

Renal replacement therapy in Europe: data over 20 years in children collected by the ERA-EDTA registry from 12 national or regional registries



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Introduction

In June 2000 the ERA-EDTA Registry Office moved to Amsterdam. At the same time it adopted the policy of collecting core data on RRT entirely through national and regional registries. This paper reports the epidemiological results of a study combining the paediatric data from 12 registries.

Methods

- Data from the national and regional renal registries of Austria, Dutch-speaking and French-speaking Belgium, Catalonia (Spain), Denmark, Finland, Greece, Iceland, The Netherlands, Norway, Scotland and Sweden were combined.
- Patients aged less than 20 years and starting RRT in the period 1980-2000 were included.
- The data were analysed in four cohorts: 1980-1984, 1985-1989, 1990-1994 and 1995-2000 with the exception of prevalence data.
- 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).

Results

3441 patients were included, covering a general population of 80 million people, 19 million of whom were younger than 20 years. Figure 1 shows the incidence of RRT pmarp by registry (left panel) and by age group (right panel). Overall, the incidence of RRT for patients aged 0-19 was 7.2 pmarp in the period 1980-1984, but thereafter it was relatively stable with 9 to 10 pmarp. The incidence was highest in young people aged 15-19 years. Figure 2 shows the continuing increase in prevalence of RRT in children and adolescents from 23 pmarp in 1980 to 61.9 pmarp in 2000.

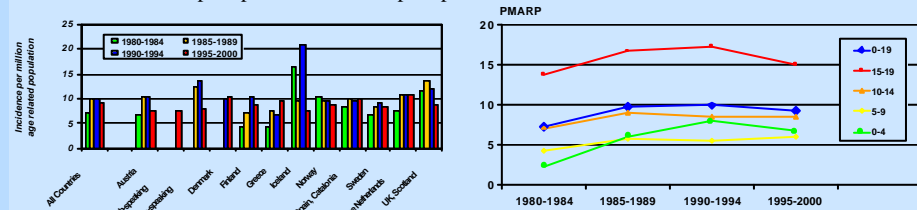


Figure 1 Incidence of RRT pmarp: in patients 0-19, by registry and cohort (left panel) and by age group and cohort (right panel)

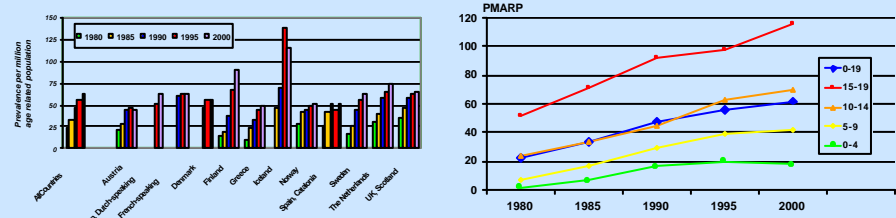


Figure 2 Prevalence of RRT pmarp: in patients 0-19, by registry and year (left panel) and by age group and year (right panel)

Table 1 shows that hypoplasia/dysplasia and hereditary diseases were the commonest conditions in the 0-4 age group, whereas glomerulonephritis and pyelonephritis were more frequent in the 15-19 age group

Hypoplasia/dysplasia, pyelonephritis and hereditary nephropathy were more common in males.

Table 1 Primary renal disease in incident patients (pmarp), by age group and male:female ratio (period 1980-2000)

Age group	0-19	0-4	5-9	10-14	15-19	M:F ratio
Glomerulonephritis	2.1	0.7	1.0	1.8	4.5	1.0
Pyelonephritis	1.9	0.7	0.8	2.1	3.8	1.8*
Cystic kidneys	0.8	0.4	0.7	1.0	0.9	0.9
Hypoplasia/dysplasia	1.0	1.3	0.9	1.0	0.9	2.0*
HUS	0.3	0.5	0.3	0.2	0.3	1.1
Hereditary nephropathy	0.8	1.2	0.6	0.5	1.1	2.0*
Miscellaneous	1.2	0.8	0.4	1.0	2.3	0.9
Unknown	0.9	0.4	0.6	0.8	1.8	1.3*

* p<0.05

Overall, HD was the commonest form of treatment at the start (day 1) of RRT in the cohort 1995-2000 (48%), followed by PD (34%), while pre-emptive transplantation accounted for the remaining 18%. HD was used much more often in the older children, while PD was the preferred therapy in children below 5 years of age. There were, however, large differences between countries. In dialysis patients aged 0-19, 2-year patient survival increased from 92% in 1980-1984 to 94% in 1995-2000, whereas in transplant recipients it rose from 95% to 97%. The greatest improvements however have been achieved in the smallest children: 2-year survival increased from 72 to 88% in dialysis patients and from 89 (cohort 1985-1989, as the number was too low in 1980-1984) to 98% for those after transplantation. Figure 3 shows the survival of dialysis patients over time, adjusted for age and gender. The relative risk of death of patients starting dialysis in 1995-2000 was 0.62 (95% CI: 0.41-0.95) compared to those starting dialysis in 1980-1984. The improvement was strongest and also statistically significant in the subgroup of patients aged 0-4 (AHR 0.43, 95% CI 0.19-0.95). The survival of young transplant recipients improved even more (Figure 4). Adjusted for age, gender and donor type the relative risk of those receiving a first allograft in 1995-2000 was 0.14 (95% CI 0.09-0.22), compared to patients in the 1980-1984 period. The amelioration was present in all age groups.

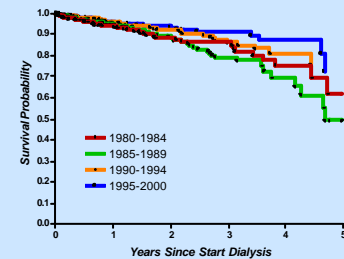


Figure 3 Patient survival in dialysis patients (0-19), by cohort (adjusted for age and gender)

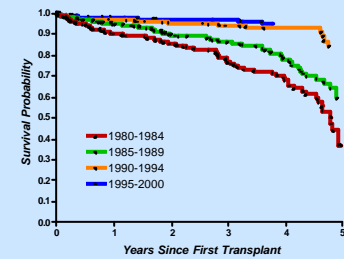


Figure 4 Patient survival in transplant recipients (0-19), by cohort (adjusted for age, gender and donor type)

Conclusions

- The prevalence of RRT in children has continued to rise, while the incidence of RRT has been stable for about 15 years.
- Patient survival has improved in both dialysis patients and transplant recipients.
- For dialysis patients the improvement was largest in the youngest age category.