

Clinicopathological Correlation of Glomerular Mesangial C4d Staining and renal outcome in IgA Nephropathy: A retrospective Cohort Study in Ramathibodi Hospital

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ABSTRACT

Introduction: Immunoglobulin A nephropathy (IgAN) is the most common primary glomerulonephritis worldwide, particularly in Asia. Clinical manifestations vary from asymptomatic to end stage renal disease (ESRD). Currently, several studies have introduced new markers to predict prognosis including C4d which is correlated with poor clinical course.

Objective: To study the pattern of glomerular mesangial C4d staining in renal biopsy compared to renal histopathology and clinical outcome.

Methods: This retrospective cohort study included 120 IgAN patients who were diagnosed by renal biopsy in Ramathibodi Hospital during 2006 - 2012. All renal tissue were reviewed and paraffin blocks were retrieved for C4d immunoperoxidase staining, then interpreted and statistically analyzed with clinicopathologic data.

Results: 81 of 120 cases showed positive results of C4d glomerular mesangial staining in renal tissue. In correlation with clinical information, C4d-positive patients were older (38.49 versus 34.79-year-old) and had more impaired renal function at presentation (eGFR 55.25 versus 81.03 mL/min/1.73 m²) than C4d-negative patients. They also had more severe renal histopathology such as global glomerulosclerosis (87.7 versus 66.7 %), segmental glomerulosclerosis/S1 (67.9 versus 53.8 %) and interstitial fibrosis and tubular atrophy (>25%) (55.6 versus 35.9 %). Additionally, C4d-positive patients significantly developed ESRD more than C4d-negative patients (84.2% versus 57.7%; P value 0.038).

Conclusion: Glomerular Mesangial C4d staining is a good prognostic marker that can predict poor clinical course in IgAN.

Keywords: Immunoglobulin A nephropathy, Glomerular Mesangial C4d Staining