C3 DEPOSITION MAY IMPLICATE DISEASE PROGRESSION IN PATIENTS WITH PRIMARY FOCAL SEGMENTAL GLOMERULOSCLEROSIS

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INTRODUCTION AND AIMS

Focal segmental glomerulosclerosis (FSGS) is one of the most common primary glomerular diseases leading to end stage renal disease.[1] The aim of this study is to evaluate the effects of histopathological, clinical, and laboratory features of patients with primary FSGS on the disease progression.

METHODS

Demographics, clinical characteristics, and renal biopsy findings of 131 patients with primary FSGS and the effects of these features on disease progression were investigated. Of these 131 patients who were followed up for a median duration of 38 (IQR 12-87) months, 66 (50.4%) were male, and mean age was 36±13 years. Primary outcome was defined as at least a fifty-percent reduction in baseline estimated glomerular filtration rate (eGFR) or initiation of renal replacement therapies. Association of histopathological lesions (percentage of global and segmental sclerosis, presence of crescents and tip lesion, C3 and IgM deposition) and clinical features [age, gender, systolic and diastolic blood pressure (BP), creatinine, hemoglobin, albumin, and proteinuria] with primary outcome was evaluated. eGFRs of patients were calculated with CKD-EPI formula.

RESULTS

Laboratory characteristics of patients at the time of diagnosis were summarized in the table. Renal biopsy specimens contained a median of 15 glomeruli (IQR 10-23). Mean percentage of global and segmental sclerosis were 16.3±17.7 and 15.7±12.4, respectively, and crescents were present in 8 (6.1%) patients. One hundred and twelve (85.5%) and 80 (61.1%) patients received ACEi/ARB and immunosuppressive treatment, respectively. Thirty two (24.4%) patients reached primary outcome. Global and segmental sclerosis were more common in patients who reached primary outcome (25.6% vs 13.3%, p<0.001 and 20.8% vs 14.1%, p=0.007, respectively). Presence of crescents (p=0.374) and tip lesion (p=0.815), use of ACEi/ARB (p=0.173) and immunosuppressive agents (p=0.849) did not differ between patients with and without primary outcome, as well as IgM deposition (p=0.228). However, C3 deposition was significantly more common in patients who reached primary outcome (66.7%) as compared to patients who did not (34.7%, p=0.002). Kaplan-Meier analysis revealed that prognosis of FSGS patients with intense glomerular C3 deposition was quite dismal (p=0.007) (Figures 1 and 2).

Table. Laboratory characteristics of patients at the time of diagnosis.

Characteristics	Patients (n=131) (Mean±SD)
Serum creatinine	1.25±0.7 mg/dL
eGFR	79.3±34.3 ml/min/1.73 m^2
Hemoglobin	13±2.4 g/dL
Serum albumin	3.19±0.94 g/dL
Proteinuria	5.23±3.89 g/day
Systolic BP	133±21 mmHg
Diastolic BP	85±14 mmHg

Figure 1. Kaplan-Meier analysis of renal survival of patients with and without C3 deposition.

