A New CJASN Series: Renal Immunology for the Clinician

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With this issue, CJASN begins a new series of review articles covering immunology for the clinical nephrologist. There has been explosive growth in our understanding of immune mechanisms and the relationship between these integral defense systems within the body and the function of the kidney in health and disease. The role of the immune system as a barrier to transplantation has been long recognized and has been a primary impetus for our drive to better understand immunologic detection of nonself and mechanisms of tolerance and the development of medications to modulate the body’s normal response to reject foreign organs. Immunologic dysregulation leads to the development of autoimmune kidney diseases both limited to the kidney or as part of systemic illness. These include primary glomerular diseases and interstitial nephritis as well as systemic vasculitides, collagen vascular disorders, such as SLE, and a widening array of diseases understood to be mediated by complement activation, including thrombotic microangiopathies and the spectrum of C3 nephropathy. Increasing evidence over the past decade has also shown a central role for the immune system in the pathogenesis of AKI resulting from ischemia reperfusion injury or nephrotoxin exposure, and in sepsis, even when the kidney is not the focus of infection. An additional important connection between the kidney and immune system is the influence of CKD on immunity; paradoxically weakening defenses against infection while increasing systemic inflammation, which contributes to the excessive burden of cardiovascular disease in our patients. The role of immunologic processes in the progression of CKD is an area of growing interest.

This series, which will run over eight issues, begins this month with an overview of the immune system from an evolutionary/teleologic standpoint. In succeeding issues, the series will cover the mechanisms of the innate immune system, the normal regulation of the complement system and the role of its dysregulation in disease, the roles of dendritic cells and macrophages as both sensors and effectors in the kidney, the biology of T cells in mediating and regulating the immune response, the role of B cells, and the role of the increasing number of known soluble cytokines that allow the components of the immune system to communicate and function harmoniously. Finally, the series will end with a review of the enlarging armamentarium of pharmacologic agents at our service to control the immune response. It is the editors’ hope that these reviews will serve as a primer for understanding this important and rapidly advancing field and be helpful to both seasoned practitioners and new trainees in nephrology.

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