Issues Specific to Children

Children are not just little versions of adults. They endure their own physical and mental issues that deserve extra attention.

Physical

Immunizations

Early childhood is when several series of immunizations are scheduled, which can create additional issues in children with renal failure. Due to weakened immune systems, it is even more important that children with CKD receive all recommended vaccinations plus pneumonia and influenza.

- Children who are on immunosuppressive medication to prevent transplant rejection or treat an autoimmune disease should not receive live viruses though, those include the polio oral vaccine, the measles, mumps and rubella (MMR) vaccine or the varicella (chicken pox) vaccine.
- Of particular concern, is the rates of vaccination against influenza in the pediatric population remained alarmingly low in 2006?2009, with fewer than one in three patients age 14 or younger receiving a vaccination. (1)
- Also, children on immunosuppressive treatments may require additional or larger doses of immunosuppressive because they have a more active immune system than adults. Sustained usage of these drugs can lead to undesirable side effects such as weight gain, unusual hair growth and acne. These types of effects can lead to higher rates of noncompliance.

Anemia

Another issue that disproportionately impacts children is anemia, which is a shortage of red blood cells or hemoglobin in the blood. This condition causes tiredness in most, but can cause damage to the organs and in rare cases death.

Growth and Bone Development

Growth and bone development issues are another common set of problems in children with CKD. Since adults are nearly full grown at onset of CKD this is an issue that impacts children more.

Kidneys impact bone growth in two ways. First, they help regulate blood phosphorus levels that when too high, inhibit bone growth. Second, they help regulate calcium levels in the blood that stimulates proper growth. Dietary changes that limit high phosphorus rich foods and medication to bind additional phosphate are necessary to reduce growth issues.

Health Outcomes

In comparison with the general population, the long-term survival of children with advanced CKD remains low. Specifically, the lifespan of a pediatric patient on dialysis is shortened by nearly 50 years when compared with control individuals matched for age and ethnicity. Even after successful renal transplantation, their lifespan is reduced by 25 years, and although overall patient survival has improved, cardiovascular disease (CVD) accounts for the majority of deaths.

However, unlike adults, pediatric patients with CKD rarely demonstrate symptomatic atherosclerosis and diabetes mellitus. Children and adults also have different causes of death attributable to CVD. In adults, complications of congestive heart failure and myocardial infarction are the two leading causes of death. Cardiac deaths account for nearly 25 percent of deaths in children and young adults with end-stage renal disease,? notes Dr. Warady. (2)

By contrast, in children with advanced CKD, cardiac arrest is the major CVD-related cause of death.

Mortality rates are similar to what is seen in the adult population, with rates peaking in the second month after initiation of treatment, then slowly declining through the rest of the first year. In the early months of therapy, the youngest children are at the highest risk of both hospitalization and death.

The most striking findings related to pediatric ESRD patients continued to center on the extreme vulnerability of patients younger than ten, and issues of infection control, which could lower the rate of complications, need to be addressed.

Emotional

Treating the emotional impact of renal failure is just as if not more important than treating the physical aspects. Being seen as different is never easy, and having to take medication that can give adverse side effects, no matter how life saving, is difficult.

The isolation people feel because of kidney failure is especially a problem in children and adolescents because of the importance of making friends and fitting in at this age. Finding the best treatment for a child takes on special significance to ensure that the child with kidney failure can become an active, productive, well-adjusted adult. (2)

Pediatric-only centers are becoming more wide spread, but emotional issues can be magnified when children are treated in adult settings. When young adults have complex health needs, the traditional pediatric and adult services approach is unlikely to provide the environment and support needed to allow the young person the best chance of achieving his or her aims and aspirations in life. (3)

These cultural barriers between pediatric and adult healthcare are an additional burden and pose substantial risks to teenagers or young people with chronic illness, requiring ongoing clinical management. The transitional years are a time of increasing independence, experimentation, and rebellious behavior that may manifest as

nonadherence. In end-stage kidney disease, United States data demonstrate reduced 5-year transplant survival rate (57%) in teenagers compared with adults aged 40-49 (72%).

Transfer from holistic focused pediatric care clinics to large adult kidney care programs can lead to significant no adherence leading to high levels of premature transplant failure.

When children do reach the age where it is appropriate to go to an adult focused clinic there are still transition issues. Some children can handle this change easily, while others will struggle. Transition occurs over a period of time. It should be a process that addresses the medical, psycho-social, educational, and vocational needs of adolescents and young adults with chronic physical and medical conditions as they move from child-centered to adult-oriented healthcare systems

Children with advanced kidney disease on dialysis or who have undergone transplantation are often managed at regional centers, sometimes a long distance from their homes and local communities. But kidney disease is far more common in adults, and, therefore, there may be a large geographical separation between the children's and the adult's services, which adds to the complexity and logistic difficulties. Lack of transitional planning can generate anxiety in patients, parents/caregivers, and staff.

Better results are achieved when young people are given the opportunity to meet their future adult multiprofessional team in a range of settings and on a number of occasions before "moving" to the adult unit. Young people receive a great deal of support from peers and can also benefit from contacts with young adults who have already transferred to the adult unit In addition use of text messaging, e-mails, and social network sites can facilitate interaction between the young adult patient and the adult healthcare team as well as catalyzing valuable peer interaction. In another example, hosting follow-up clinics in a student college or even a local cafe can help customize the teenage patient to the young adult clinic.

References

1. U S Renal Data System. *(2011) USRDS 2011 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, Chapter Eight Pediatric End-Stage Renal Disease* Retrieved from *http://www.usrds.org/2011/pdf/vs_ch08_11.pdf* [1].
2. National Kidney & Urologic Diseases Information Clearinghouse (NKUDIC). (2010), *Growth Failure in Children with Kidney Diseas.* Retrieved from http://kidney.niddk.nih.gov/kudiseases/pubs/childkidneydiseases/overview [2].
3. U S Renal Data System. *(2010) USRDS 2010 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, Chapter Eight Pediatric End-Stage Renal Disease* from http://www.usrds.org/2010/pdf/V2_08.pdf [3].

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