NUMBER OF PATIENTS ON TRANSPLANTATION WAITING LIST

Age groups, y	Number, %
0–5	78
	0.21
6–10	124
	0.33
11–17	421
	1.13
18–49	20,971
	56.07
50–64	12,784
	34.18
65+	3026
	8.09
Total	37,404

FIGURE 16-8
The national renal transplantation waiting list as of September 30, 1997. (*From United Network for Organ Sharing Bulletin* [6]; with permission.)

Renal Allograft Outcome

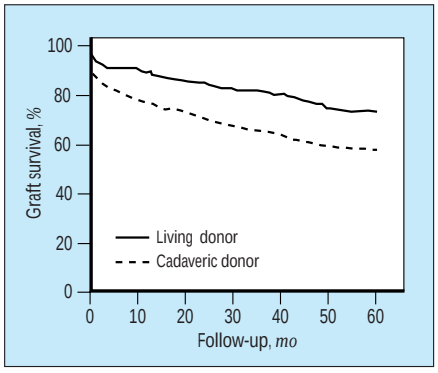


FIGURE 16-9
The estimated graft survival probabilities by allograft source from the 1995 North American Pediatric Renal Transplant Cooperative Study Annual Report. The overall median follow-up for patients with functioning grafts is 29 months. The estimated graft survival probabilities have improved by approximately 1 percentage point for cadaveric donor grafts compared with the data in the 1994 report. For living related donor grafts the estimated graft survival probabilities are similar to those in the previous report at 1 and 2 years, and 1 percentage point higher at 4 years. (*From* Warady and coworkers [5]; with permission.)

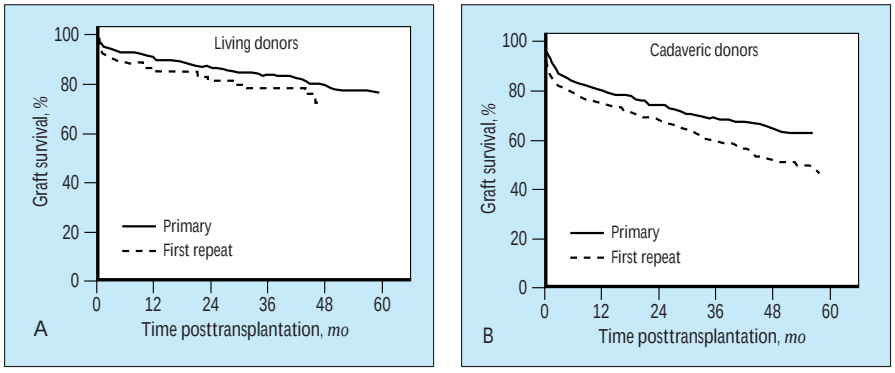


FIGURE 16-10
Graft loss in young infants and children often caused by irreversible acute rejection episodes. Rejection is, perhaps, a result of heightened immune response in this age group [7]. Despite an improvement in graft survival in children over the past 5 years, the half-life of renal grafts in pediatric patients remains around 10 years [8]. This half-life means that many of these children will need a second transplantation in their lifetime. Depicted are the North American Pediatric Renal Transplant Cooperative Study data stratifying the analysis of the percentage of graft survival by donor source. **A,** Graft survival rates for living donor transplantations, primary and first repeat. **B,** Survival rates for cadaveric donor source transplantations. Graft survival rates for repeat transplantations did not correlate with early or late failure of the primary graft. (*From* Tejani and Sullivan [9]; with permission.)

Factors Affecting Outcome

Donor Age and Source

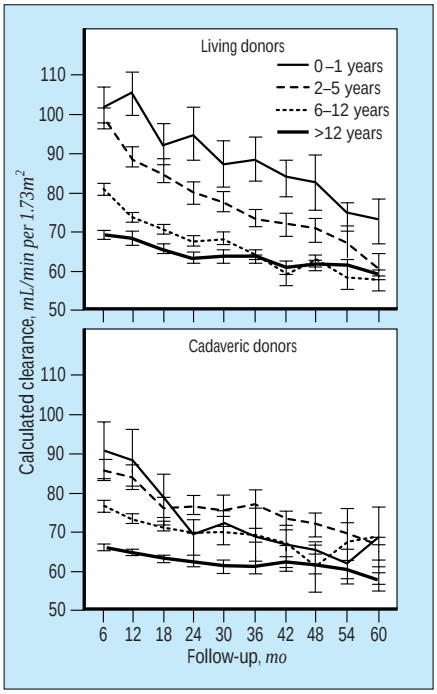


FIGURE 16-11

Data from the North American Pediatric Renal Transplant Cooperative Study for pediatric kidney allograft function, measured as calculated creatinine clearance values for both cadaveric and living donors. Regardless of the donor source, younger recipients begin with higher calculated creatinine clearance values with a more rapid decline in function. Older recipients have more stable calculated creatinine clearance values with less of a decline in function.

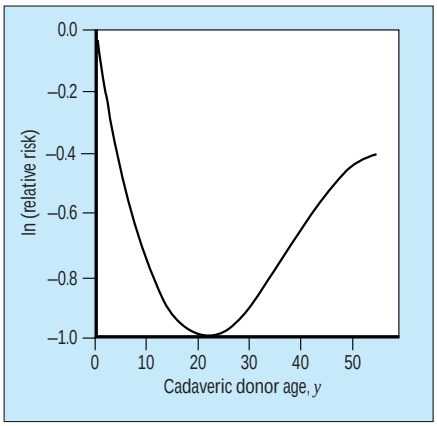


FIGURE 16-12

The relationship between cadaveric donor age and the logarithm of the relative risk of graft loss from all causes for pediatric recipients of cadaver-donor renal transplantations. The "perfect" donor is 21 years of age. The risk of graft loss is higher when the grafts used are from either younger or older donors. An equivalent risk of graft loss exists from donors who are 6 and 55 years of age. (*From* Harmon [10]; with permission.)

