Long-term outcomes of renal transplantation in pediatric patients

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Background: Renal transplantation is the best option for treatment of children with end-stage renal disease and it provides a long-term survival. However the chronic immunosuppression exposes children to multiple complications and side effects. Long-term outcome results are scarce. We aimed to analyze retrospectively long-term outcomes and characteristics of 184 pediatric renal transplant recipients at our center.

Methods: In 1975, we performed the first living-related renal transplant in Turkey which was also a pediatric kidney transplant. Since 1975 we have performed 3,109 kidney transplantation at Hacettepe University (1975 to 1985) and Baskent University, 360 of them were pediatric kidney transplantation. Medical records of the pediatric patients who underwent renal transplantation between 1999 to 2020 were retrospectively analyzed at single center. One hundred eighty-four pediatric renal transplant recipients were defined as study group. Medications, rejection episodes, patient and graft survival rates, complications such as hypertension, obesity, diabetes mellitus, growth retardation, and infections were recorded.

Results: Mean age of the patients was 13.8 ± 6.7 (range, 1.5–21 years). One hundred two of 184 pediatric transplant patients were male and 82 were female. The follow-up period ranged from 6 to 245 months (mean, 69.1 ± 38.8 months). Donor types were living-related in 77% (141 patients) and deceased donor in 23% (43 patients). Immunosuppressive medications were tacrolimus in 122 patients, cyclosporine-A in 56 patients, sirolimus in three patients, and everolimus in three patients. Induction treatment was administered to 51 of the subjects. The 1-, 3-, 5-, 10-, and 15-year graft survival rates were 99%, 92%, 86%, and 76%, respectively, and the 1-, 3-, 5-, 10-, and 15-year patient survival rates were 100%, 98%, 95%, and 92%, respectively. Hypertension was defined in 53 (29%), infections in 52 (28.8%), obesity in 24 (13%), new-onset diabetes in 7 (3.8%), growth failure in 7 (3.8%) patients. Overall mortality was 2.7%.

Conclusions: Kidney transplantation in pediatric patients is successful and long-term outcomes have improved significantly over the years. Advanced immunosuppressive strategies, improved peri- and post-transplantation care, closer monitoring of patients and better donor selection have led to an enhanced graft and patient survival rate. Our current objective should be achievement of optimal patient and graft survival rates with low rate of complications.

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