 0,05$
Hemorrhage/100 year-year	12	10	n.s.
Ischemia/100 year-year	12	5	n.s.
DTV/100 year-year	25	14,4	n.s.



GI: arterio-venous fistulae. GII: Tunnelled cuffed catheter.

In these patients a tunnelled catheter should be inserted at the time a peripheral arterio-venous access is created, in order to avoid temporary untunnelled catheters

Haemodialysis Catheters Increase Mortality as Compared to Arteriovenous Accesses Especially in Elderly Patients

Gürbey Ocak, Nynke Halbesma, Saskia le Cessie, Ellen K. Hoogeveen, Sandra van Dijk, Jeroen Kooman, Friedo W. Dekker, Raymond T. Krediet, Elisabeth W. Boeschoten, Marion Verduijn

- 1109 patients, 919 had an arteriovenous access and 190 had a catheter.
- Elderly haemodialysis patients with a catheter have an increased all-cause, infection-related and cardiovascular mortality risk as compared to patients with an arteriovenous access.



Background

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Lazarides MK, Georgiadis GS, Antoniou GA, Stamos DN, A meta-analysis of dialysis access outcome in elderly patients, *J Vasc Surg*, 2007;45(2):420–6.

Weale AR, Bevis P, Neary WD, et al., Radiocephalic and brachiocephalic arteriovenous fistula outcomes in the elderly, *J Vasc Surg*, 2008;47(1):144–50.

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Morsy M, Betal D, Nelson S, Malete H, Whitmore A, Chemla E. Pre-emptive angioaccess for haemodialysis in the elderly. Nephrol Dial Transplant (2011)

■ Pre-emptive angioaccess for haemodialysis in the elderly

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Nephrol Dial Transplant (2011)

January 2006 and December 2007

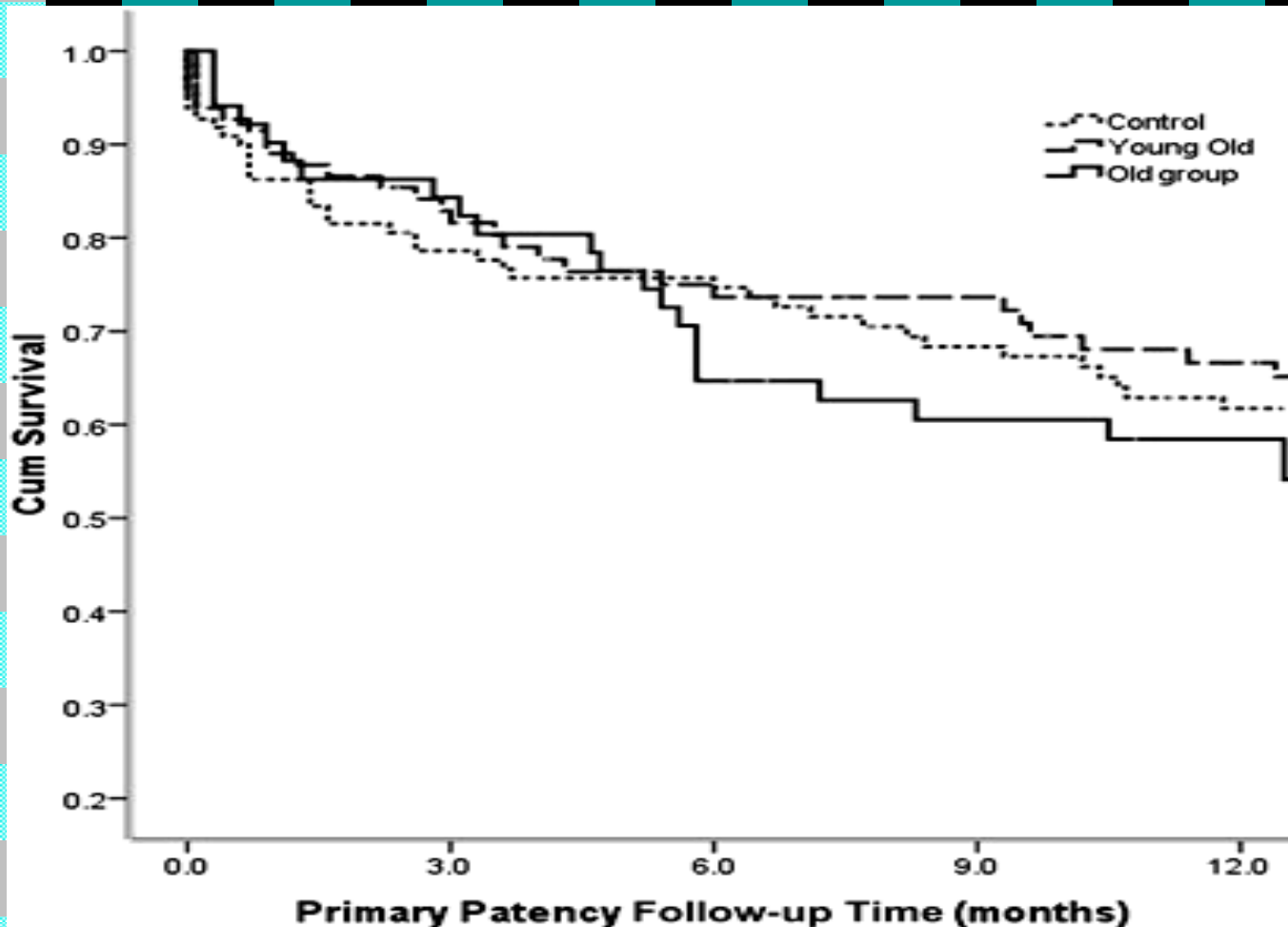
Is the elderly population approaching end-stage renal disease (ESRD) suitable for autogenous angioaccess formation?