RISK FACTORS ASSOCIATED WITH GRAFT FAILURE

Cadaveric donor	Relative risk increase	P
Recipient age (<2 y)	2.03	0.001
Donor age (<6 y)	1.47	0.001
Previous transplantation	1.36	0.004
ATG, ALG, OKT3 early administration (none)	1.36	0.001
More than 5 lifetime transfusions	1.37	0.001
No DR matches	1.23	0.01
Annual cohort (1992 *vs* 1987)	1.29	0.04
Living related donor		
Recipient age <2 y	1.4	0.08
Black race	1.9	<0.001
More than 5 previous transfusions	1.7	<0.001

FIGURE 16-13

Risk factors associated with graft failure in a proportional hazards model for recipients of donor grafts. ATG—antithrombocytic globulin; ALG—antilymphocytic globulin. (*From* Warady and coworkers [5]; with permission.)

Recipient Age

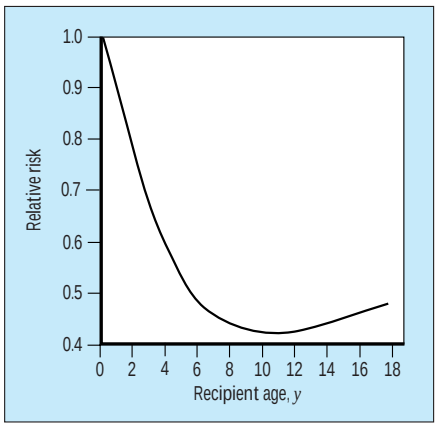


FIGURE 16-14
Relationship between recipient age and the relative risk of graft loss for children who receive cadaveric donor transplantation. A strong inverse relationship exists between the risk of graft loss and recipient age, particularly in the group under 2 years of age. (*From* Harmon [10]; with permission.)

Human Leukocyte Antigen Matching

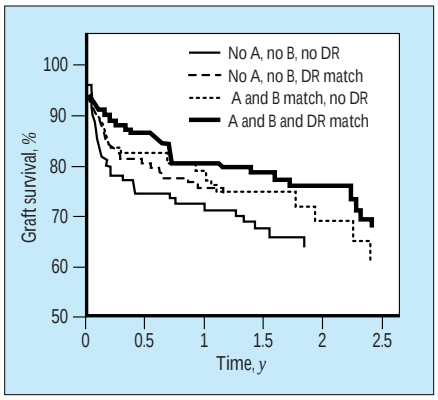
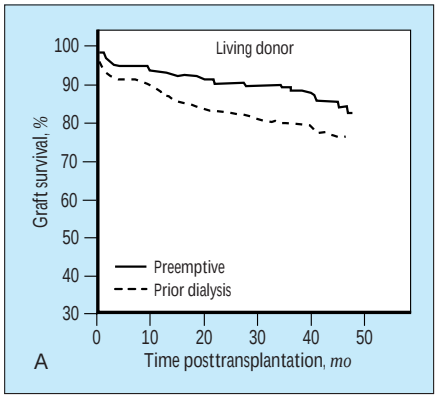


FIGURE 16-15
Results of 4 years of experience monitoring outcomes by the North American Pediatric Renal Transplant Cooperative Study. These results suggest a statistically significant beneficial effect of donor-related matching ($P \leq 0.05$) when analyzing this allele with other effects unique to pediatric patients with regard to age. This figure displays the subgroup with a match at both the A and the B locus, or at neither, and compares that with the effect of adding a donor-related (DR) antigen on the percentage of renal allografts surviving after transplantation. Owing to the relatively short follow-up, small sample size (1558 patients), and nonimmunologic factors pertinent to pediatric transplantation, it is difficult to determine separate time-varying effects of class I versus class II matching. However, it does seem clear that no antigen matching has a worse prognosis at 1 year (72% graft survival) versus 1 or more antigen matching at each locus (1-year 81% survival, 2-year 69% survival). (*From* McEnery and Stablein [11]; with permission.)

Preparation for Transplantation

Preemptive versus Previous Dialysis



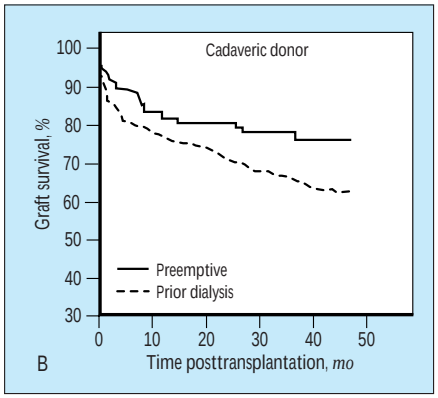


FIGURE 16-16
Percentage of graft survival of initial living (*panel A*) and cadaveric donor (*panel B*) grafts in recipients with and without (preemptive) dialysis, indicating better survival rates in those who did not receive dialysis previously. The survival probabilities in the preemptive group are significantly better until adjustments are made for recipient age (0–1 years vs others) and number of previous transplantations (>5 vs 0–5) in a proportional hazards model. (*From* Fine and coworkers [12]; with permission.)