Il paziente anziano, quale accesso vascolare?

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Items

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In conclusion, persons using catheters for hemodialysis seem to have the highest risks for death, infections, and cardiovascular events compared with other vascular access types, and patients with usable fistulas have the lowest risk.
Epidemiology of vascular access in the elderly

• There are a rapidly growing number of elderly patients among the incident hemodialysis population with a high prevalence of comorbidities, shortened life expectancy, and reduced quality of life.

• Elderly patients account for an increasing fraction of patients on renal replacement worldwide, reaching 25 – 30% in most end-stage disease registries.
Item 3

AVF outcomes in the elderly

- In the elderly, at 1 and 2 years, primary patency rates range from 43% to 74% and from 29% to 67%, respectively.

- In the elderly, at 1 and 2 years, secondary patency rates range from 56% to 82% and from 44% to 67%, respectively.
Item 3

AVF outcomes in the elderly

- The one-year AVF cumulative survival was 75.1% (65+ group) and 79.7% (65- group)

Lok CE et al. Arteriovenous fistula outcomes in the era of the elderly dialysis population. KI 67; 2462, 2005
Item 3

AVF outcomes in the elderly

• A recent observational study compared AVF in patients older and younger than 70 years of age

• Cumulative AVF survival at 12 months was 68% in the younger patients, but only 39% in those over age 70

• A meta-analysis of 13 cohort studies reported primary and secondary patency rates of RC and BC AVFs

• There was a significantly higher rate of AVF failure in the elderly at 12 and 24 months (odds ratio: 1.54 and 1.36, respectively)

• The RC AVF primary failure rate in the elderly vs. nonelderly was estimated at OR 1.79

Increased age has been associated with the nonmaturing fistula with a more than doubling of the risk in those aged > 65 years (OR 2.23)

The association between increasing age and greater risk of nonmaturation can be attributed to the need for adequate vessels, which deteriorate with the normal aging process and are damaged by concurrent disease
Item 4

AV graft outcomes in the elderly

Overall, prosthetic grafts are deemed as secondary or tertiary choices for access due to the lower primary and secondary patency rates and increased association with morbidity and mortality.
Grafts are considered valuable options in patients with failed AVF, exhausted, unsuitable or damaged veins, late nephrologist referral and need for urgent cannulation with avoidance of central venous catheter.
In the overall ESRD population, cumulative AVF survival is no better than that obtained with grafts when primary failures are included in access survival analysis.
Chan compared access survival by access type among those > 65 years using data from the USRDS. Use of an AVF vs. a graft was not associated with increased patency among nondiabetic and diabetic patients.

- Interestingly, during the first 18 months after access creation, graft survival may be actually superior to that obtained with AVFs.

Item 6

**VA complications in the elderly**

- Recent studies have found no significant differences in the mean age among patients with dialysis-associated steal syndrome compared with those with no steal syndrome.

- However, age > 65 years has been recognized as a potential risk factor for dialysis-associated steal syndrome (Zamani P et al, Vasc Med 14: 371, 2009)
Item 7

Patient outcomes by access type in the elderly

• Several observational studies, examining only incident patients, consistently demonstrate a lower adjusted mortality among those using an AVF compared with a catheter.

• Similar studies have been conducted comparing outcomes in the elderly by VA type.
Haemodialysis catheters increase mortality as compared to arteriovenous accesses especially in elderly patients

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Item 7

Patient outcomes by access type in the elderly

The Association of Initial Hemodialysis Access Type With Mortality Outcomes in Elderly Medicare ESRD Patients

Jay L. Xue, DVM, PhD, David Dahl, MD, James P. Ebben, BS, and Allan J. Collins, MD

Xue JL et al, AJKD, 42: 1013, 2003
Item 8

The likelihood of kidney disease progression before death: timing of VA placement

- The presence of a functioning graft or AVF is associated with improved outcomes among patients who begin dialysis; however, it does not address the complications and costs associated with access creation in patients who will never start dialysis.

- In an individual patient, the expected time before initiation of dialysis is usually unknown and clinical practice guidelines on this topic are largely opinion-based and quite variable.
O’Hare et al reported that among 85- to 100-year-olds with an eGFR <15 ml/min/1.73 m2, only one in four patients started dialysis within 6 months and only one in three started dialysis within a year.

O’Hare AM et al, KI, 71: 555, 2007
Item 8

*The likelihood of kidney disease progression before death: timing of VA placement*

Up two-thirds of elderly patients who had undergone AVF placement die before their AVF was ever used for dialysis either because they did not start dialysis or their AVF did not reach maturity

The net benefit of different access strategies will vary between individuals as a function of life expectancy and quality of life:

1. Patients whose life expectancy is < 3 – 6 months will not benefit from AVF placement due to the maturation time.
2. A life expectancy of > 1 year would be required for elderly patients who require a longer time to maturation or who will require additional procedures and/or second access to justify AVF placement.
3. Patients with a life expectancy < 18 months may not experience the benefit of the longer patency expected from AVF placement.
One may consider delaying AV graft creation until dialysis starts, due to the shortened time between AV graft creation and use; however, this practice resulted in an increased risk of catheter-related bacteremia when compared with those who had the AV graft inserted before dialysis initiation.
Item 10

*Pragmatic approach to VA in the elderly*

The main considerations are:

1. Life expectancy
2. Complications from each VA
3. Patient preference
4. Most importantly, the quality of life of the patient

While a “fistula first” approach has been advocated within the context of Fistula First Initiative, individualization (“patient first”) is most important in the elderly patient.
Item 10

Pragmatic approach to VA in the elderly

For example, an AVF would be considered the most appropriate access in the elderly patient with minimal comorbidities, managed in a predialysis clinic with an expected dialysis start of more than 6 months. Even so, timing of the AVF creation must be considered in view of the lack of evidence for early initiation of dialysis.
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Pragmatic approach to VA in the elderly

In another situation, an AV graft would also be considered appropriate in the elderly patient, with multiple comorbidities and a life expectancy of $< 1 – 2$ years.
Lastly, a catheter is the least preferred option, but would be an appropriate option in a patient with multiple comorbidities and a minimal life expectancy.
Allon and Lok have developed an algorithm to aid in decision making for VA

CJASN 5: 2348, 2010
We emphasize, however, that all these decisions are dependent on:

1. Access to care
2. Time to surgical creation
3. Expertise of the surgeon and surgical outcomes
4. Facility practice patterns
5. Availability of procedures to assist with maturation
6. The rates of complications including catheter-related bacteremia
The elderly patient has a very unique set of considerations and challenges including:

1. Comorbid conditions
2. Vascular biology
3. Rate of kidney decline
4. Timing and initiation of dialysis
5. Social issues
6. Life expectancy
FUTURE OPPORTUNITIES

• Studies evaluating markers to determine linear progression of CKD and biological markers assessing vascular health in the elderly are urgently needed.

• Future studies need to evaluate outcomes in the elderly focusing on the time of initiation of VA care and the type of VA placement with careful assessment of complications, functionality, cost benefit, and most importantly, the patients’ preference and quality of life.
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