Diabetic nephropathy in type 2 diabetes mellitus: prevention and treatment

David N CHURCHILL

Patients with end-stage renal disease (ESRD) secondary to diabetes mellitus have a much higher dialysis-associated mortality rate than similar non-diabetic patients (1). They also have higher morbidity rates, particularly with respect to vascular complications. These results have been described as abysmal for patients with type 2 diabetes mellitus (2) and have focused attention on interventions that might decrease the development and progression of nephropathy.

Diabetes mellitus has become an increasingly important cause for ESRD requiring renal replacement therapy. It was responsible for 22% of cases of ESRD in Canada in 1990, with an increase to 30% in 1998 (1). A similar trend was reported in Europe with an increase from 11% to 17% between 1984 and 1992 (3).

Most of this increase is due to type 2 diabetes mellitus, the prevalence of which increases with advancing age. In 1993, in the United States, the prevalence of diabetes was about 4%, 8% and 11% in those aged 45 to 54 years, 55 to 64 years and over 64 years, respectively (4). A cross-sectional Hong Kong study revealed a standardized prevalence of 9.5% in men and 10.2% in women aged 35 to 64 years (5).

The prevalence has also increased over time. In the United States (4), the incidence of diabetes increased, among those aged 55 to 64 years, from 3% in 1958 to 8% in 1993 while for those aged over 64 years the increase was from 4 to 11%. This increased prevalence with time may be related to improved diagnosis and to better cardiovascular care with some of the survivors developing diabetic nephropathy. The increased prevalence of type 2 diabetes mellitus is greater among African Americans and Mexican Americans than European Americans (6). Among First Nations (aboriginal) people in Canada in 1997, the prevalence of diabetes mellitus in those aged over 64 years was 30% among men and 35% among women (7). This higher prevalence in aging populations over the past 40 years has resulted in an increased population at risk of nephropathy and ESRD.

There is also an increased tendency for these patients to be referred for dialysis care and there are fewer restrictions on their dialysis programs. However, the 5-year survival for patients with ESRD secondary to diabetes mellitus is only 20 to 23% in Canada (1). Earlier intervention to prevent the development and progression of diabetic nephropathy may be more effective. (Hong Kong J Nephrol 2001;3 (1):3-6)