The aim of this thesis was to evaluate the long-term results of renal transplantation in children at Huddinge University Hospital, with special reference to outcome. We therefore evaluated the course of events in children (age 0.1-16 years) transplanted between December 1981 and December 1991 during a 10-20-year period until 2001. Fifty-three children (26 girls) received a renal transplant at median ages of 7.1 (0.5 - 15.6) years in girls and 5.0 (0.4 - 14.4) years in boys. Seventeen children have received a second transplant 7.7 (0.01-14.7) years after the first, and one a third, 1 year after the second. In 79%, the underlying disorders were congenital (malformations and hereditary disorders). Among acquired disorders, glomerulopathies were the commonest. Dialysis was given mean 1.8 months before the first transplantation to 55% of the children. Living donors (LD) were used in 72% and most were parents. At that time, the standard immunosuppression included cyclosporine, azathioprine and prednisolone. During followup, 21 children were switched to tacrolimus 4-12 years after transplantation, and 3 were treated primarily with tacrolimus after a second transplantation.

The overall actual 1-, 5- and 10-year patient survival rates were 91%, 89% and 89%, respectively, and the corresponding graft survival rates after the first graft were 85%, 77% and 66%, respectively. One- and 5-year graft survivals in 18 re-grafted patients were 89% and 89%. We found no difference in patient survival rates between children who received LD kidneys and kidneys from a deceased donor (CD), but the graft survival rates were better in LD (90%,84% and 74%) than in CD (73%,60% and 47%) kidneys at 1, 5 and 10 years, respectively (p=0.007). Graft losses were due to acute rejection in 5, chronic rejection in 13 and renal cell carcinoma in 2 cases. Three children died with functioning grafts.

Renal function (GFR) was mean 58 ± 19 mL/min/1.73m2 body surface area (BSA) at 1 year (N = 42) and 44 ± 16 mL/min/1.73m2 BSA at 10 (N = 33) years. When we evaluated the renal reserve, transplanted children increased their GFR after a protein-rich meal and retained this capacity during follow-up, which contradicts maximal hyperfiltration.

The height Z-score increased from -1.3±1.7 in girls and -2.7±1.6 in boys at
transplantation to -0.6±1.0 and -1.5±1.2 at 5 years in a study of 58 children, transplanted from 1981 to 1994 and followed for at least 5 years. The final adult height Z-score of 16 girls was -0.7±1.2 and of 8 boys - 1.8±1.2, who reached adulthood during the study. GFR at 1 and 5 years predicted good growth from transplantation to 5 years.

In conclusion, good long-term patient survival was found after renal transplantation in childhood, even in the youngest age group. Graft survival was better in LD grafts. Good growth and a promising absence of severe long-term effects of immunosuppression were seen 10-20 years after transplantation.

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