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Temporal and Demographic Trends in Glomerular Disease Epidemiology in the Southeastern United States, 1986–2015

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Abstract

Background and objectives Large-scale, contemporary studies exploring glomerular disease epidemiology in the United States are lacking. We aimed to determine 30-year temporal and demographic trends in renal biopsy glomerular disease diagnosis frequencies in the southeastern United States.

Design, setting, participants, & measurements In this cross-sectional, observational study, we identified all patients with a native kidney biopsy specimen showing one of 18 widely recognized glomerular disease diagnoses referred to the University of North Carolina Chapel Hill Division of Nephropathology between 1986 and 2015. Biopsy era (1986–1995, 1996–2005, and 2006–2015) and demographics (age, sex, and race) were our primary and secondary predictors, respectively, and the relative frequency of each glomerular disease diagnosis was our primary outcome.

Results Among 21,374 patients (mean age =48.3±18.3 years old; 50.8% men; 56.8% white; 38.3% black; 2.8% Latino; 1.4% Asian; 0.8% other), the frequency of diabetic glomerulosclerosis in renal biopsy specimens increased dramatically over the three decades (5.5%, 11.4%, and 19.1% of diagnoses, respectively; *P* for trend <0.001). The frequency of FSGS initially increased but then declined (22.6%, 27.2%, and 24.7%, respectively; *P* for trend =0.64). The frequencies of other common glomerular disease subtypes remained stable (IgA nephropathy and ANCA/pauci-immune GN) or declined (minimal change disease, membranous nephropathy, membranoproliferative GN, and lupus nephritis). These temporal trends were largely preserved within all demographic subgroups, although cross-sectional frequency distributions differed according to age, sex, and race.

Conclusions We identified significant changes in relative renal biopsy frequencies of many glomerular disease subtypes over three decades. Temporal trends were consistently observed within all major demographic groups, although relative predominance of individual glomerular disease subtypes differed according to patient age, sex, and race. We propose that exploration of behavioral and environmental exposures that likely underlie these findings should be the focus of future hypothesis-driven research.

glomerular disease | clinical epidemiology | renal biopsy | histopathology | Adult | African Americans | Aged | Antibodies, Antineutrophil Cytoplasmic | Biopsy | Cross-Sectional Studies | Demography | Diabetic Nephropathies | Environmental Exposure | European Continental Ancestry Group | glomerulonephritis | Hispanic Americans | Humans | Kidney Glomerulus | lupus nephritis | Male | Middle Aged | Nephrosis, Lipoid | MeSH Browser: Southeastern United States Southeastern United States

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« Previous | Next Article »
Table of Contents

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