

Diabetic Complications (Part II)

By Philip R Nicol MD

In the first part of this talk I discussed the similarity in the underlying causes of the three principle diabetic complications. I also talked about the common features of diabetic eye disease. Today we will review diabetic nephropathy (kidney disease).

Diabetic nephropathy is the name given to the damage caused to the kidney after years of exposure to high blood sugar. The protein that makes up the structures of the kidney undergoes changes over the years that cause improper functioning of the kidney. The first sign that is detectable in a patient is leakage of protein into the urine. While the patient experiences no symptoms from this leakage, it is a warning sign to doctors that all is not healthy with the kidney. If not treated, the damage to the kidney structure continues, resulting in increased levels of protein loss in the urine and decreased ability of the kidney to excrete poisons from the body. As time passes, the kidneys become scarred and shrunken and blood levels of unhealthy substances begin to rise. Doctors detect this in the blood as rising levels of creatinine and BUN (blood urea nitrogen). Eventually these substances build up to toxic levels resulting in serious symptoms and ultimately death, if appropriate treatment is not instituted. Many people have heard of the term “dialysis” in connection with kidney disease. Dialysis involves taking the blood of a person with failing kidneys and cleaning out the poisons before returning the blood to the patient. This process is carried out by a machine and involves the patient attending a dialysis center three days a week. A less inconvenient method involves the patient’s use of their own abdominal lining (peritoneum) for the exchange, which allows the patient to remain at home. There are many other diseases beside diabetes, which can result in the need for dialysis, but diabetes is certainly the commonest.

In order to prevent these potentially devastating consequences two interventions must occur to preserve the normal structure and function of the kidney.

The first intervention involves rigorous control of the blood sugar. If the blood sugar is maintained at normal or near normal levels for years, the proteins in the kidney do not undergo the structural changes that are typical of diabetic kidney disease. As a result, the kidneys continue to retain their normal ability to clear poisons from the body. In these patients, protein leakage into the urine is not seen.

The second intervention that is crucial is the maintenance of excellent blood pressure over many years. Large population studies have shown us that the “ideal” blood pressure is far lower than we once thought. It is not too many years since we were happy with 140/90 as the upper limit of normal. We now know that at levels beginning above 110/75 we begin to see an increase in the incidence of cardiovascular events and nephropathy later in life. We also know that if we treat patients aggressively enough to maintain their pressure at, or near, that target of 110/75, we can reduce the rate of those problems. In patients who have already developed some degree of nephropathy, the transition to tight blood pressure control can actually reverse the amount of protein leakage and kidney damage.

So the messages on diabetic kidney disease are:- 1) Identify the problem early using urine microalbumin as a routine screening test. 2) Intervene early by correcting both blood sugar and blood pressure to very well controlled levels. Attention to both of these issues will preserve kidney function for many years and hopefully avoid the need for dialysis.

Next month I will review diabetic neuropathy, the collection of disorders caused by damage to the nervous system.

*Dr Philip Nicol is the director of **The Diabetes Center**, the only medical practice in the region devoted solely to the care of diabetics. Dr Nicol has received recognition from The Diabetes Physician Recognition Program, a joint program of the NCQA and ADA, for the period March 2005 through February 2008, for providing quality care to diabetic patients. The Center offers free, no obligation screening for diabetes and pre-diabetes Monday-Friday. To contact Dr Nicol, or to schedule a free screening, call 843-293-8400.*