	Control <70 (110)	Young old 70-79 (82)	Old ≥80 (51)
Age	57.1 ± 11.3	77 ± 3.1	85.2 ± 2.8
Gender, <i>N</i> (%)			
Male	54 (49.1)	46 (56.1)	29 (56.9)
Female	56 (50.9)	36 (37.1)	22 (22.7)
Diabetes, <i>N</i> (%)	30 (27.2)	20 (24.4)	7 (13.7)
Hypertension, <i>N</i> (%)	6 (5.5)	10 (12.2)	10 (19.6)
Glomerulonephritis, <i>N</i> (%)	27 (24.5)	24 (29.3)	19 (37.3)
Pyelonephritis, <i>N</i> (%)	4 (3.6)	3 (3.7)	3 (5.9)
Adult polycystic kidney disease, <i>N</i> (%)	10 (9.1)	4 (4.9)	2 (3.9)
Renovascular disease, <i>N</i> (%)	4 (3.6)	3 (3.7)	4 (7.8)
Combined and other conditions, <i>N</i> (%)	19 (17.3)	18 (23)	6 (11.8)
Davies comorbidity score:			
0	42 (38.2)	18 (22)	6 (11.8)
1	60 (54.5)	46 (65.1)	32 (62.7)
2	6 (5.5)	16 (19.5)	11 (21.6)
>2	2 (1.8)	12 (14.6)	2 (3.9)

