Pediatric Kidney Transplant

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Objectives

- Participants will understand pediatric patient referral process
- Participants will understand etiology of pediatric kidney disease
- Participants will understand treatment options for pediatric ESRD patients
- Participants will understand the UNOS criteria/allocation rules for transplantation of pediatric patients
- Participants will understand post transplant care and follow up

Pediatric Referral Process

- With very few exceptions, all pediatric ESRD patients are to be referred for transplant
  - Severe developmental disability
  - Malignancy
- The referral will generally be done by the patient's long term Pediatric Nephrologist

Etiology of Pediatric Kidney Disease

- The distribution of kidney diseases is different for children
- Unlike adults children, especially younger children, are more likely to have a urologic congenital malformation as the cause of their ESRD – the involvement of Pediatric Urology is critical!!
- The most common malformation is posterior urethral valves, only occurring in males
- Other common conditions are: cystic dysplasia, reflux nephropathy
- There are also genetic causes, the most common of which is juvenile nephronophthisis (importance of Family History)
- The most common glomerular disease cause for ESRD in children is FSGS, which unfortunately has a high recurrence risk, other than the genetic form
- Also Polycystic Kidney Disease, but autosomal recessive, not dominant
- Children do not have ESRD due to diabetes or hypertension (just hasn't been enough time)

Unique Pediatric Points

- Children are more likely than adults to have available living related donors
- Children are more likely than adults to receive pre-emptive transplants (i.e., before the start of dialysis)
- Medicare eligibility is dependent on parental work history
- Size doesn't matter…much
- Importance of nutrition and growth
- Kidney transplant is the ultimate goal for all these patients, with few exceptions
- Kidney transplantation is the optimal therapy for Pediatric ESRD for best growth and development

Ethics

- Organ allocation policy should assure the "equitable allocation" of deceased donor organs (justice, fairness), while also requiring that these policies achieve "best use" of the organs (utility)
- The National Organ Transplant Act charges us to "*recognize the differences in health and in organ transplantation issues between children and adults throughout the system and adopt criteria, policies, and procedures that address the unique health care needs of children*."
- Justice: children with end-stage organ failure have a time-limited opportunity for growth and development and may suffer lifelong consequences if not expeditiously transplanted. The Prudential Lifespan Account states "*If we are concerned with net benefits within a life, we can appeal to a standard principle of rational choice: It is rational and prudent that a person take from one stage of his life to give to another in order to improve his life as a whole.*"
- Utility: measured as patient and allograft survival. Pediatric transplant recipients will on average enjoy lower mortality rates due to the strong association between younger age and longer survival.

Cadaveric Allocation Differences

Be alert to patient's birthday!!!

There is no listing criteria; it is at the Pediatric Nephrologist's discretion

Children are granted extra wait list points based on age group

- 0 –6 years
- 7 –12 years
- 13 –18 years

This is in addition to the current advantage for younger patients being able to receive the "better" kidneys, thereby giving them an expanded donor pool

These patients should probably not elect to receive the highest KDPI kidneys

Children's wait times are much shorter

Unintended consequence: A disincentive to LR donation

Pediatric Kidney Transplant

Kidney may be placed intra-abdominally

Approximately 800 pediatric renal transplants annually

- 50% are pre-emptive from living donors
- 75% of living donors are parents

20% of patients will need a unilateral or bilateral nephrectomy prior to transplant

