병리 (Mini-Lecture)

Classification of C3-dominant Glomerulonephritis

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Advances in our understanding of complement-mediated renal injury and the existence of a licensed complement inhibitor lead to identify patient groups most likely to benefit from an anti-complement therapeutic approach. C3 glomerulopathy is a recently introduced pathological entity and designates a disease process, of which primary process is complement activation via the alternative pathway.

Pathologically, it is characterized by predominant glomerular C3 deposition in the absence of substantial immunoglobulin on immunofluorescence with electron-dense deposits on electron microscopy. Depending on the quality of deposits on electron microscopy, C3 glomerulopathy is divided into dense deposit disease and C3 glomerulonephritis. Distinctive highly electron-dense osmophilic deposits are the pathognomonic feature of dense deposit disease, whereas the deposits do not fulfill the criteria for dense deposit disease is designated as C3 glomerulonephritis. Light microscopic features of C3 glomerulopathy are variable and include mesangial proliferative, membranoproliferative, and endocapillary proliferative patterns. Rarely, it may be normal light microscopically or accompany crescents. Some entities previously classified as type I or III membranoproliferative glomereulonephritis belong in C3 glomerulonephritis. Differential diagnosis includes membranoproliferative glomereulonephritis type I and type III and immune complex-mediated glomerulonephritis including post-infectious glomerulonephritis, particularly those beyond the acute stage. It is recommended for pathologists in practice to use "glomerulonephritis with dominant C3" as a morphological term for those cases with dominant staining for C3. This will draw attention of nephrologists to search for acquired and genetic abnormalities in complement regulation.

Since C3 glomerulopathy is associated with uncontrolled complement alternative pathway activation, serological complement assays may be informative in these patients. It is presently recommended that serological investigations should include measurement of serum C3, C4, and factor H levels and screening for paraprotein, C3 nephritic factor, and CFHR5 mutation. Other in-depth investigations can be considered on a case-by-case basis.

As with all kidney biopsies, interpretation and final diagnosis of individual cases depend on integration of information from the biopsy together with clinical, serological, and genetic features.

References

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