

# Quale è il miglior accesso vascolare nella popolazione grande anziana ?



Riccione –  
17/19 aprile 2023

**Dott. Gianluca LEONARDI**

**Direttore S.C. Nefrologia e Dialisi – ASL TO5  
Ospedale Maggiore di Chieri**

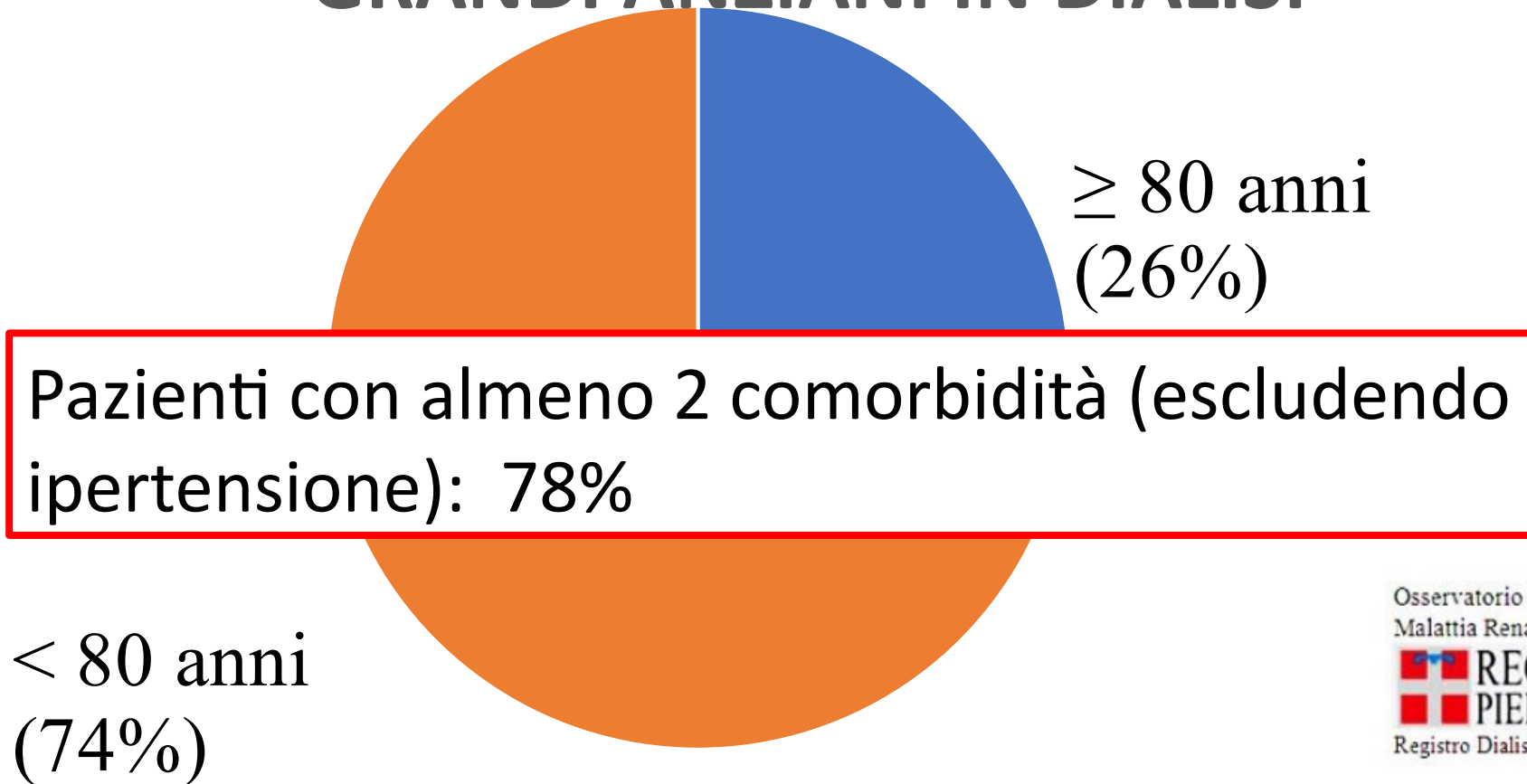
# Pazienti in dialisi al 31 dicembre 2018-2019-2020

<b>REGIONE PIEMONTE</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Totale</b>	<b>3187</b>	<b>3223</b>	<b>3015</b>

<b>Regione Piemonte</b>	<b>Anno</b>		
	<b>2018</b>	<b>2019</b>	<b>2020</b>
<b>Prev D extracorporea ospedaliera</b>	<b>2082</b>	<b>2091</b>	<b>1977</b>
<b>Prev D peritoneale</b>	<b>374</b>	<b>403</b>	<b>366</b>
<b>Prev D centri satellite</b>	<b>693</b>	<b>701</b>	<b>648</b>
<b>Prev HD domiciliare</b>	<b>38</b>	<b>28</b>	<b>24</b>
<b>Totale Prev D</b>	<b>3187</b>	<b>3223</b>	<b>3015</b>

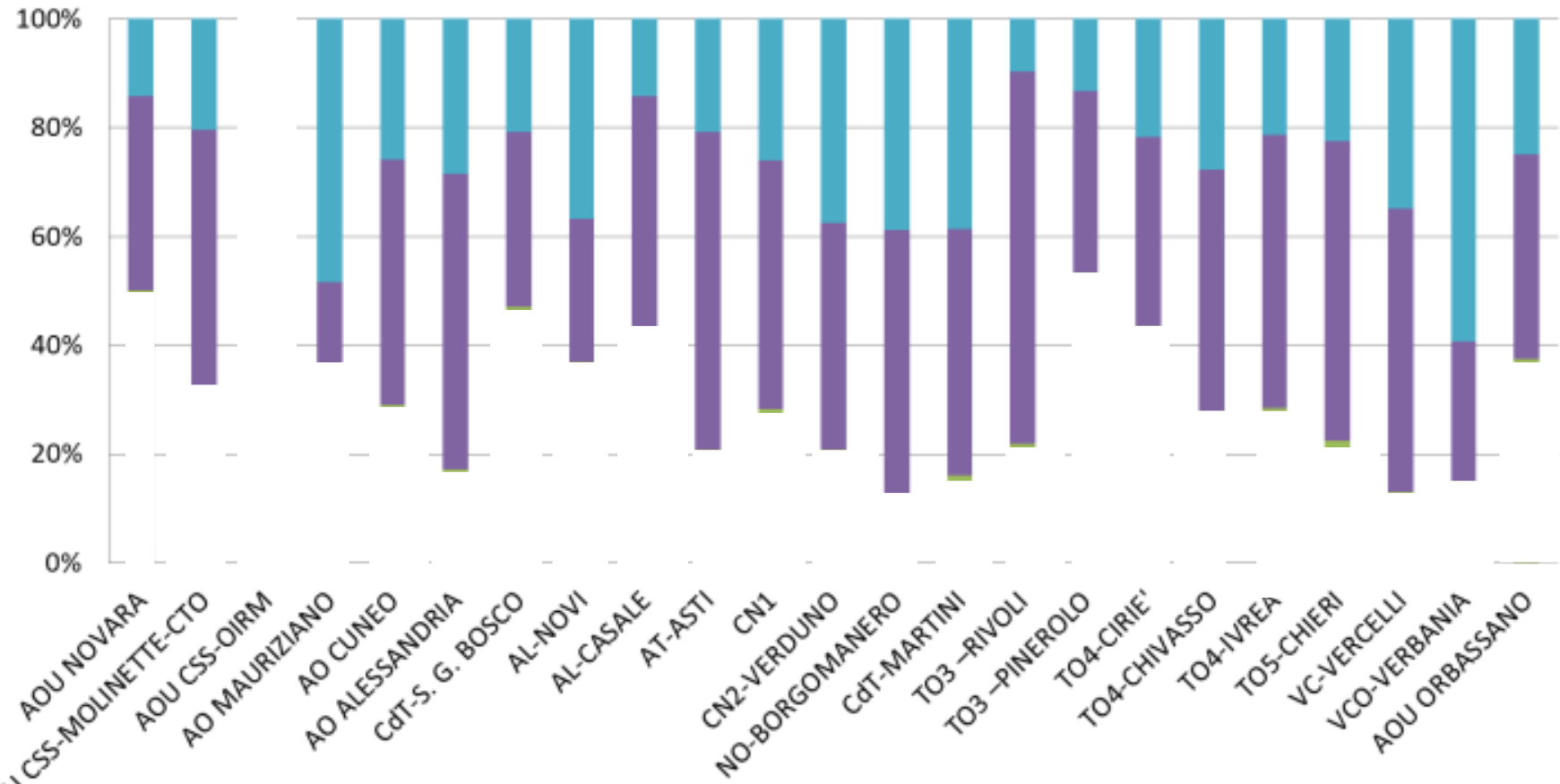
**ETA' MEDIA POPOLAZIONE PREVALENTE IN DIALISI: 69 anni  $\pm$  14 anni (max 98 anni)**

