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Prognostic markers in glomerular diseases

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Renal biopsies are done both for specific diagnosis, and to get specific prognostic information that may guide treatment for individual patients. We will discuss prognostic lesions that have been studied in various diseases, including crescents in pauciimmune necrotizing crescentic glomerulonephritis. Recent data have shown underlying mechanisms explaining why rupture of Bowman's capsule is associated with irreversible progression of lesions. Classification of diabetic nephropathy according to severity and extent of glomerular lesions also has shown correlation with outcome for patients. Future studies such as research biopsies done under the Kidney Precision Medicine Project funded by the NIH may give further insights into mechanisms of diabetic kidney disease. Sclerosis is a common endpoint for progressive kidney diseases whether the glomerulus is the primary target or not. Varying phenotypes of sclerosis in the disease focal segmental glomerulosclerosis have been identified and have prognostic implications. Additional studies shed light on the dysregulation of parietal and visceral epithelial cells and podocytes in these variants. Morphologic markers have also been sought for prognostication in IgA nephropathy and lupus nephritis. The international IgA nephropathy Network collaborating with the Renal Pathology Society and the International Society of Nephrology was the first to put forth an evidence-based unbiased assessment of all lesions and then determine which lesions correlated with outcome in archival biopsies. This has led to the widespread use of the Oxford classification of IgAN with the MEST+C score, identifying mesangial hypercellularity, endocapillary hypercellularity, segmental sclerosis or adhesion, significant tubulointerstitial fibrosis and more recently crescents as being associated with outcome in patients. Now studies are underway to add similar evidence-based assessment of lesions in lupus nephritis that may aid in stratification of patients and pave the way for personalized medicine.