Outcome in elderly patients included in dialysis program

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Background and aim of the study

- During the last decades, mean age of incident dialysis patients progressively increased due to ageing population and prolonged survival in chronic kidney disease (CKD).
- Outcomes for elderly patients receiving dialysis therapies are poor, with actuarial life expectancy of a 75-year-old on dialysis only one-third of that of a similarly aged person not requiring dialysis. Even after consideration of patient characteristics, practice factors have a striking impact on the survival of elderly patients commencing dialysis.
- We assess early morbidity and mortality in patients patients ≥ 65 years age (elderly group - EG) compared to patients < 65 years age (younger group - YG), included in dialysis program.

Methods

- We assessed 468 patients (males = 242, mean age = 56 ± 15.6 years) incident in dialysis between January 2009 - January 2014.
- At hospital admission, all patients were routinely investigated for biological parameters and presence of uremia complications.
- Patients were monitored for at least 6 months after dialysis start or until death, whichever occurred first.
- Morbidity, mortality and causes of death were evaluated in all patients.

RESULTS

Patient groups

- Elderly group included 148 patients (31.6%) ≥ 65 years age, of which 48 patients (10.3%) were ≥ 75 years age.
- Younger group included 320 patients (68.4%) < 65 years age.

Patient characteristics

- **Referral vintage** was lower in the EG compared to YG (13.7 ± 23.7 versus 17 ± 30.3 months).
- Very late referral (less than 1 month) for nephrology care before dialysis was more frequent in EG compared to YG (28.4% vs 18.4%, p<0.05%).
- Mean values of **biological parameters at dialysis initiation** were similar.

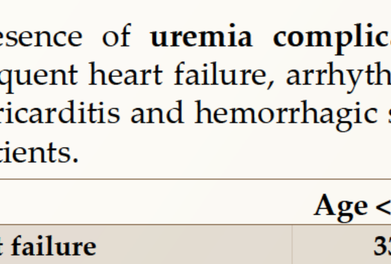
	Age < 65 years	Age ≥ 65 years	p
eGFR (ml/min/1.73m2)	5 ± 3	5 ± 3	NS
Hemoglobin (g/dl)	8.4 ± 1.8	8.3 ± 1.7	NS
Albumin (g/dl)	3.5 ± 0.7	3.4 ± 0.6	NS
Sodium (mmol/l)	135.7 ± 6.7	134.5 ± 6.4	NS
Potasium (mmol/l)	5.2 ± 1.1	5.4 ± 1.2	NS
Calcium (mg/dl)	7.9 ± 1.2	7.8 ± 1.1	NS
Phosphate (mg/dl)	6.8 ± 1.1	7.4 ± 1.2	NS
iPTH (pg/ml)	292 ± 230	363 ± 340	NS

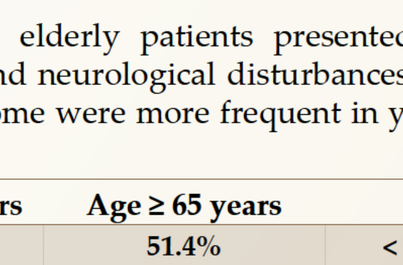
- Presence of **uremia complications:** elderly patients presented more frequent heart failure, arrhythmia and neurological disturbances, while pericarditis and hemorrhagic syndrome were more frequent in younger patients.

	Age < 65 years	Age ≥ 65 years	p
Heart failure	33.8%	51.4%	< 0.05
Arrhythmia	18.4%	35.1%	< 0.05
Pericarditis	24.7%	14.9%	< 0.05
Pleural effusion	30%	29.1%	NS
Infections	12.5%	15.5%	NS
Neurological disturbances	18.1 %	26.6%	< 0.05
Digestive manifestations	46.3%	45.9%	NS
Hemorrhagic syndrome	15.7%	9.5%	NS

Dialysis initiation

- Hemodialysis (HD) was the preferred method either in the EG (68.7%), or in the YG (67.2%); peritoneal dialysis (PD) was used in 46 patients (31.3%) from EG, and in 105 patients (32.8%) from YG.
- Vascular access type for HD:
  - CVC: in 59.2% patients from EG and in 53.8% pts from YG;
  - AVF: in 9.5% patients from EG and in 13.4% pts from YG.