## GRANDI ANZIANI IN DIALISI



## NUOVI INGRESSI IN DIALISI ANNO 2020

ETÀ inizio	N	%	%
<25 anni	5	0,80%	<b>29,82%</b>
25-44	37	5,90%	
45-64	145	23,13%	
<b>65-79</b>	271	43,22%	<b>70,18%</b>
<b>&gt;79</b>	169	26,95%	



Pazienti con almeno 2 comorbidità (escludendo ipertensione): 80%

## ACCESSO VASCOLARE NELL'ANZIANO: FAV VERSUS CVC

**G. Forneris**

Divisione di Nefrologia e Dialisi, Ospedale Giovanni Bosco, Torino

### **ACCESSO VASCOLARE PER EMODIALISI NEL PAZIENTE ANZIANO: CONFRONTO TRA FISTOLA ARTERO-VENOSA E CATETERE VENOSO CENTRALE TUNNELLIZZATO**

**G. Giovinazzo, C. Dolla, A. Nappo, G. Leonardi, I. Merlo, V. Cantaluppi, M. Gai, F. Fop,  
C. Guarena, G. P. Segoloni.**

*SC Nefrologia, Dialisi e Trapianto – Cattedra di Nefrologia – Azienda Ospedaliera Città  
della Salute e della Scienza di Torino*

## Editor's Choice – Vascular Access: 2018 Clinical Practice Guidelines of the European Society for Vascular Surgery (ESVS)<sup>☆</sup>

Jürg Schmidli<sup>a,\*</sup>, Matthias K. Widmer<sup>a</sup>, Carlo Basile<sup>a</sup>, Gianmarco de Donato<sup>a</sup>, Maurizio Gallieni<sup>a</sup>, Christopher P. Gibbons<sup>a</sup>, Patrick Haage<sup>a</sup>, George Hamilton<sup>a</sup>, Ulf Hedin<sup>a</sup>, Lars Kamper<sup>a</sup>, Miltos K. Lazarides<sup>a</sup>, Ben Lindsey<sup>a</sup>, Gaspar Mestres<sup>a</sup>, Marisa Pegoraro<sup>a</sup>, Joy Roy<sup>a</sup>, Carlo Setacci<sup>a</sup>, David Shemesh<sup>a</sup>, Jan H.M. Tordoir<sup>a</sup>, Magda van Loon<sup>a</sup>,

ESVS Guidelines Committee<sup>b</sup>, Philippe Kolh, Gert J. de Borst, Nabil Chakfe, Sebastian Debus, Rob Hinchliffe, Stavros Kakkos, Igor Koncar, Jes Lindholt, Ross Naylor, Melina Vega de Ceniga, Frank Vermassen, Fabio Verzini,

ESVS Guidelines Reviewers<sup>c</sup>, Markus Mohaupt, Jean-Baptiste Ricco, Ramon Roca-Tey

## KDOQI CLINICAL PRACTICE GUIDELINE FOR VASCULAR ACCESS: 2018



## Clinical practice guideline on peri- and postoperative care of arteriovenous fistulas and grafts for haemodialysis in adults

Maurizio Gallieni<sup>1</sup>, Markus Hollenbeck<sup>2</sup>, Nicholas Inston<sup>3</sup>, Mick Kumwenda<sup>4</sup>, Steve Powell<sup>5</sup>, Jan Tordoir<sup>6</sup>, Julien Al Shakarchi<sup>7</sup>, Paul Berger<sup>8</sup>, Davide Bolignano<sup>9,10</sup>, Deirdre Cassidy<sup>11</sup>, Tze Yuan Chan<sup>12</sup>, Annemieke Dhondt<sup>13</sup>, Christiane Drechsler<sup>10,14</sup>, Tefvik Ecdar<sup>15</sup>, Pietro Finocchiaro<sup>16</sup>, Maria Haller<sup>10,17</sup>, Jennifer Hanko<sup>18</sup>, Sam Heye<sup>19</sup>, Jose Ibeas<sup>20</sup>, Tamara Jemcov<sup>21</sup>, Stephanie Kershaw<sup>22</sup>, Aurangzaib Khawaja<sup>23</sup>, Laura Labriola<sup>24</sup>, Carlo Lomonte<sup>25</sup>, Marko Malovrh<sup>26</sup>, Anna Marti I. Monros<sup>27</sup>, Shona Matthew<sup>28</sup>, Damian McGrogan<sup>7</sup>, Torsten Meyer<sup>29</sup>, Sotirios Mikros<sup>30</sup>, Ionut Nistor<sup>10,31</sup>, Nils Planken<sup>32</sup>, Ramon Roca-Tey<sup>33</sup>, Rose Ross<sup>34</sup>, Max Troxler<sup>35</sup>, Sabine van der Veer<sup>36</sup>, Raymond Vanholder<sup>13</sup>, Frank Vermassen<sup>13</sup>, Gunilla Welander<sup>37</sup>, Teun Wilmink<sup>38</sup>, Muguet Koobasi<sup>10</sup>, Jonathan Fox<sup>10,39</sup>, Wim Van Biesen<sup>10,13</sup> and Evi Nagler<sup>10,13</sup>, for the ERBP Guideline Development Group on Vascular Access



Revista de la Sociedad Española de Nefrología  
www.revistanefrologia.com

## Spanish Clinical Guidelines on Vascular Access for Haemodialysis

José Ibeas<sup>a,\*</sup>, Ramon Roca-Tey<sup>b</sup>, Joaquín Vallespín<sup>c</sup>, Teresa Moreno<sup>d</sup>, Guillermo Moñux<sup>e</sup>, Anna Martí-Monros<sup>f</sup>, José Luis del Pozo<sup>g</sup>, Enrique Gruss<sup>h</sup>, Manel Ramírez de Arellano<sup>i</sup>, Néstor Fontseré<sup>j</sup>, María Dolores Arenas<sup>k</sup>, José Luis Merino<sup>l</sup>, José García-Revillo<sup>m</sup>, Pilar Caro<sup>n</sup>, Cristina López-Espada<sup>ñ</sup>, Antonio Giménez-Gaibar<sup>c</sup>, Milagros Fernández-Lucas<sup>o</sup>, Pablo Valdés<sup>p</sup>, Fidel Fernández-Quesada<sup>ñ</sup>, Natalia de la Fuente<sup>q</sup>, David Hernán<sup>r</sup>,

*Aspettativa di vita* *Angioplastica* *diabete*  
**MORTALITA'**  
**STENOSI** *Comorbidity* *Sindrome da furto*  
**FALLIMENTO** **Protesi**  
**CATETERE VENOSO CENTRALE**  
*Aterosclerosi* **MANCATA MATURAZIONE**  
*Calcificazioni vascolari* *Cardiopatìa*  
*fragilità*



# Risk Equation Determining Unsuccessful Cannulation Events and Failure to Maturation in Arteriovenous Fistulas (REDUCE FTM I)

Charmaine E. Lok,\* Michael Allon,<sup>†</sup> Louise Moist,<sup>‡</sup> Matthew J. Oliver,<sup>§</sup> Hemal Shah,\* and Deborah Zimmerman<sup>||</sup>

*J Am Soc Nephrol* 17: 3204–3212, 2006.