Distribution according to access type

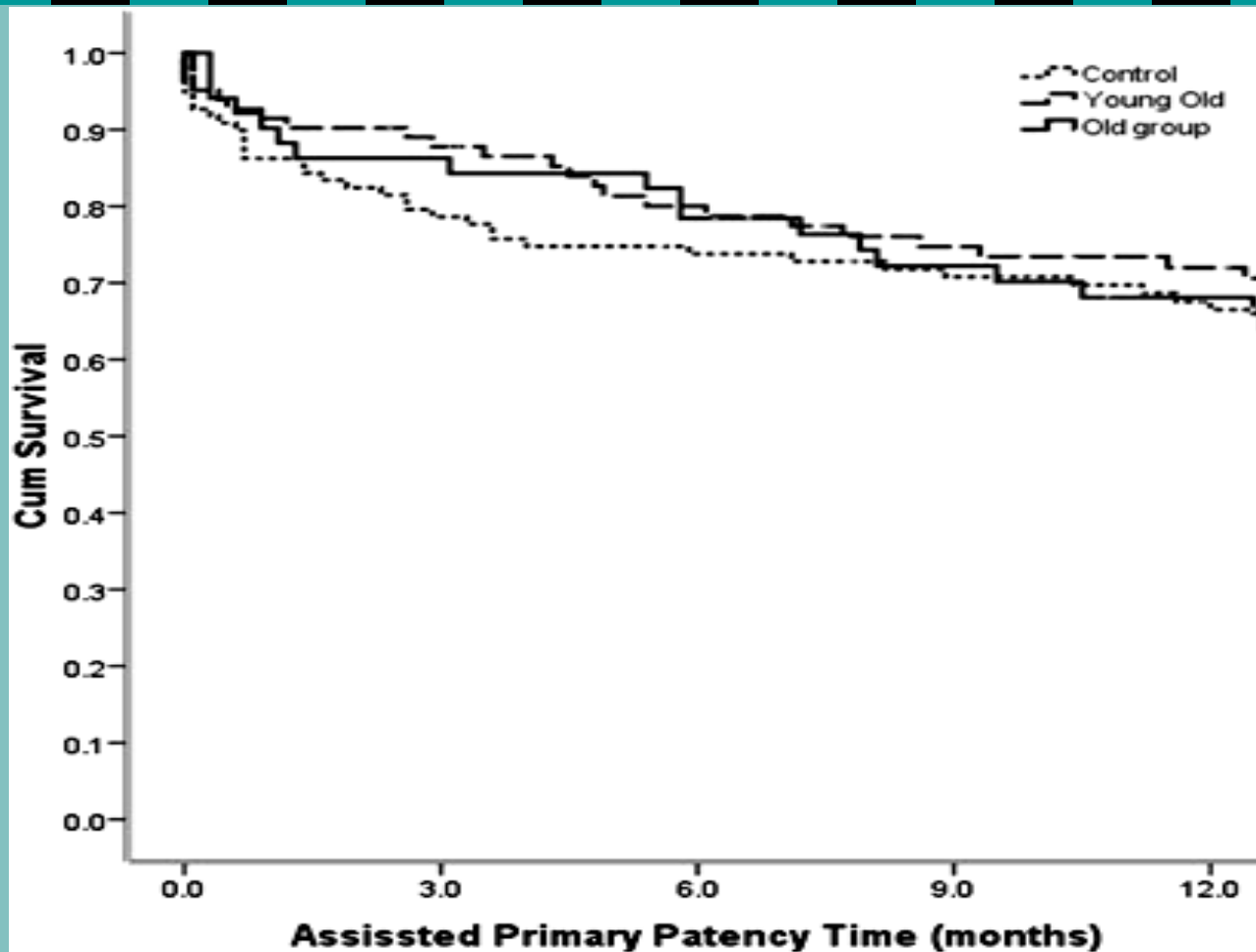
	Control <70 (110)	Young old 70-79 (82)	Old ≥80 (51)
Autogenous <i>N</i> (%)			
RC (97)	42 (38.1)	38 (46.3)	17 (33.3)
BC (105)	51 (45.5)	27 (32.9)	27 (52.9)
BVT (23)	7 (6.4)	11 (13.4)	5 (9.8)
UB (5)	3 (2.7)	1 (1.2)	1 (2.0)
Graft, <i>N</i> (%)			
BABG (12)	6 (5.5)	5 (6.1)	1 (2.0)
Necklace (1)	1 (0.9)	0	0

