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Session Title : Glomerulonephritis 2

Session Topic : Perspective on the Pathophysiology of Glomerular Diseases

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Complement Activation in Glomerular Diseases

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The high prevalence of glomerular complement deposition, that marks complement activity, in a range of kidney diseases demonstrates the importance of complement activation to kidney disease pathogenesis. Traditionally, kidney biopsy immunostaining identification of activated complement fragments provided important but limited contribution to pathology diagnosis by identifying complement-fixing immune complexes. Our understanding of the role of complement in kidney diseases was revolutionized by the demonstration that some progressive kidney diseases are caused by dysregulated, pathogenic complement activity, in the absence of antibody, immunoglobulin or immune complex. This sparked research into the mechanisms of complement activity in the vast range of kidney diseases with evidence of complement activity. Together with the parallel demonstration that eculizumab, a complement terminal pathway inhibitor, could provide remarkable clinical benefit, this has fueled the development of a vast number of drugs targeting complement activity to improve kidney diseases. The therapeutic assets in development target different components of the complement cascade. Although this provides the potential benefit of targeted complement inhibition, it is likely the drugs will be effective for only the sub-cohort of each disease with ongoing relevant complement activity. This is particularly relevant given the risk of adverse effects consequential of complement inhibition. Consequently, we are entering a new era of targeted treatment options for complement mediated kidney diseases. The impressive number of therapeutic complement inhibitors in clinical trials provides unprecedented hope of providing novel, effective treatments to kidney disease patients. It also presents the necessity for accurately matching patients with a complement inhibitor targeted to pathogenic complement mechanism, regardless of the morphology-based diagnosis. Our inability to appropriately direct patients to a targeted complement inhibitor risks inefficacy and unwarranted exposure to the adverse effects of complement inhibition.



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*Promoting Sustainable Kidney Health:
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