**Fallimento di maturazione: età >65aa**

**Odd Ratio 2.23 (IC 95%: 1.25-3.96)**

**Arteriosclerosi**

**Calcificazioni arteriose**

**Patrimonio venoso depauperato o con tratti sclerotici**

**Presenza di PM**

**Diabete Mellito o Scompenso Cardiaco**

## Arteriovenous Fistula Placement in the Elderly: When Is the Optimal Time?

Tammy Hod, Bhanu K. Patibandla, [...], and Alexander S. Goldfarb-  
Rumyantzev

[J Am Soc Nephrol. 2015 Feb; 26\(2\): 448-456.](#)

**Su 17.511 paz > 67aa incidenti in HD con FAV:  
45.1% iniziano con CVC o protesi**

**Molte FAV non vengono utilizzate:  
mancata maturazione  
trombosi prima dell'utilizzo**

**TIMING**

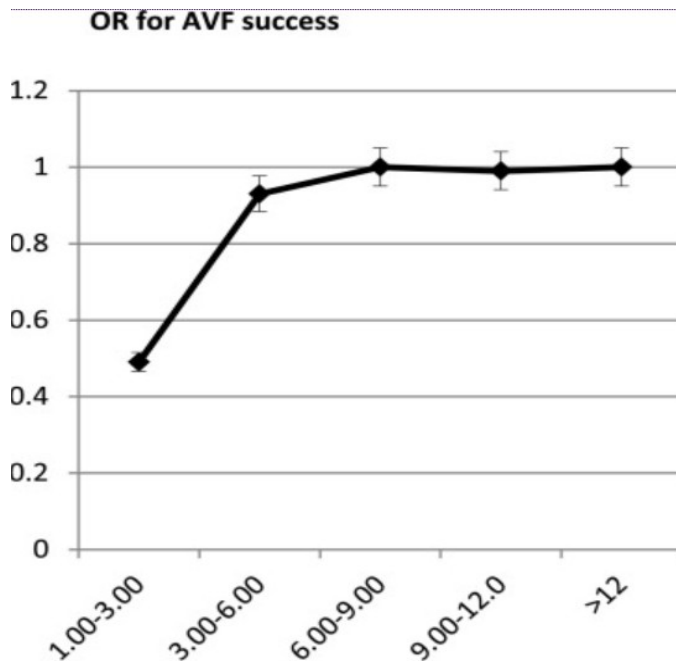
# 6-9 mesi prima dell'avvio dialisi

## Arteriovenous Fistula Placement in the Elderly: When Is the Optimal Time?

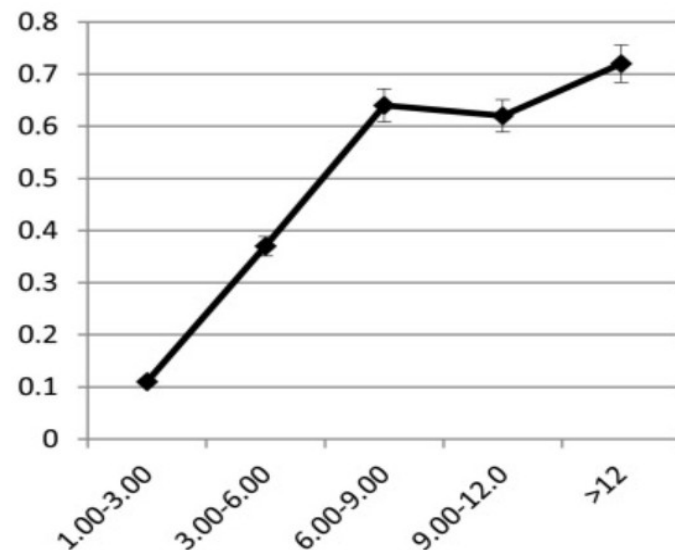
Tammy Hod, Bhanu K. Patibandla, [...], and Alexander S. Goldfarb-  
Rumyantzev

[J Am Soc Nephrol. 2015 Feb; 26\(2\): 448-456.](#)

Su 17.511  
paz > 67aa  
incidenti in  
HD con FAV



Mean number of procedures/patient (cumulative over time)

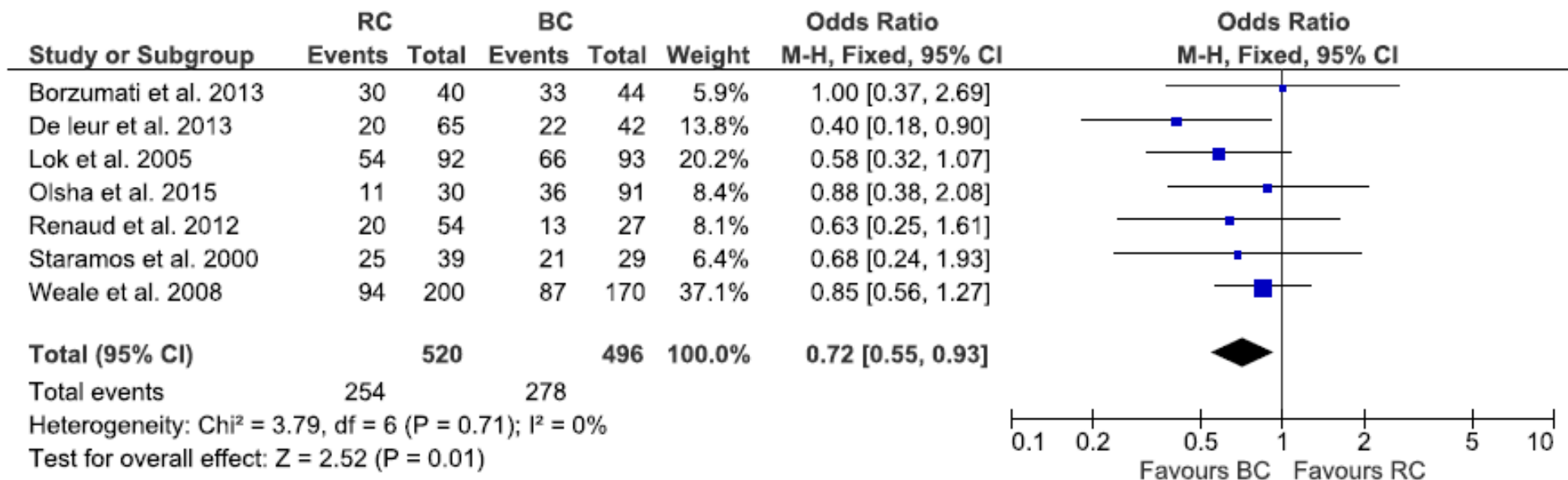


**FAV Distale o Prossimale?**

# Arteriovenous fistula outcomes in the elderly

Damian McGrogan, MBBChBAO, MRCS,<sup>a</sup> Julien Al Shakarchi, MBChB, MSc, MRCS,<sup>a,b</sup>  
 Aurangzaib Khawaja, MD,<sup>a,b</sup> Jay Nath, MBChB (Hons), MRCS,<sup>a</sup> James Hodson, BSc,<sup>c</sup>  
 Alexander P. Maxwell, MD, PhD, FRCP,<sup>d</sup> and Nicholas G. Inston, PhD, FRCS,<sup>a,b</sup> *Birmingham,  
 Dundee, and Belfast, United Kingdom*

(*J Vasc Surg* 2015;62:1652-7.)

