

# RENAL OUTCOMES IN CRESCENTIC LUPUS GLOMERULONEPHRITIS: RETROSPECTIVE SINGLE CENTER COHORT



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## Background

Crescentic nephritis can be a manifestation of Diffuse Global Lupus Nephritis (IV-G) and it usually presents with rapid deterioration of renal function. The purpose of this study is to evaluate the differences of clinical characteristics, pathological features and renal outcomes between patients with crescentic or not crescentic class IV-G.

## Methods

### Patients

The records of adult patients with biopsy proven LN IV, diagnosed in a tertiary hospital, between 2004 and 2012, were retrospectively reviewed. Demographic data, clinical characteristics, biochemical parameters and autoantibody profiles at the time of kidney biopsy and during follow-up were obtained from the patient records. All kidney biopsy were classified using ISN/RSP classification.<sup>1</sup> Patients were followed up starting from the time of renal biopsy until starting RRT, last clinical visit or lost of follow up.

### Definitions

Creatinine clearance (CrCl) was calculated using the equation of the Modification of Diet in Renal Disease (MDRD) study. The definitions of complete response (CR) and partial remission (PR) were based on kidney disease: improving global outcomes (KDIGO) glomerulonephritis 2012.<sup>2</sup>

### Outcomes

Outcomes were analyzed at the end of follow-up, and defined as: (1) any complete remission; (2) any partial remission; (3) doubling of baseline creatinine; (4) CrCl < 30 ml/min/1.73m<sup>2</sup>; (5) necessity of renal replacement therapy (RRT). The outcome of doubling serum creatinine was evaluated by the comparison between the lower creatinine before the kidney biopsy and the creatinine at the end of the follow up.

## Results

We evaluated 71 patients, 25 (35.2%) had crescentic LN IV-G and 46 (64.8%) had not crescentic LN IV-G. Demographic data, clinical characteristics, biochemical parameter, autoantibody profiles and histopathologic finds are shown in Table 1. Forty-four patients were analyzed at the end of evaluation (Table 2).

Table 1. Baseline characteristics of patients with IV-G lupus nephritis

Baseline characteristics	Crescentic	Not Crescentic	p-value
	IV-G N=25	IV-G N=46	
Mean age, years	33.4 ± 8.8	30.8 ± 10.4	0.22
Gender (female/male), n	24/01	41/5	0.414
Race (non-white/white), %	63/37	58.0/42.0	0.773
Symptoms			
□ Hematuria and/or non-nephrotic proteinuria, %	0.0	15.6	0.042
□ Nephritic syndrome with nephrotic proteinuria, %	16.7	31.1	0.255
□ Rapidly progressive glomerulonephritis, %	87.5	40.0	<0.001
□ Nephrotic syndrome, %	0.0	13.3	0.085
Hypertension (BP ≥ 140x90mmHg), %	87.0	81.8	0.735
Time between lupus diagnosis and biopsy, years	4.0 ± 5.6	2.0 ± 3.0	0.43
Serum creatinine, mg/dl	4.0 ± 2.6	2.1 ± 1.6	0.007
CrCl, ml/min/1,73m <sup>2</sup> (MDRD)	30.0 ± 27.2	49.2 ± 30.0	0.009
Renal replacement therapy, %	45.8	15.6	0.009
Low C3, %	94.1	97.1	1.000
Low C4, %	85.7	83.9	1.000
Positive anti-ds-DNA, %	100.0	64.3	0.256
Proteinuria, g/24h	4.0 ± 2.3	5.3 ± 5.0	0.694
Hematuria, %	87.0	97.8	0.108
Number of glomeruli (mean ± SD)	9.0 ± 4.0	12.5 ± 7.9	0.182
Sub-class A, %	4.0	10.9	0.414
Sub-class A/C, %	96.0	87.0	0.408
Sub-class C, %	0.0	2.1	1.000
Fibrinoid necrosis, %	0.0	6.5	0.305
Activity index, n	10 ± 2	8 ± 2	0.181
Chronicity index, n	4 ± 2	4 ± 2	0.305
Class V	28.0	15.2	0.223
Treatment			
□ Cyclophosphamide, %	87.5	73.0	0.442
□ Mycophenolate mofetil, %	12.5	26.9	0.442

CrCl: creatinine clearance / BP: blood pressure

Table 2. Renal outcomes of patients with IV-G lupus nephritis

Outcomes	Crescentic	Not Crescentic	p-value
	IV-G N=18	IV-G N=26	
Follow-up, months	22.0 ± 25.7	31.3 ± 24.4	0.059
Serum creatinine, mg/dl	2.7 ± 2.0	2.0 ± 2.4	0.083
Creatinine Clearance, ml/min/1,73m <sup>2</sup>	40.0 ± 28.3	62.0 ± 31.7	0.046
Complete remission, %	6.3	42.3	0.030
Partial remission, %	68.8	38.5	0.110
Doubling creatinine, %	72.2	30.8	0.013
CrCl < 30 ml/min/1,73m <sup>2</sup> , % (MDRD)	50.0	23.1	0.105
Renal replacement therapy, %	33.3	15.4	0.272

## Conclusions

We found clinical differences between class IV-G LN crescentic and not crescentic, but none pathological distinction was detected. Patients with biopsy proven crescentic lupus nephritis had more rapidly progressive glomerulonephritis clinically, with a worse baseline CrCl and a higher risk of renal disease progression.

### References

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