Primary Patency

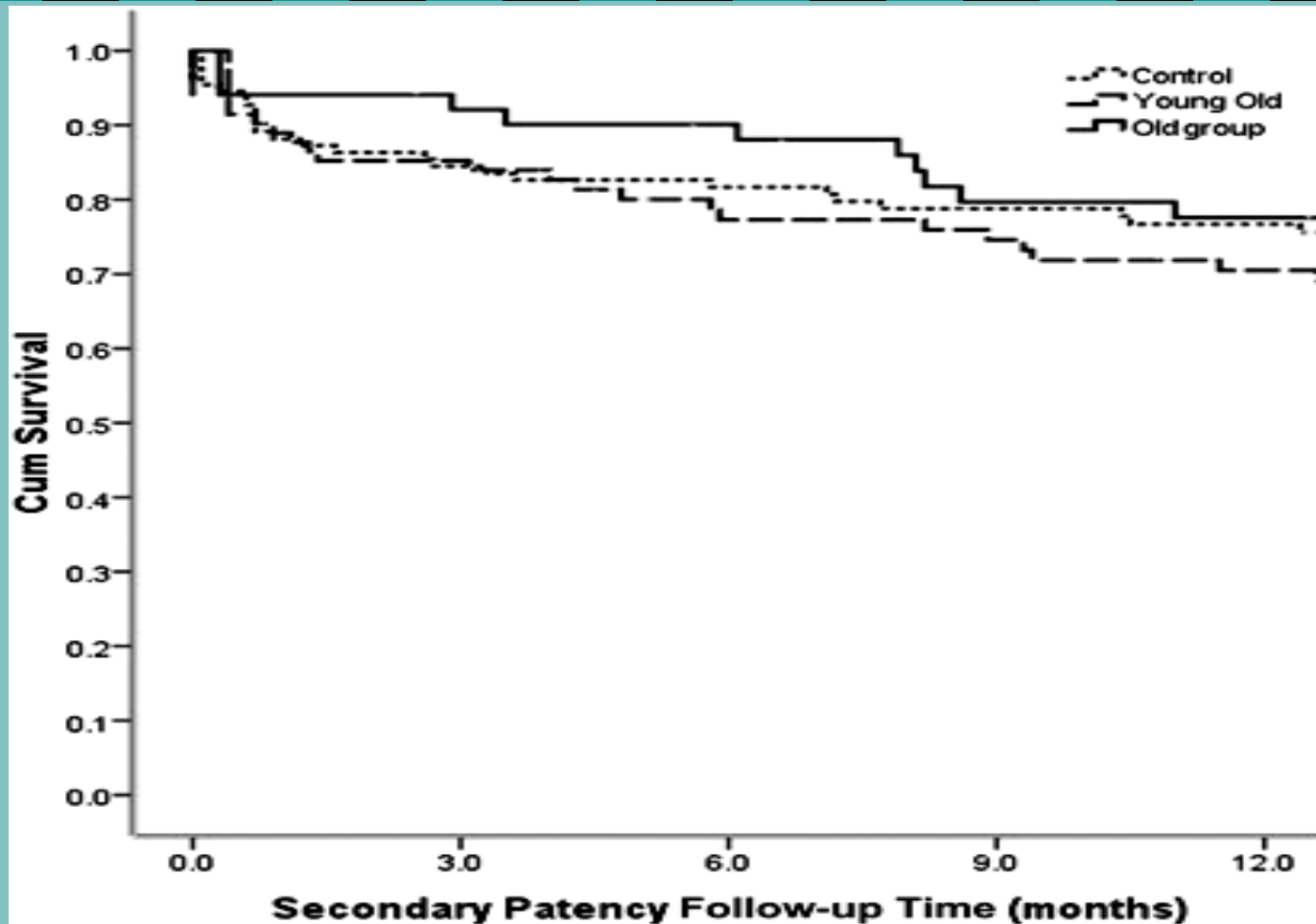


No significant correlation between age, gender, Davies comorbidity scores, diabetes and eGFR and the primary patency rates within each group and the whole study population (Cox regression survival analysis ($P > 0.05$)).

Assisted Primary Patency



Secondary Patency



Usage rate of pre-emptive angioaccess

	Groups			P-value
	Control (110), N (%)	Young old (82), N (%)	Old (51), N (%)	
Started dialysis with fistula	64 (58)	39 (48)	33 (65)	>0.05
Started dialysis with central venous catheter	8 (7)	12 (15)	3 (6)	>0.05
Transplant before haemodialysis	2 (2)	0	0	>0.05
Did not start haemodialysis	36 (35)	27 (33)	12 (24)	>0.05
Died before starting haemodialysis	0	4 (5)	2 (4)	>0.05
Died after starting haemodialysis	3 (3)	5 (6)	1 (2)	>0.05
Total number of deaths	3 (3)	9 (11)	3 (6)	>0.05
Time from angioaccess creation to start of dialysis (months) [mean \pm SD (range)]	5.9 \pm 4.4 (0.5–20.9)	10.8 \pm 9.6 (1.3–32.1)	8.0 \pm 6.4 (0.9–16.2)	>0.05
The eGFR at the time of creation (mL/min) [mean \pm SD (range)]	12 \pm 2.9 (5–19)	13 \pm 4 (5–23)	12 \pm 3.1 (9–15)	>0.05



Conclusion



- **No randomized trials**
- **Pre-emptive angioaccess formation should be considered for any patient with ESRD regardless of their age,**
- **All types of access should be considered taking into account the recommended guidelines and on case by case basis.**
- **The outcome of Autogenous angioaccess in the elderly is comparable to younger population**
- **No correlation between patients' age and angioaccess maturation, usability, outcomes and patency rates**
- **The need for high level of expertise**



Thank You