

DIABETIC NEPHROPATHY

Diabetic nephropathy is a kidney disorder that may occur many years after diabetes. It may occur in patient with type I or type II diabetes. The exact mechanism that makes diabetes damage the kidney is unknown. The damage that diabetes causes to the kidneys can lead to renal failure. Approximately 30 to 40% of renal failure cases that end in dialysis are caused by diabetes.

The kidney deterioration caused by diabetes occurs in the glomerules. The glomerules are microscopic filtration units that make up the kidney. Diabetes causes damage to the membranes of the glomerules that filter waste products from the body. The kidney has less ability to filter waste products and blood proteins are lost through the urine. The presence of protein in the urine is one of the first signs of kidney damage caused by diabetes. As the disease progresses, the blood waste products increase and over time cause symptoms of renal failure.

At-risk groups

The following groups of diabetic patients have greater risk of developing diabetic nephropathy:

- people with high blood pressure
- cigarette smokers
- people who are not white: African-Americans, Native Americans, Chicanos, and Asians

Symptoms of diabetic nephropathy

Diabetes-related kidney disease tends to be asymptomatic until the later stages of the disease. Once the symptoms occur, kidney function tends to be 25% lower than normal, and the damage is irreversible. When the symptoms appear, they may include:

- swelling of the feet and ankles
- tiredness
- general malaise (not feeling well)
- itching
- nausea and vomiting

Renal failure is one of the possible complications of diabetes. Patients with renal failure require dialysis or a kidney transplant. Patients with terminal kidney disease often have other complications. These include skin problems, such as sores, eye problems (diabetic retinopathy), neuropathy (numbness and tingling, generally in the hands and feet) and atherosclerosis (coronary artery disease and peripheral vascular disease), which increases the risk of heart attack, stroke and vascular disease in the arms and legs. Peripheral vascular disease could entail the risk of amputation due to complications from poor circulation.

Signs and exams

Your doctor will perform periodic exams on you to detect whether you have kidney disease and its severity. The first sign of diabetic nephropathy is called microalbuminuria (small amounts of protein in the blood). This test is performed analyzing the urine to see if there are very small amounts of protein. This urine test must be done every year in diabetic patients. Periodically, blood tests that measure kidney function are performed. BUN (blood urea nitrogen) and creatinine are waste products that can be measured in the blood. Patients with diabetic kidney disease may have greater concentrations of these substances in the blood, which indicates kidney damage. In addition to having patients monitor their blood glucose at home regularly, glucose is also controlled measuring glycated hemoglobin (also called A1c) in the blood. This indicates the degree of glucose control in the last three months.

Treatment

Controlling blood glucose concentrations is important for slowing the progression of diabetic nephropathy. It is also very important to control high blood pressure. The medications that are used to control blood pressure generally include an ACE (angiotensin-converting enzyme) inhibitor. In patients with diabetic nephropathy, the blood pressure objective may be only 120/70. ACE inhibitors have also been demonstrated to delay or prevent the progression of the disease in diabetic patients who are not hypertensive. Recent studies have demonstrated that angiotensin-receptor blockers (ARB) can have similar benefits as ACE inhibitors. Your doctor can help you decide which medication is indicated in your case.

It is also important to exercise regularly and follow a balanced diet. Some common recommendations on diet for diabetic patients with kidney disease are:

- Limit protein in the diet
- Limit the consumption of potassium
- Restrict foods with a lot of sodium and phosphorus
- Use vitamin and mineral supplements

Restrict the consumption of liquids, especially in advanced kidney disease