COMMENTS AND RESPONSES

Incidence of Treatment for End-Stage Renal Disease Among Individuals With Diabetes in the U.S. Continues to Decline

Response to Burrows, Li, and Geiss

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We read with great interest the report from the U.S. Renal Data System (USRDS) by Burrows et al. (1) that described declining incidence rate of treated end-stage renal disease (ESRD) "related to diabetes" as primary renal disease among estimated U.S. population with diabetes. From 1996 to 2006 the overall incidence rate decreased at an average of 2.9% per year (1).

However, reported results raise the issue of the clinical relevance of this primary renal disease definition when a diabetic population is studied.

In ESRD patients, diabetes might be the cause of chronic kidney disease (diabetic nephropathy) or an associated disease not related to primary renal disease (diabetes as comorbidity). In type 2 diabetic patients with proteinuria, one-third had histological involvement unrelated to diabetic nephropathy, and multiple pathologies are also possible (2). In particular, diabetic nephropathy and hypertensive changes are likely to coexist (2). When based on the nephrologist's assessment of patients, as in the USRDS study (1), diabetes was reported as primary renal disease in only 52.6% of incident ESRD patients with associated type 2 diabetes in the French Renal Epidemiology and Information Network (REIN) registry in 2006 (3) and in 74.1% of such patients in the Australia and New Zealand Dialysis and Transplant (ANZDATA) registry from 1991 to 2005 (4). In these countries, renal biopsy was performed in <17% of incident ESRD patients with type 2 diabetes (3,4).

Extrapolation of the U.S. data reported by Burrows et al. raises several possibilities (1). Firstly, the definition ESRD "related to diabetes" may underestimate the total number of cases of ESRD among diabetic patients, as a proportion is likely to be reported as nondiabetic histology. Secondly, decline in disease-specific incidence of diabetes-related ESRD among diabetic patients might reflect changing diagnostic attribution rather than a true change in the rate of progression to diabetic nephropathy.

The authors assert that most diabetes-related ESRD incidence among people aged <45 years is likely to be due to type 1 diabetes. In the REIN registry, among ESRD patients aged <45 years with associated diabetes, only 58.0% had type 1 diabetes in 2006 (3). In the ANZDATA registry, the rate of type 1 diabetes decreased from 63.2% in 1991 to 48.4% in 2005 among ESRD patients aged <45 years with associated diabetes (4). Using 45 years as the cutoff age to discriminate between type 1 and type 2 diabetes may lead to misinterpretation, especially if nephropathy was used to discriminate diabetic and nondiabetic patients, because incidence of type 2 diabetes were increasing over time in younger patients as in elderly patients.

At least, differences in patient characteristics by diabetes types and relative changes in incidence and prevalence of diabetes in general population and in incidence of ESRD with associated diabetes are not likely to vary in the same manner between type 1 and type 2 diabetic patients over time.

For these reasons, we think it is important that epidemiology studies in ESRD populations include consideration of diabetes both as a cause of renal disease and as an associated condition or comorbidity and that type 1 and type 2 diabetic patients should be discriminated given their different etiology, management options, and prognosis (3,4,5).

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