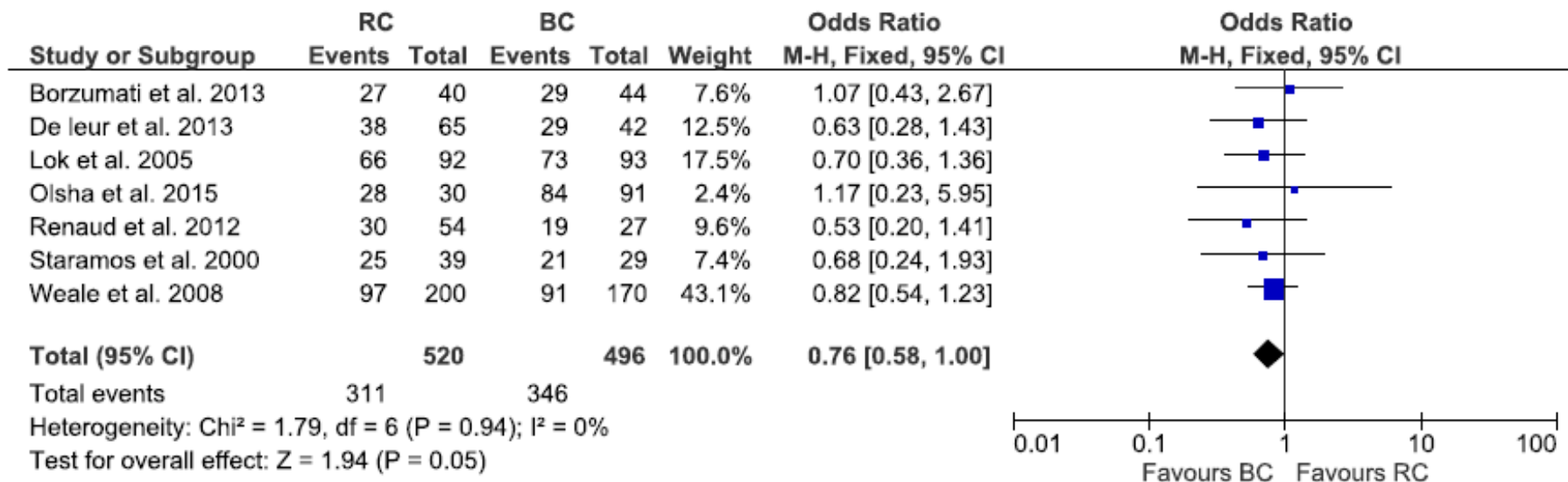


**Primary Patency a 12 mesi: FAV Brachio Cefalica versus FAV Radio Cefalica**

# Arteriovenous fistula outcomes in the elderly

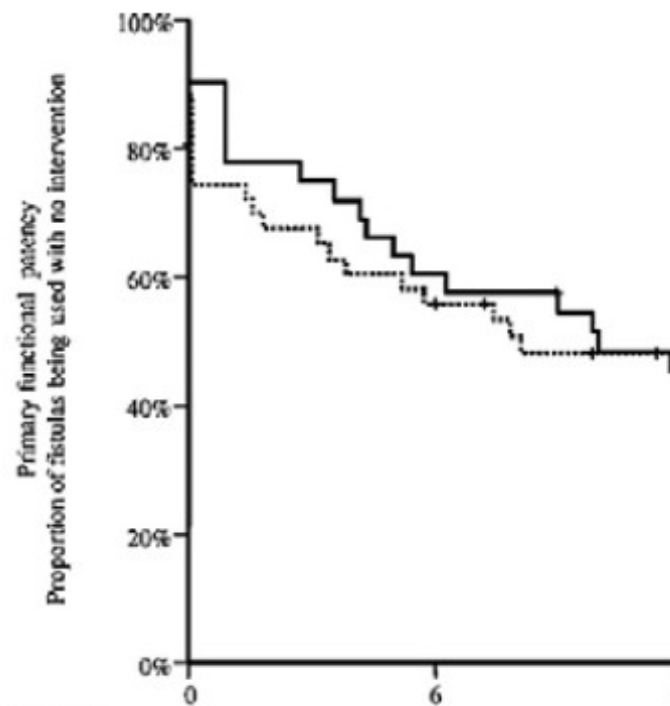
Damian McGrogan, MBBChBAO, MRCS,<sup>a</sup> Julien Al Shakarchi, MBChB, MSc, MRCS,<sup>a,b</sup>  
 Aurangzaib Khawaja, MD,<sup>a,b</sup> Jay Nath, MBChB (Hons), MRCS,<sup>a</sup> James Hodson, BSc,<sup>c</sup>  
 Alexander P. Maxwell, MD, PhD, FRCP,<sup>d</sup> and Nicholas G. Inston, PhD, FRCS,<sup>a,b</sup> *Birmingham,  
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(*J Vasc Surg* 2015;62:1652-7.)