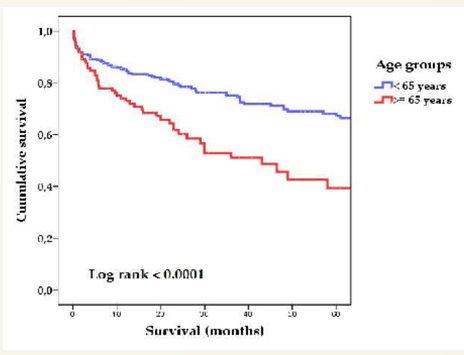




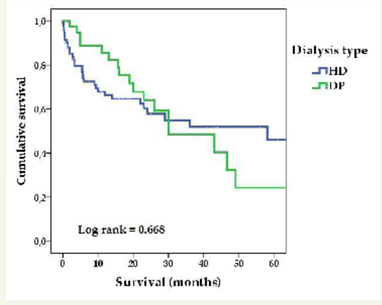
RESULTS

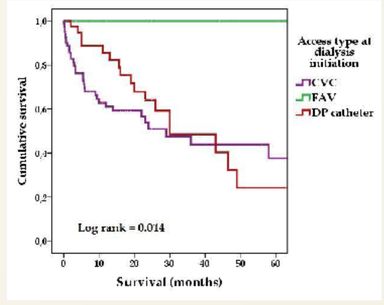
Survival

- **General survival** was significantly lower in elderly compared to younger patients (19.4 ± 23.2 months vs 52.4 ± 45.1 months, p<0.001).
- Although early mortality was similar between elderly and younger groups (6.4% vs 6.8% at 30 days, and 10.6% vs 9.1% at 90 days), we found significant differences at 6 months (23.6% vs 12.2%, p<0.01) and at 12 months (28.7% vs 16.7%, p<0.01) after dialysis initiation.



- In elderly patients, mean survival was similar when stratified by dialysis procedure (17.7 ± 21.7 months in HD vs 20.7 ± 20.3 months in PD), or access type used for dialysis initiation (16.4 ± 21.4 months in patients initiated using CVC vs 25.4 ± 22.6 months in patients initiated using AVF).
- However, survival rate was significantly better (p=0.014) in elderly patients in whom dialysis was initiated using AVF (100%) versus patients initiated using CVC (56.8%) or PD catheter (62.2%).





- **Cox regression analysis** identified the following factors influencing survival: age groups (elderly versus younger, p = 0.016), presence of heart failure (p = 0.037) and hypoalbuminemia (p < 0.0001) at dialysis initiation.

	Exp(B)	p
Age group (younger = refernce)	0.556	0.016
Heart failure (absent = reference)	0.613	0.037
Hypoalbuminemia (absent = reference)	0.355	< 0.0001

Cause of death

- Causes of death were mostly cardiovascular events in elderly patients, while sepsis and neoplasia were more frequent in younger patients.

	Age < 65 years	Age ≥ 65 years	p
Cardiovascular	33%	53,7%	< 0.05
Cerebrovascular	7.4%	6.7%	NS
Sepsis	21.3%	9.3%	< 0.05
Neoplasia	12.8%	5.6%	< 0.05
Others	6.4%	0.6%	NS
Unknown	19.1%	24.1%	NS

Conclusions

- Elderly patients are more frequent referred very late for nephrology care.
- Medium and long term mortality after dialysis initiation is higher in elderly compared to younger patients, and survival is lower, especially from cardiovascular causes.
- Elderly patients can benefit both from hemodialysis and peritoneal dialysis procedures, similar to younger patients.

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