Introduction

The kidneys play an important role in a child's growth. In addition to removing wastes and extra fluid from the blood, the kidneys produce hormones that promote red blood cell production. It help regulate the amounts and interactions of nutrients from food, including minerals like calcium, phosphorus, and vitamin D, that are necessary for growth. Mean while, the kidneys may also play a role in the metabolism of growth hormone, also called somatotropin ***(Kuczmarski et al., 2003).***

In the general population, slightly more than 30 people in every 100,000 develop kidney failure each year. In the pediatric population age 19 and under the annual rate is 1 or 2 new cases in every 100,000 children. In other words, adults are about 20 times more likely to develop kidney failure than children, where the risk increases steadily with age ***(Aronoff et al., 2003).***

Acute Renal Failure is characterized by the abrupt failure of the kidneys to regulate water and electrolyte homeostasis. Acute renal failure in childhood due to uremic syndrome, post infectious acute glomerulonephritis, or dehydration are reversible, but a small percentage may progress to chronic renal failure ***(crystal, 2003).***

Chronic renal failure is the result of slowly progressive kidney diseases and seldom is fully reversible. This condition in childhood is associated with obstructive uropathy, congenital a plastic/ hypoplastic / hysplastic kidneys, and other causes. In chronic renal failure, almost every system in the body eventually becomes compromised ***(James et al., 2002)***.

Kidney failure can lead directly to more health problems, like swelling of the body, bone deformities, and growth failure. A successful kidney transplant can give a child with chronic kidney failure the best chance to grow normally and lead a full, active life. Dialysis can help a child to survive an acute episode of kidney failure or to stay healthy until a donated kidney becomes available ***(Cheng et al., 2003).***

Hemodialysis is the most common method used to treat advanced and permanent kidney failure. Dialysis does not treat renal failure, but instead keeps a person alive by performing the crucial functions of the kidneys. Since the 1960s, when hemodialysis first became a practical treatment for kidney failure, we've learned much about how to make hemodialysis treatments more effective and minimize side effects. In recent years, more compact and simpler dialysis machines have made home dialysis increasingly attractive. But even with better procedures and equipment, hemodialysis is still a complicated and inconvenient therapy that requires a coordinated effort from whole health care team, including nephrologists, dialysis nurse, dialysis technician, dietitian, and social worker. The most important members of health care team are family. By learning about treatment, the child can work with health care team to give himself the best possible results, and child can lead a full, active life ***(National Kidney, 2006).***