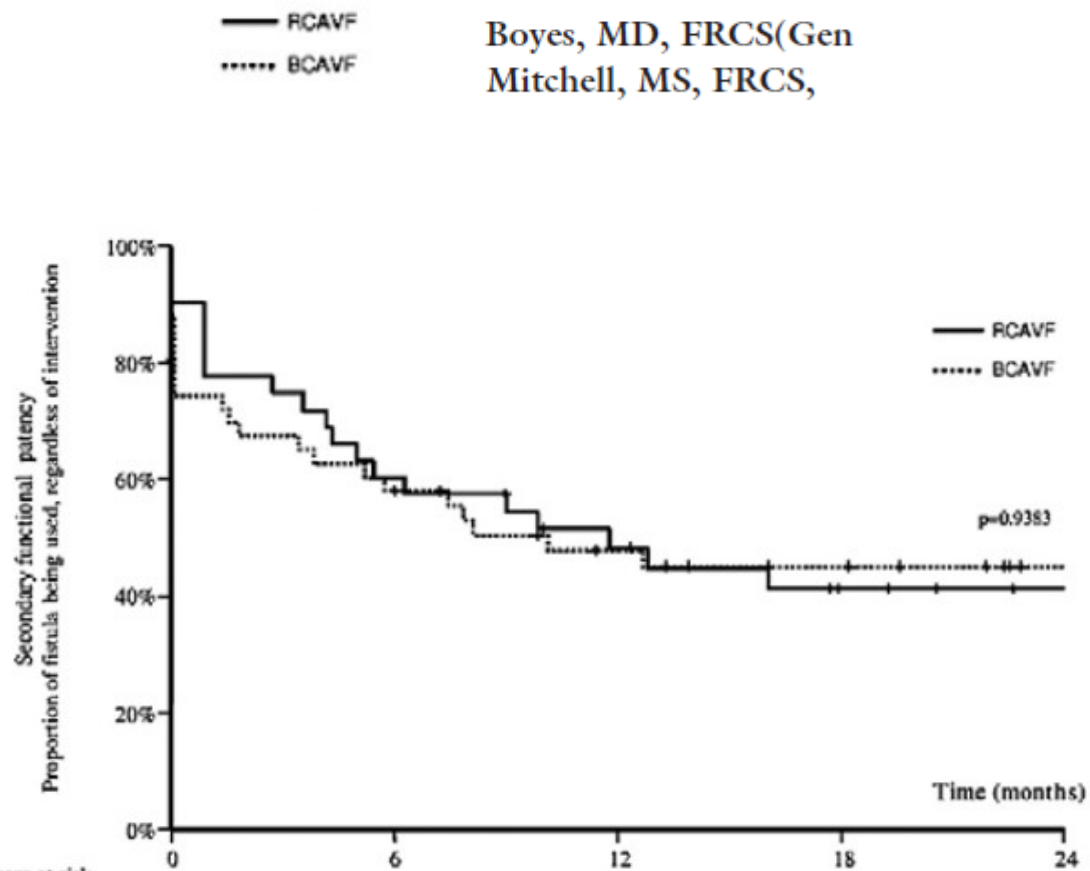


**Secondary Patency a 12 mesi: FAV Brachio Cefalica versus FAV Radio Cefalica**

# Radiocephalic and brachiocephalic arteriovenous



Over 80 years at risk



Boyes, MD, FRCS(Gen)  
Mitchell, MS, FRCS,

Over 80 years at risk



# Radiocephalic and brachiocephalic arteriovenous fistula outcomes in the elderly

Andy R. Weale, MRCS, Paul Bevis, MRCS, William D. Neary, MRCS, Simon Boyes, MD, FRCS(Gen Surg), Justin D. Morgan, MD, FRCS, Paul A. Lear, MS, FRCS, and David C. Mitchell, MS, FRCS,  
*Bristol, United Kingdom*

*Conclusions:* Age did not affect usability, primary or secondary patency of either RCAVFs or BCAVFs. Although patient selection is important, even patients  $\geq 80$  years who are considered suitable for surgical placement of access should not be denied a RCAVF solely because of age. (J Vasc Surg 2008;47:144-50.)

**FAV Nativa o Protésica?**

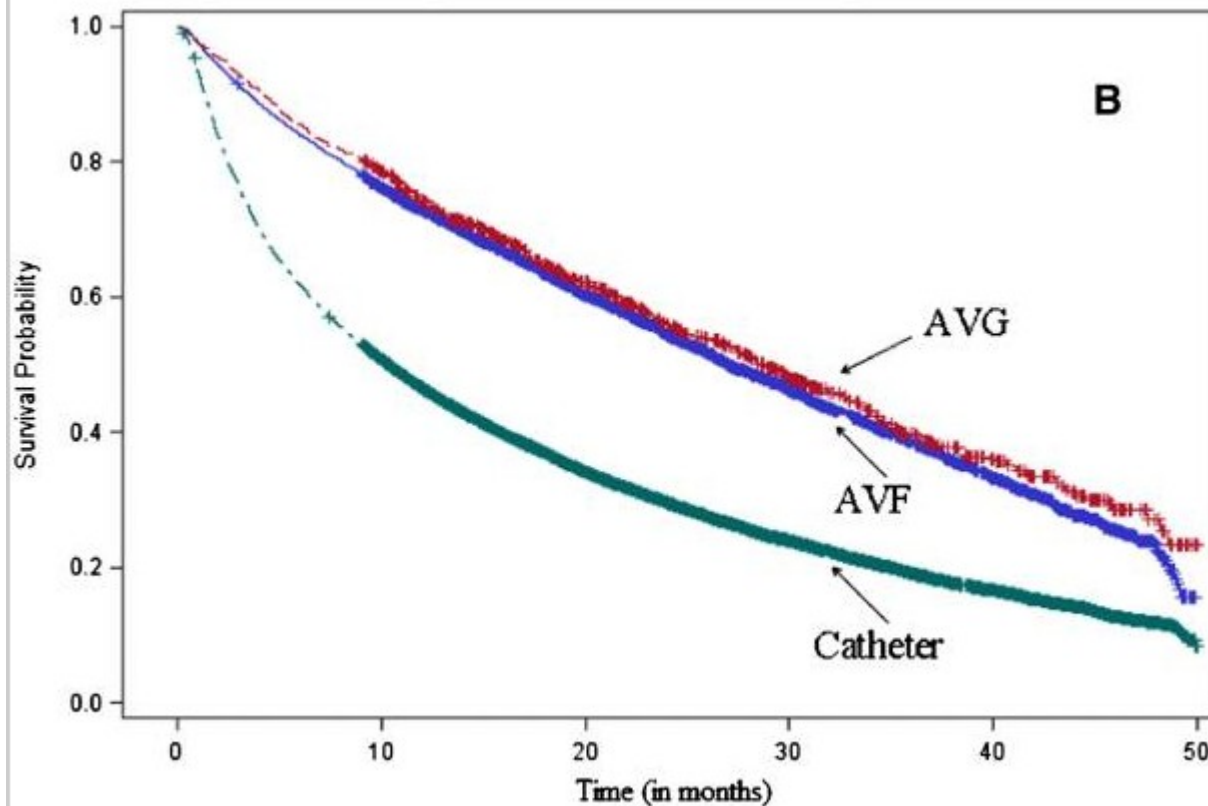
## **The vascular access in the elderly: a position statement of the Vascular Access Working Group of the Italian Society of Nephrology**

**Carlo Lomonte<sup>1</sup> · Giacomo Forneris<sup>2</sup> · Maurizio Gallieni<sup>3</sup> · Luigi Tazza<sup>4</sup> ·  
Mario Meola<sup>5,6</sup> · Massimo Lodi<sup>7</sup> · Massimo Senatore<sup>8</sup> · Walter Morale<sup>9</sup> ·  
Monica Spina<sup>10</sup> · Marcello Napoli<sup>11</sup> · Decenzio Bonucchi<sup>12</sup> · Franco Galli<sup>13</sup>**

**E' la fistola su vasi nativi l'accesso  
vascolare da preferire anche nel  
paziente grande anziano?**

## Fistula First Is Not Always the Best Strategy for the Elderly

Ranil N. DeSilva, Bhanu K. Patibandla, [...], and Alexander S. Goldfarb-Rumyantzev



Epub 2021 Feb 12.

# Catheter Dependence After Arteriovenous Fistula or Graft Placement Among Elderly Patients on Hemodialysis

Beini Lyu <sup>1</sup>, Micah R Chan <sup>2</sup>, Alexander S Yevzlin <sup>3</sup>, Brad C Astor <sup>4</sup>

**Conclusions:** Creation of an AVF was associated with significantly greater cumulative catheter dependence than placement of an AVG in an elderly population initiating HD without a permanent access. .

