Temporal Trends in the Epidemiology of Biopsy-Proven Glomerular Diseases: An Alarming Increase in Diabetic Glomerulosclerosis

Jean Hou and Mark Haas

The epidemiology of ESRD has been extensively studied and is well characterized. For example, the US Renal Data System (USRDS) is a national data system that collects and analyzes critical information regarding CKD and ESRD in the United States as a whole, plus information for specific geographic regions. Although primary glomerular diseases represent the third most common cause of ESRD in adults and the leading cause of ESRD in children and young adults in the United States (1), a national database does not yet exist for glomerular diseases. Recent collaborations such as the Nephrotic Syndrome Study Network (2) are making progress toward this goal. The majority of studies describing the frequencies of glomerular diseases worldwide have typically been limited to specific disease entities and make use of data collected from multiple national registries. The data, however, may not always be comparable because of the lack of a common registry format (3). Add to this the relative infrequency of glomerular diseases, and it becomes clear why larger scale studies do not yet exist for glomerular diseases. Recent collaborations such as the Nephrotic Syndrome Study Network (2) are making progress toward this goal. The majority of studies describing the frequencies of glomerular diseases worldwide have typically been limited to specific disease entities and make use of data collected from multiple national registries. The data, however, may not always be comparable because of the lack of a common registry format (3). Add to this the relative infrequency of glomerular diseases, and it becomes clear why larger scale studies of their incidence are somewhat lacking. In this context, the National Kidney Foundation (NKF) and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) are working to address this issue with the development of a national registry for glomerular disease (4). This registry will allow for the collection of data on a national scale and facilitate the analysis of critical information regarding CKD and ESRD in the United States as a whole, plus information for specific geographic regions.

The referral population for this study reflected a sizeable portion of the southeastern United States, and this is the first large-scale study of glomerular diseases reported in this geographic area. In the United States, smaller scale studies have been reported from a single county in Minnesota (5), a recent study from southern Arizona (6) and a regional study of southern California through the Kaiser Permanente Health Care system (7). Although the relative ranking order varies, the most frequent glomerular diseases in all studies included FSGS and membranous nephropathy. FSGS was the most prevalent glomerular disease in southern Arizona, southern California, and the southeastern United States (4,6,7). IgA nephropathy was well represented in these studies, with a large-scale, single-center analysis of glomerular diseases spanning three decades (1986–2015) (8). The referral population for this study reflected a sizeable portion of the southeastern United States, and this is the first large-scale study of glomerular diseases reported in this geographic area. In the United States, smaller scale studies have been reported from a single county in Minnesota (5), a recent study from southern Arizona (6) and a regional study of southern California through the Kaiser Permanente Health Care system (7). Although the relative ranking order varies, the most frequent glomerular diseases in all studies included FSGS and membranous nephropathy. FSGS was the most prevalent glomerular disease in southern Arizona, southern California, and the southeastern United States (4,6,7). IgA nephropathy was well represented in these studies, with a large-scale, single-center analysis of glomerular diseases spanning three decades (1986–2015) (8). The referral population for this study reflected a sizeable portion of the southeastern United States, and this is the first large-scale study of glomerular diseases reported in this geographic area. In the United States, smaller scale studies have been reported from a single county in Minnesota (5), a recent study from southern Arizona (6) and a regional study of southern California through the Kaiser Permanente Health Care system (7). Although the relative ranking order varies, the most frequent glomerular diseases in all studies included FSGS and membranous nephropathy. FSGS was the most prevalent glomerular disease in southern Arizona, southern California, and the southeastern United States (4,6,7). IgA nephropathy was well represented in these studies, with a large-scale, single-center analysis of glomerular diseases spanning three decades (1986–2015) (8).
four-fold increase in the renal biopsy frequency of DG in the study of O'Shaughnessy et al. (4) from 1986 to 2015 is at the very least in line with these changes. Any additional increment in the frequency of DG may be because DKD is a clinical diagnosis, traditionally made on the basis of the presence of albuminuria and/or impaired renal function. It is possible that histologic changes of DG may precede development of clinically manifest changes, and therefore may be underrepresented in studies of DKD.

Paradoxically, however, the yearly incidence (i.e., development of new cases) of ESRD among patients with DKD peaked in 2001 and has slowly declined over the past decade (1). Early diagnosis and intervention, with subsequent delay in the natural progression of disease toward ESRD, may be contributing to this trend. A decrease in smoking rates may also be a contributing factor toward slower rates of progression of DKD; the association of smoking with an increased rate of progression of DKD (14) is of particular interest because chronic smoking appears to produce renal histologic changes of DG over three decades in a large study of renal biopsy specimens, plus the vast body of epidemiologic evidence supporting the growing impact of DKD on public health and health care consumption and spending in the United States and worldwide, cry out for more concentrated efforts directed at prevention of DM, particularly type 2, plus screening and early intervention programs to prevent development of DKD in individuals identified to be at risk.

Disclosures
None.

References
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