

# The Epidemic of Aging in RRT: an Update on Elderly and their Outcome



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## Introduction

In the past decade, a rapid growth has been reported in the number of older patients (over 65 years of age) accepted for RRT with an increasing need for dialysis resources as a consequence. The aim of this study is to describe the trends in incidence, treatment and outcome of RRT among these older patients included in the new ERA-EDTA Registry.

## Methods

- Data from 6 national registries (Austria, Finland, French-speaking Belgium, The Netherlands, Norway and Scotland) were included for 1985 to 1999, comprising 18,920 patients older than 65 years of age starting RRT. Incidence and prevalence were expressed per million of age related population (pmarp).
- Cox regression was used for patient and technique survival analysis. Relative risk was expressed as Adjusted Hazard Ratio (AHR).
- To observe trends in outcome, patients were divided into three 5-year cohorts, according to the start of dialysis or time of transplant.

## Results

The percentage of older people among the incident RRT patients rose from 22% in 1985 to 48% in 1999 and from 14 to 29% among prevalent patients. Figures 1 and 2 show the increase in the incidence and prevalence of RRT by country in the 65-74 and 75+ age groups. Overall, the incidence in the 65-74 age group multiplied by 3 and the prevalence by 4 over the period, while those in the 75+ age group multiplied by 11 and 12 respectively.

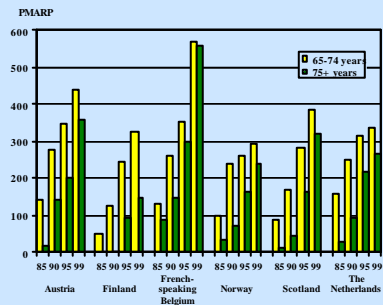


Figure 1 Incidence of RRT in older people (pmarp), by country by year

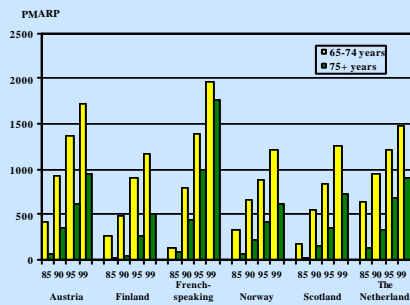


Figure 2 Prevalence of RRT in older people (pmarp), by country by year

Whereas the incidence of RRT due to glomerulonephritis, pyelonephritis and adult polycystic kidney disease has stabilized, there has been a continuing large increase in the incidence of RRT due to diabetes mellitus, hypertension, renal vascular disease and unknown causes, which reached 65, 47, 37 and 59 pmarp respectively in 1999.

Regarding dialysis modality there was a steep increase between 1985 and 1999 in the number of older patients receiving hemodialysis at day 90, but only a very modest growth in the number of peritoneal dialysis patients. Table 1 shows that, despite a rise over time in the number of transplants performed in this age group, when expressed per 1000 older dialysis patients the number has now started to decrease as the number of older dialysis patients continues to increase.

Table 1 Transplants in older patients: number, number pmarp and per 1000 older dialysis patients; by year

Year	No. of transplants	No. of transplants (pmarp)	No. of first transplant/ 1000 dialysis patients
1985	31	5	25
1990	101	17	32
1995	124	20	22
1999	146	23	18

The one- and two-year survival of older patients on dialysis was 69% and 51% respectively. Mortality from social causes, comprising the ERA-EDTA cause of death categories suicide/refusal of treatment and withdrawal of treatment, comprised 8% of the dialysis deaths in the 65-74 category (range: 0.2% in Finland - 15% in The Netherlands), while in the patients over 75 these causes of death accounted for 13% (range: 0% in Finland - 22% in The Netherlands). When adjusted for age, gender, DM and country, patient survival on dialysis did not change over time.

By contrast, after correction for age, gender, diabetes mellitus, donor source (living or cadaveric) and country, the relative risk of death after transplantation in the period 1995-1999 was reduced by 31% (AHR 0.69 (95% CI: 0.54-0.90)) compared to patients receiving a kidney in the period 1985-1989 (Figure 3).

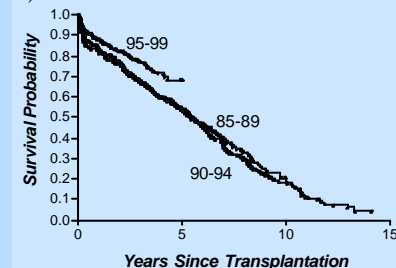


Figure 3 Patient survival in first renal allograft recipients in three cohorts (adj. age, gender, DM, donor type and country)

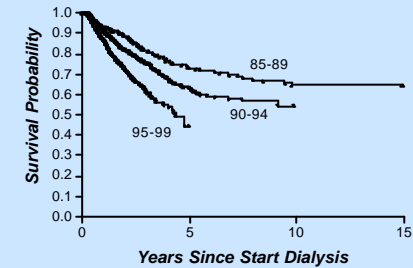


Figure 4 PD technique survival in three cohorts (adj. for age, gender, DM and country)

The two-year technique survival for hemodialysis was 98% for the entire period. Among the peritoneal dialysis patients, two-year technique survival decreased from 88% in the 1985-1989 cohort to 72% in the 1995-1999 cohort. Figure 4 shows that the adjusted relative risk of peritoneal dialysis technique failure was higher in the 1990-1994 and 1995-1999 cohorts compared to the 1985-1989 cohort (AHR for 1990-1994: 1.46 (95% CI: 1.16-1.85) and for 1995-1999: 2.38 (1.89-3.01)). Further analysis showed that technique failure was highest in 1995 and 1996.

## Conclusions

- The number of older incident and prevalent patients receiving RRT has risen rapidly.
- Patient survival in elderly on dialysis has been stable over the last 15 years, whereas transplant outcome has improved.
- The high mortality from social causes in the over 75 year age group and the increased peritoneal dialysis technique failure rate require further investigation.