# Steal Syndrome

FAV prossimale versus

bocca anastomotica  $\leq$  5mm;  
mid-arm su radiale prossimale

FAV protesica versus FAV protesi conica

Popolazione anziana

Fumatori

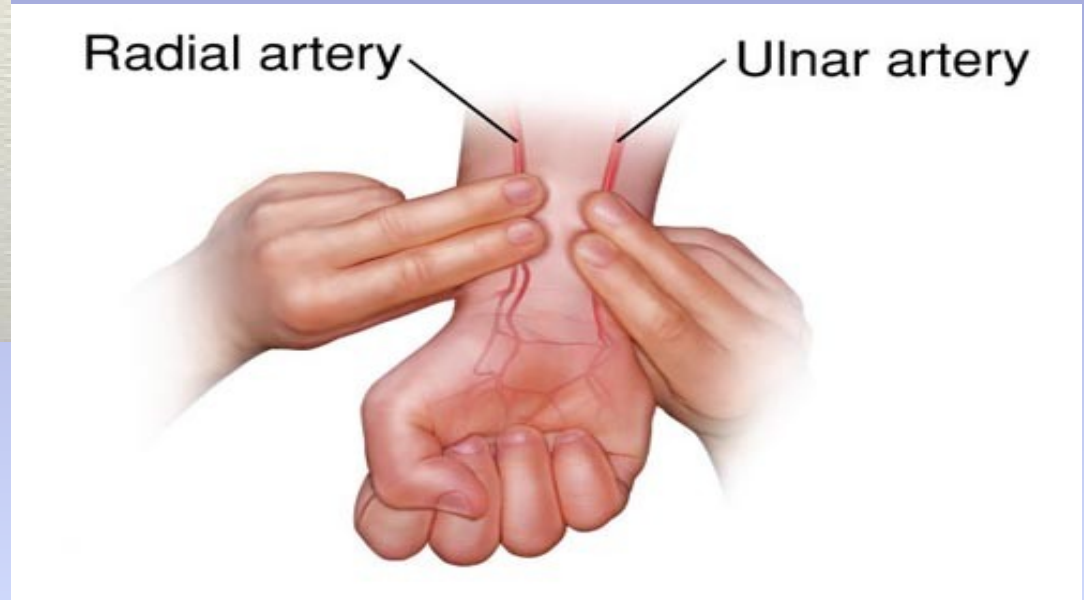
Diabetici







# Test di Allen

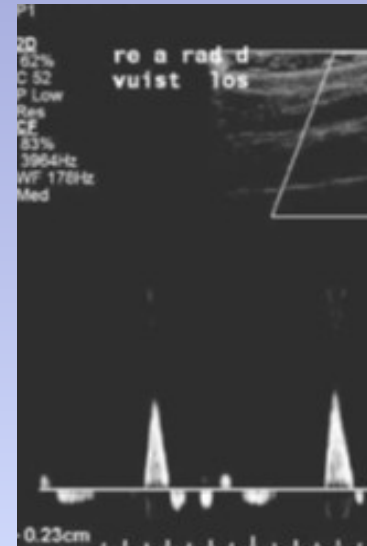
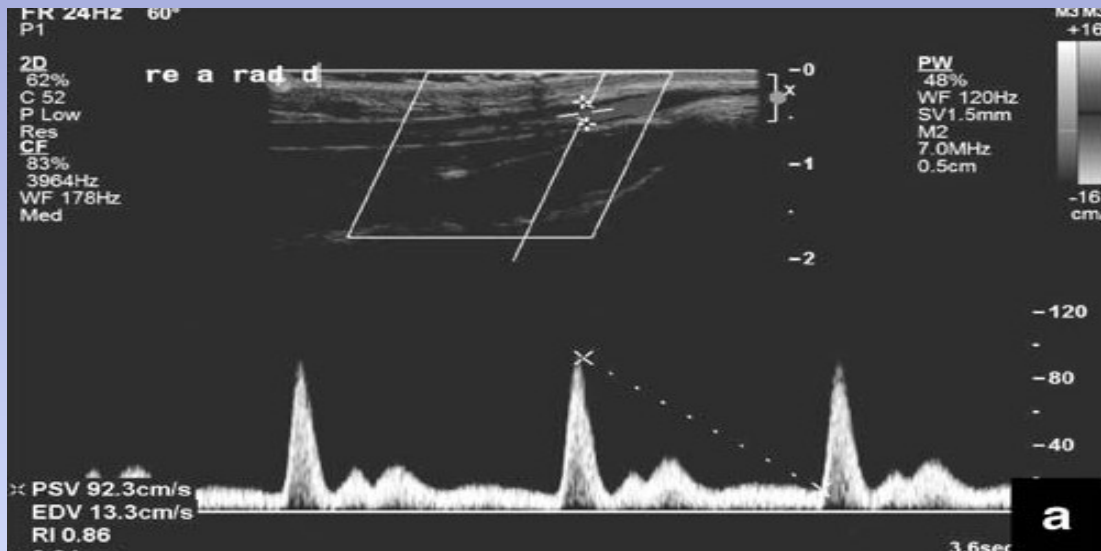




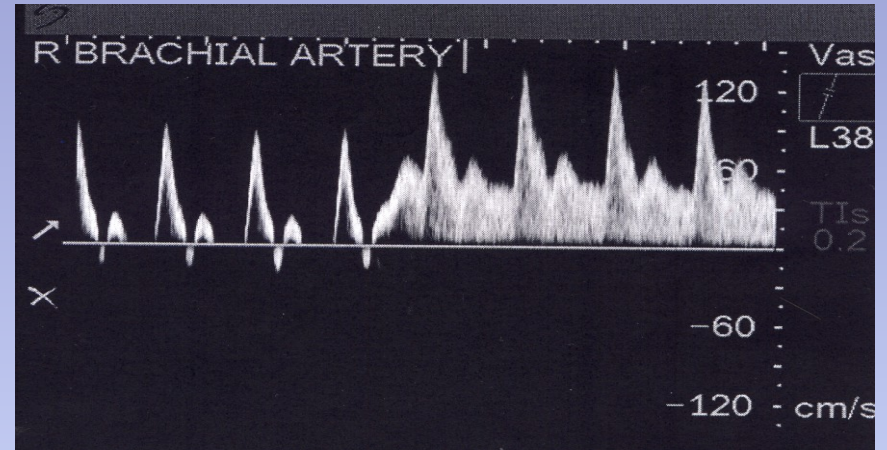
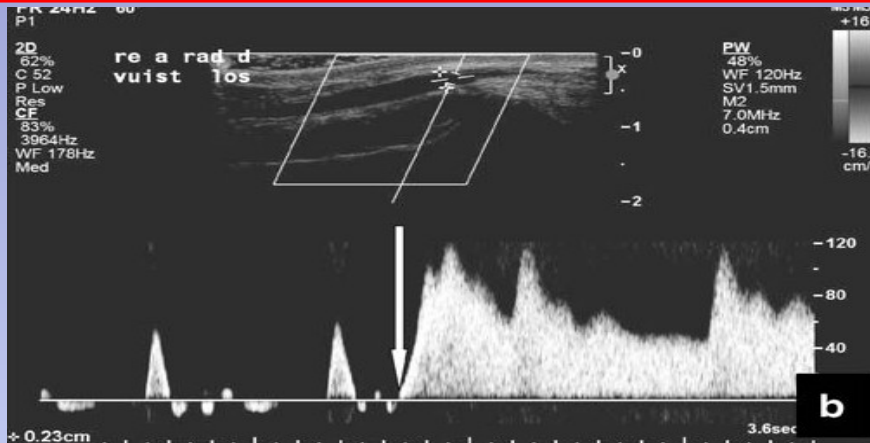
# Test dell'iperemia reattiva

- Misura capacità di adattamento dell'albero arterioso
- Analisi del tracciato doppler dell'arteria radiale in condizioni di ischemia e durante iperemia reattiva
- Ischemia: stringere il pugno per 2 min

A pugno chiuso , le masse muscolari contratte aumentano il consumo di ossigeno e nello stesso tempo impediscono meccanicamente l'arrivo del sangue. Il picco sistolico si riduce per ampiezza e durata trasformandosi in un breve segnale positivo seguito da assenza completa di flusso durante l'intera diastole



Nella fase di iperemia reattiva, conseguente all'apertura della mano, il segnale velocitometrico si modifica in modo spettacolare assumendo i caratteri di un segnale bifasico, a bassa resistenza