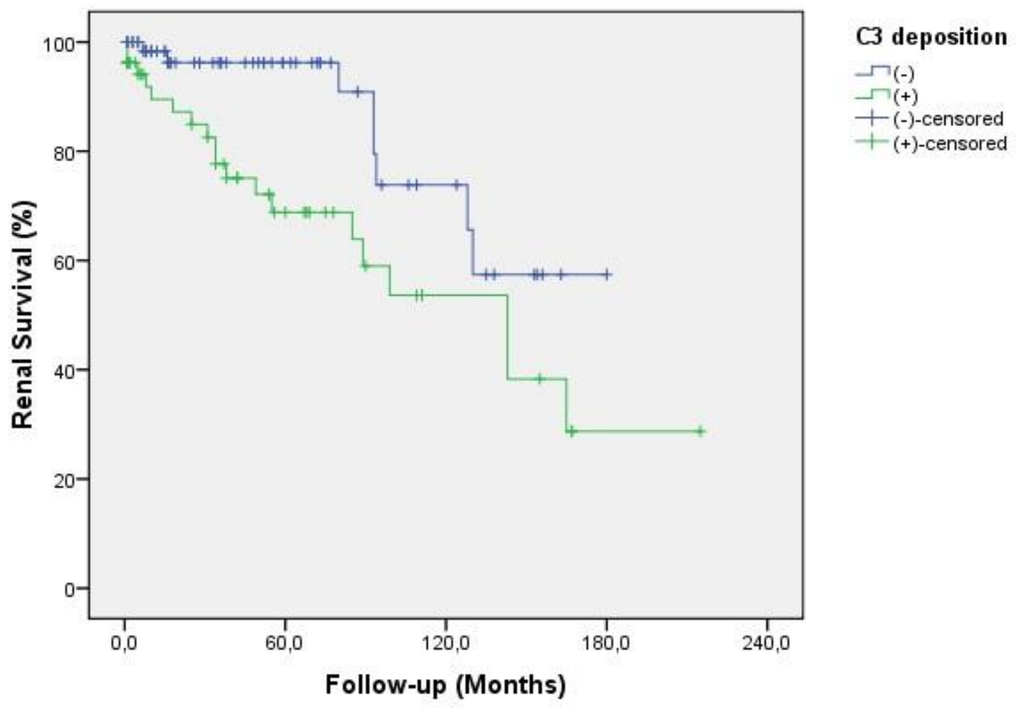
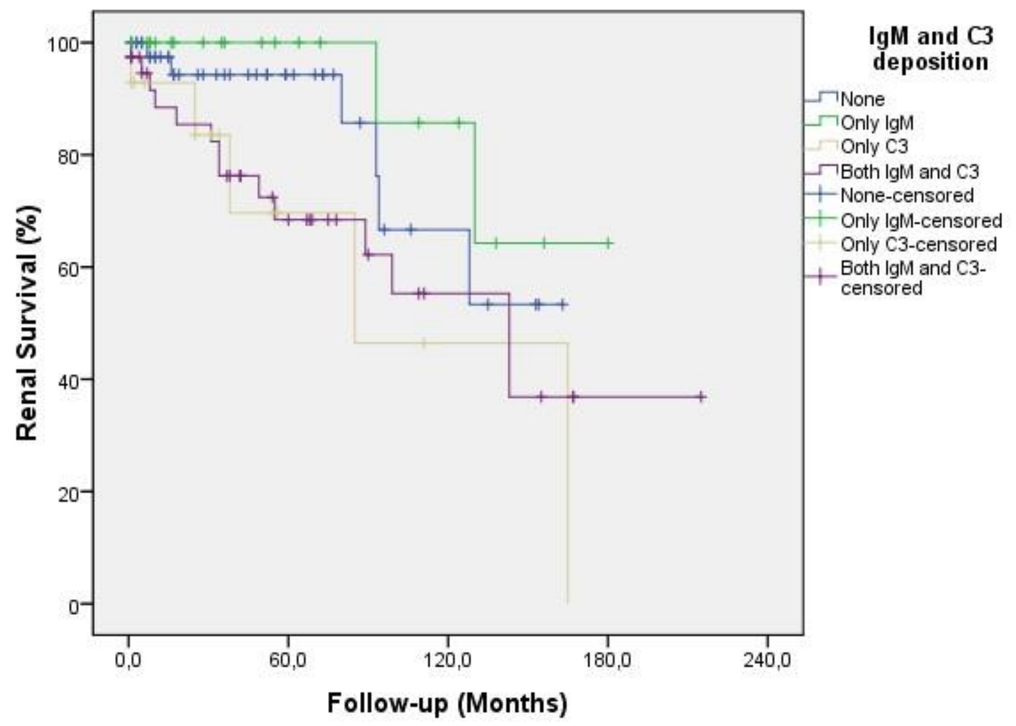


Figure 2. Kaplan-Meier analysis of renal survival of patients with and without IgM and C3 deposition.



CONCLUSIONS

Primary FSGS patients with C3 deposition were found to have worse outcomes, thereby implicating a complement pathway association in disease pathogenesis.

REFERENCE

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DOI: 10.3252/pso.eu.54ERA.2017
ePosters supported by F. Hoffmann- La Roche Ltd.
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