

Diabetes and Nephropathy (Kidney Complications)

What Kidney Problems may be caused by Diabetes?

Kidney disease, or nephropathy, is a frequent complication of diabetes, both type 1 and type 2, and often ends in end-stage renal disease (kidney failure).

- Ten to 21 percent of all people with diabetes have nephropathy.
- Diabetes is the leading cause of end-stage renal disease. Diabetic nephropathy is a progressive disease that takes several years to develop. Many tiny blood vessels in the kidney act as filters to remove wastes, chemicals and excess water from the blood. In diabetic nephropathy, these blood vessels are damaged, become leaky and protein eventually spills into the urine (proteinuria). Eventually, the damaged filters are destroyed, putting more stress on the remaining filters and eventually causing them to become damaged. When the entire filtration system breaks down, the kidneys fail to function, and this is called end-stage renal disease (ESRD). ESRD is a condition where the patient requires dialysis or a kidney transplant in order to live.
- Approximately 43 percent of new cases of ESRD are attributed to diabetes.
- In 1999, 38,160 people with diabetes initiated treatment for end-stage renal disease and 114,478 people with diabetes underwent dialysis or kidney transplantation.
- ESRD incidence attributed to diabetes is increasing more rapidly than ESRD due to other causes. From 1988 to 1991, diabetes accounted for 33.8 percent of new ESRD cases, up from 23 percent of new cases in 1982. By 1999, this number reached 43 percent.
- In the United States, the incidence of reported ESRD in people with diabetes is more than four times as high in African Americans, four to six times as high in Mexican Americans and six times as high in Native Americans than in the general population of diabetes patients.
- The risk of ESRD is 12 times as high in people with type 1 diabetes as in those with type 2 diabetes.
- In patients with type 1 diabetes, who develop persistent proteinuria (protein in the urine), ESRD or death usually follows after about five to ten years.

Can Diabetes-related Kidney Problems be Prevented?

- The key to preventing diabetes-related kidney problems begins with good control of blood glucose levels, control of blood pressure and regular screenings by a health care providers.
- The Diabetes Control and Complications Trial (DCCT), a 10-year study which ended in June 1993, proved among type 1 patients that improved blood glucose control can prevent the onset and delay the progression of diabetic nephropathy. Therapy that keeps blood glucose levels as close to normal as possible reduced damage to the kidneys by 35-56 percent. (New England Journal of Medicine, September 30, 1993)
- Because a person with diabetes can develop nephropathy and not know it, a regular visit with a health care provider is essential. Regular visits with a health care provider can detect proteinuria early and possibly prevent ESRD.

Research has shown the efficacy of a class of antihypertensive drugs, ACE-inhibitors, in reducing the progression of diabetic kidney disease.

What is Needed?

In ideal circumstances, patients with diabetes will have their disease under good control and be monitored frequently by a health care provider team knowledgeable in the care of diabetes.

- Health care provider education is vital. Because people with diabetes have a multi-system chronic disease they are best monitored and managed by health care providers trained with the latest information on diabetes to help ensure early detection and appropriate treatment of the serious complications of the disease. A team approach to treating and monitoring this disease serves the best interests of the patient.
- Patient education is key. People with diabetes can reduce their risk for complications if they are educated about their disease; learn and practice the skills necessary to better control their blood glucose, blood pressure and cholesterol levels; and receive regular checkups from their health care providers. Smokers should stop smoking, and overweight people with diabetes should develop moderate diet and exercise regimens under the guidance of a health care provider to help them achieve a healthier weight.
- It is recommended that patients who have had type 1 diabetes for more than five years have an annual test for the presence of microalbuminuria. All type 2 patients should have this test at diagnosis.

Source: Florida Department of Health. Diabetes Prevention and Control Program.
<http://www.doh.state.fl.us/Family/DCP/whatis/nephropathy.html>