# Test dell'iperemia reattiva

Buona compliance vascolare: IR ridotti durante fase di iperemia

$$IR = (Vps - Vtd) / Vps$$

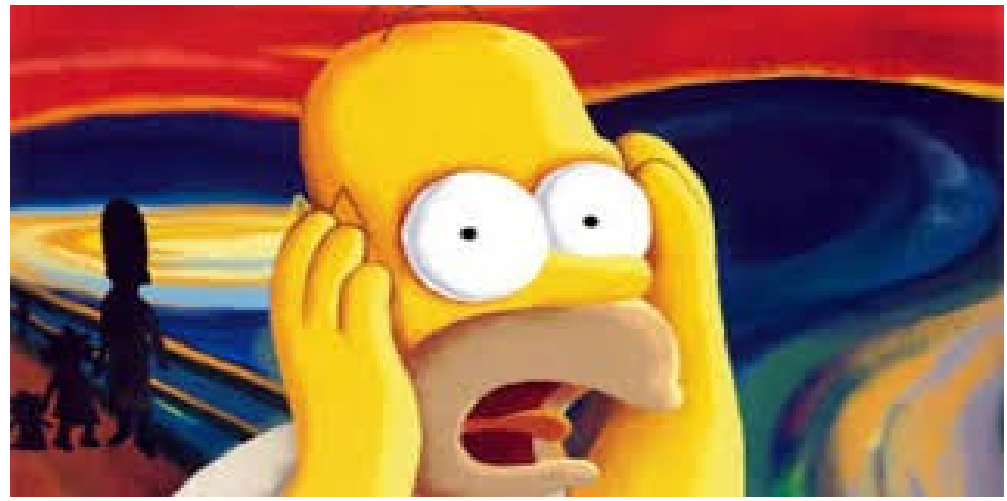
FAV distale funzionante:

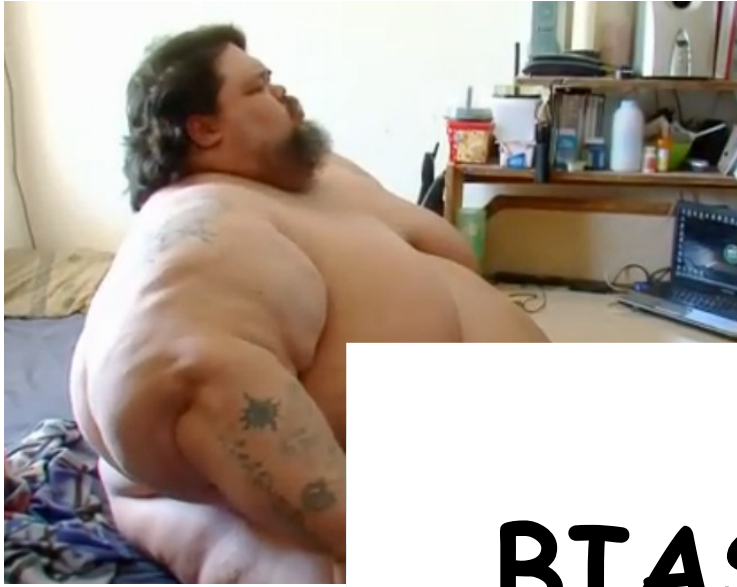
95% se  $IR < 0.7$  durante iperemia reattiva

38% se  $IR > 0.7$  durante iperemia reattiva



FAV o CVC?





# BIAS DI SELEZIONE

**Brown RS et al. J Am Soc Nephrol. 2017 Feb;28(2):645-652.  
The Survival Benefit of "Fistula First, Catheter Last" in Hemodialysis  
Is Primarily Due to Patient Factors.**



# CVC

Procedura relativamente semplice

Immediatezza nell'uso

Non dolore da venipuntura


Negli anziani i tassi di infezione del CVC sono minori

Preferenza da parte del paziente anziano

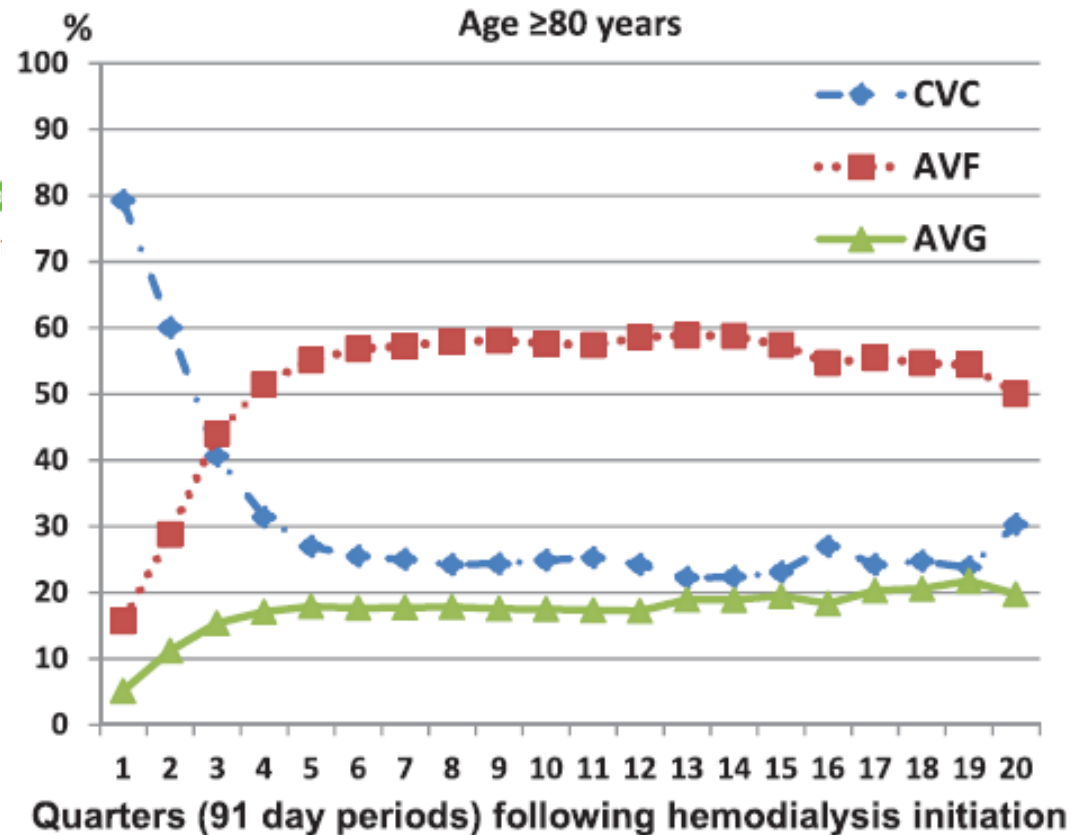
Murea M, James KM, Russell GB, *et al.* Risk of catheter-related bloodstream infection in elderly patients on hemodialysis. *Clin J Am Soc Nephrol* 2014;9:764–70.