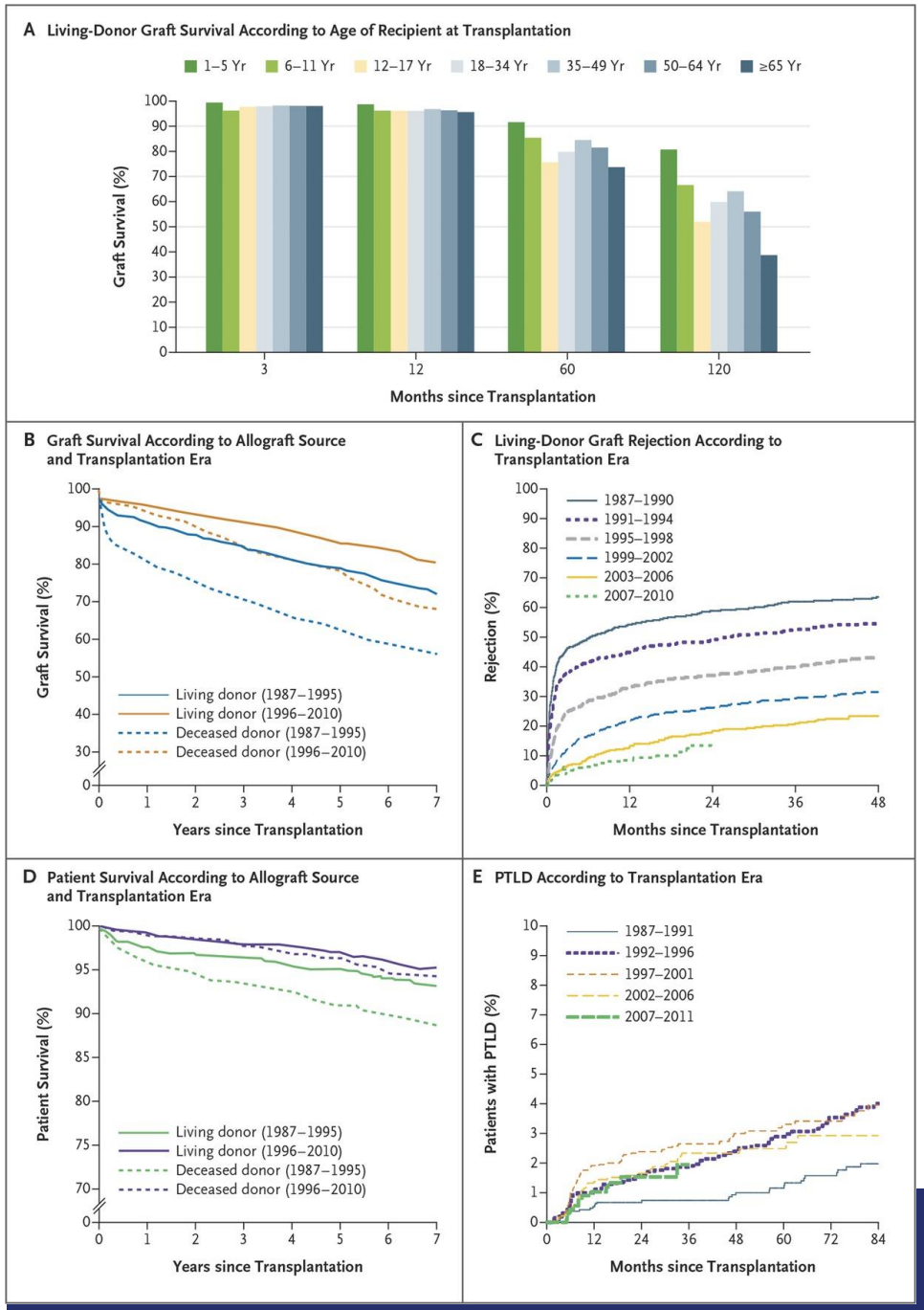
- Chronic renal parenchymal infection
- Heavy proteinuria
- Intractable hypertension

Common post-transplant complications

- Delayed graft function (5-15%)
- Acute rejection (46%)
- Vascular thrombosis (7%)
- Urologic complications - urinary leak (3-15%)
- Infection, especially opportunistic viral

Post transplant care and follow up

- Follow-up will be joint, Pediatric Nephrology and Transplant Surgery
- Medical non-compliance is a very important issue for adolescents
- Some estimate that it is the most common cause of graft loss in this group
- Transplant physicians use compliance with the dialysis regimen as indicative of the patient's likely compliance with the transplant regimen – please note this; you can also use it to improve patient's compliance with dialysis medications
- Additional complication of viral infections – potentially Post-Transplant LymphoProliferative Disorder



Graft and Patient Survival and Rates of Rejection and Post-Transplantation Lymphoproliferative Disorder (PTLD) in Children

Dharnidharka VR et al. N Engl J Med 2014;371:549-558

Hackensack Meridian *Health*

KEEP GETTING BETTER

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