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Kidney disease is a condition that is increasing in incidence, affecting more and more Americans each year. Kidney disease causes damage to the kidneys, resulting in their inability to function properly. If not treated, kidney disease may result in serious and potentially fatal harm. Kidneys provide several critical functions for the body:

- Remove waste from the body
- Filter toxins from the blood
- Help regulate blood pressure
- Help maintain nutrient balance

(American Society of Nephrology, 2004)

Blood is carried into the kidneys where millions of nephrons filter out toxins and waste from the blood, which is passed to the bladder and eliminated from the body as urine (National Kidney Disease Education Program, 2004).

Kidney disease results when the nephrons become damaged and are unable to filter the blood. Eventually, kidneys may stop functioning altogether and result in chronic kidney disease or End-Stage Renal Disease (ESRD). Kidney disease is most typically caused by diabetes, hypertension and glomerulonephritis (American Society of Nephrology, 2004). Additional causes for kidney disease may also include cysts, infections, drug abuse, prolonged and extensive use of over the counter pain medications, and other inherited diseases.

Diabetes causes injury to blood vessels in the kidneys, resulting in their inability to clean the blood properly (National Kidney Foundation, 2004). In Texas, the Kidney Health Program reported that in 2003, nearly 54% of clients that

sought assistance through the program had kidney failure as a result of diabetes (Texas Department of Health, 2004). Nationally, diabetes accounted for about 40% of the cases of renal disease nationally (National Institute of Diabetes and Digestive and Kidney Disease, 2004).

Hypertension is the cause of ESRD between 23-26% of the time (Texas Department of Health, 2004; National Kidney and Urologic Diseases Information Clearinghouse, 2004).

Hypertension causes the heart to work harder and can result in damage to the tiny blood vessels in the kidneys, which in turn, reduces the ability of the kidneys to remove waste and excess fluids from the blood, causing blood pressure to further increase (National Kidney and Urologic Diseases Information Clearinghouse, 2004).

Glomerulonephritis results in damage caused by scarring or inflammation of the glomeruli, the filtering membrane within the kidney. (National Kidney Foundation, 2004).

In 2001, 392,023 Americans were receiving treatment as a result of kidney disease and 39,480 deaths were related to kidney disease, ranking as the 9th leading cause of death nationally (National Center of Health Statistics, 2004; National Kidney and Urologic Diseases Information Clearinghouse, 2004). In 2002, 283 persons in Bexar County died as a result of renal failure or kidney infection with an additional 422 individuals dying as a result of hypertension and hypertensive renal disease. The two figures

combined were the third leading cause of death, only behind heart disease and cancer (San Antonio Metropolitan Health District, 2004). End Stage Renal Disease is more likely to occur in African Americans, Mexican Americans, and Native Americans than Caucasians (American Society of Nephrology, 2004). Given that these population groups are significantly more susceptible and have a higher rate of diabetes and high blood pressure, it stands to reason that they are also at great risk for developing kidney disease as well.

Kidney disease can be diagnosed through the detection of the protein albumin in the urine and high levels of creatinine and blood urea nitrogen in the blood. (National Kidney Foundation, 2004). Symptoms of kidney disease include:

- Changes in urination patterns, such as an increase in frequency, smaller amounts,
- Swelling in the legs, feet, or hands
- Fatigue
- Skin rash and itching
- Metallic taste in the mouth and halitosis
- Nausea and vomiting
- Shortness of breath
- Back pain
- Hypertension (although it can cause kidney failure, high blood pressure can also occur as a result of kidney failure).

(Life Options, 2004).

In 2000, the care for patients with kidney failure cost over \$20 billion in private and public spending (National Kidney and Urologic Diseases Information Clearinghouse, 2004). Treatment for ESRD consists of dialysis and kidney transplantation. Dialysis involves the artificial cleansing and removal of waste products from the blood system, usually by filtering the blood through a dialysis machine (American Society of Nephrology, 2004). Dialysis is not a cure for ESRD but it can

significantly prolong someone's life. Kidney transplantation, the surgical implantation of a matched kidney to provide the vital functions of lost as a result of kidney failure, can eliminate a person's reliance on dialysis.

Across the U.S., over 287 million individuals received dialysis treatment as a result of ESRD in 2001; and 15,331 kidney transplants were performed, compared to 9,655 that were performed in 1988 (National Kidney and Urologic Diseases Information Clearinghouse, 2004). In 2003, there were 1,096 kidney transplants in Texas, one-third of which were from living donors, most likely a relative. Comparatively, 656 kidney transplants were performed in 1988, of which only 18% were from living donors (organ Procurement and Transplantation Network, 2004). The transplantation of a kidney from a blood relative decreases the likelihood of rejection and is often considered the best option, if available. Currently, there are 1,595 individuals awaiting a kidney transplant at the four medical facilities that perform kidney transplants in San Antonio.

Although there is no cure for kidney disease, it may be prevented or slowed down by:

- Properly managing blood pressure through exercise and by taking blood pressure medication as prescribed
- If diabetic, managing blood sugar levels and following reduced protein diet
- Avoiding the overuse of over the counter pain medication such as acetaminophen and ibuprofen
- Limiting alcohol consumption and stopping smoking.

(National Kidney and Urologic Diseases Information Clearinghouse, 2004; National Kidney Foundation, 2004).

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