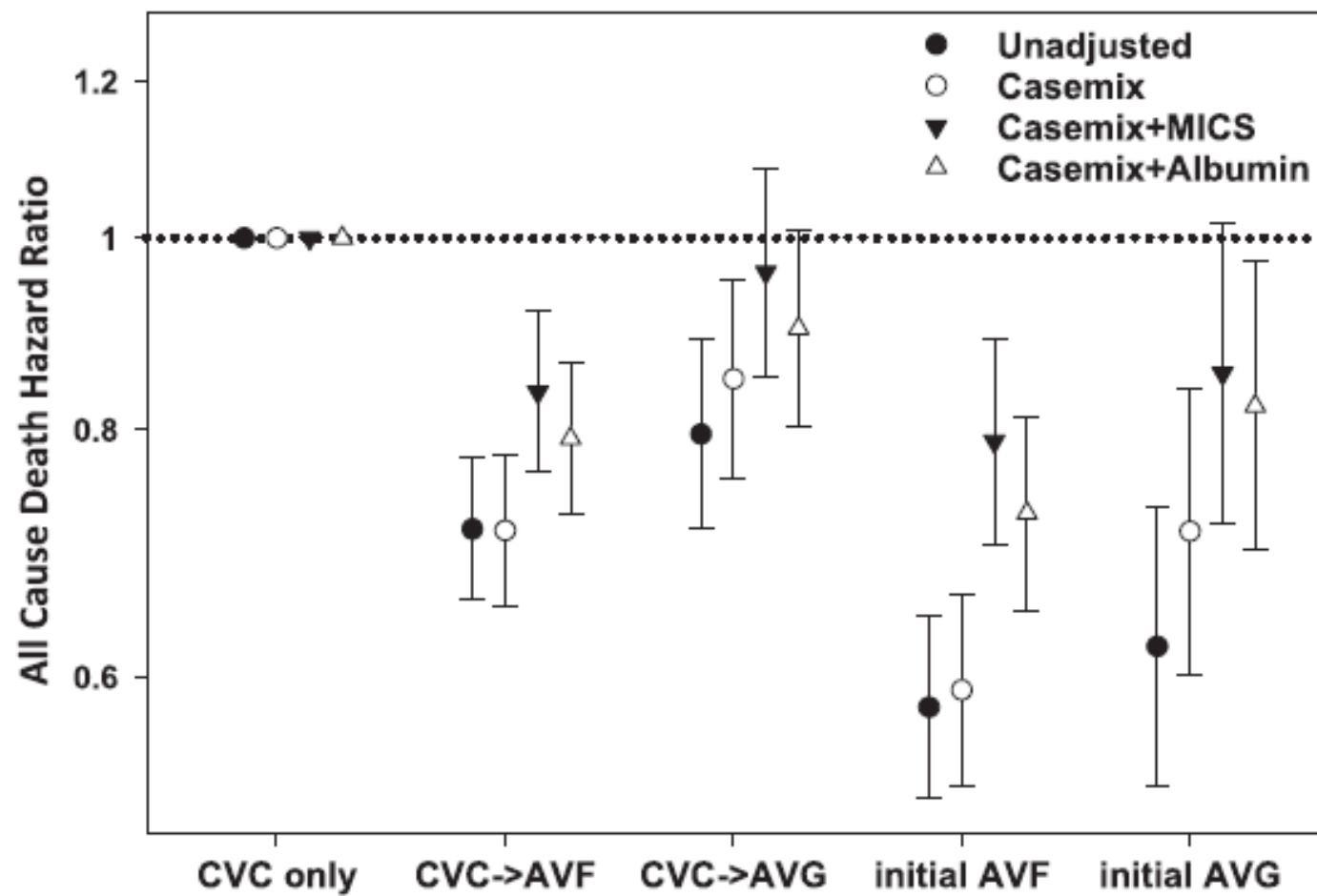
Quinn RR, Lamping DL, Lok CE, *et al.* The Vascular Access Questionnaire: assessing patient-reported views of vascular access. *J Vasc Access* 2008;9:122–8.

# Vascular access placement and mortality in elderly incident hemodialysis patients

Gang Jee Ko<sup>1,2</sup>, Connie M. Rhee<sup>1</sup>, Yoshitsugu Obi , Csaba P. Kovesdy<sup>5,6</sup>, Elani Streja<sup>1</sup> and Kamyar Kalan

**PAZIENTI INCIDENTI IN HD:  
100.804 pazienti di cui 14.106 ≥ 80aa**





# BMJ Open ACCESS HD pilot: A randomised feasibility trial Comparing Catheters with fistulas in Elderly patients Starting haemodialysis

Table 1 Eligibility criteria

Inclusion criteria	Exclusion criteria
1. Adult patients age $\geq 65$	1. Started haemodialysis with a fistula or have a patent fistula already in place
2. Started haemodialysis using a tunnelled, or non-tunnelled catheter for vascular access	2. More than one unsuccessful fistula attempt prior to starting dialysis
3. Treated with dialysis for 120 days or less at the time of consent (134 days or less at the time of randomisation)	3. Has had a prior arteriovenous graft creation
4. Clinically stable as assessed by the treating nephrologist (able to provide consent within 120 days of haemodialysis start)	4. Imminent transplant planned (within 6 months, must be booked)
5. Haemodialysis is the intended long-term modality of treatment	5. Metastatic malignancies or other condition associated with a life expectancy of <6 months, in the opinion of the attending nephrologist
6. End-stage (permanent) kidney failure unlikely to recover kidney function according to the attending nephrologist	
7. Eligible for a fistula attempt as determined by the local multidisciplinary access team	
8. Planning to remain in the current dialysis centre for at least 6 months	

**Table 1** Eligibility criteria

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1. Adult patients age  $\geq 65$
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# *ClinicalTrials.gov*

<b>First Submitted Date</b> <small>ICMJE</small>	January 26, 2016
<b>First Posted Date</b> <small>ICMJE</small>	February 5, 2016
<b>Last Update Posted Date</b>	July 21, 2022
<b>Actual Study Start Date</b> <small>ICMJE</small>	May 2016
<b>Estimated Primary Completion Date</b>	March 2025 (Final data collection date for primary outcome measure)




# American Journal of Kidney Diseases

Volume 50, Issue 3, September 2007, Pages 379-395



Special Article

## Balancing Fistula First With Catheters Last

Eduardo Lacson Jr MD, MPH <sup>1</sup>  , J. Michael Lazarus MD <sup>1</sup>, Jonathan Himmelfarb MD <sup>2</sup>, T. Alp Ikizler MD <sup>3</sup>, Raymond M. Hakim MD <sup>1</sup>

**2003-2006 Fistula First Breakthrough Initiative:**

**“...This increased emphasis on AVFs resulted in the unintended consequences of a higher rate of nonmaturation and tunelled catheter use across the US”**

Review

## Looking Beyond “Fistula First” in the Elderly on Hemodialysis

Mariana Murea ✉, Scott Satko

First published: 02 March 2016 | <https://doi.org/10.1111/sdi.12481> | Citations: 10

Comprehensive and longitudinal assessments that integrate comorbidities, physical function, cognitive status, and quality of life to estimate prognosis and assist with vascular access selection ought to be employed. In circumstances where patient survival is limited by comorbidities and functional status, AVF is unlikely to confer meaningful benefits compared to AVG or even TCVC in the ill elderly.



**Aspettativa di vita**

**Qualità della vita**

# TAKE HOME MESSAGES

- Nel paziente anziano maggior rischio di non maturazione o fallimento FAV
- Timing 6-9 mesi prima dell'avvio del primo utilizzo (non superiore)
- Maggior successo di FAV prossimale rispetto a distale
- Possibile impiego di FAV protesica
- Attenzione alla sindrome da furto
- CVC First?

A word cloud of medical terms centered around the word "PERSONALIZZAZIONE". The words are arranged in a roughly circular pattern around the central term. The largest word is "PERSONALIZZAZIONE". Other prominent words include "MORTALITA'", "STENOSI", "FALLIMENTO", "MANCATA MATURAZIONE", "Protesi", "Angioplastica", "diabete", "Aspettativa di vita", "Comorbidity", "Sindrome da furto", "Aterosclerosi", "Calcificazioni vascolari", "Cardiopatía", and "fragilità".

**PERSONALIZZAZIONE**

**MORTALITA'**

**STENOSI**

**FALLIMENTO**

**MANCATA MATURAZIONE**

**Protesi**

*Angioplastica*

diabete

Aspettativa di vita

*Comorbidity*

Sindrome da furto

Aterosclerosi

Calcificazioni vascolari

Cardiopatía

fragilità