HISTOPATHOLOGICAL CLASSIFICATION FOR THE PREDICTION OF RENAL OUTCOME IN CRESCENTIC GLOMERULONEPHRITIS

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Background

The phenotype of renal involvement in crescentic glomerulonephritis has a major effect on the course of treatment and survival. Therefore a subgrouping of renal biopsies with crescentic glomerular damage might predict the clinical outcome. Recently a histopathological classification for ANCA positive glomerulonephritis was proposed. We aimed to validate this histological subgrouping irrespectively of serotype.

Objective

To validate the prognostic effect of the new histopathological classification and assess clinical factors which predict outcomes in patients with crescentic glomerulonephritis.

Methods

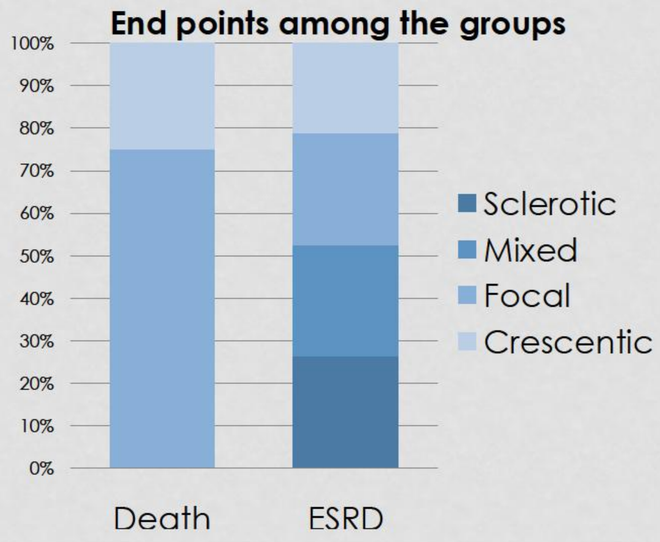
A total of 70 cases of crescentic glomerulonephritis diagnosed from April 1999 to December 2013 were included in this retrospective study. Clinical data was collected from medical records. Renal biopsies were reviewed and classified as focal, sclerotic, crescentic and mixed group according to classification proposed by Berden et al. MDRD formula was used to measure eGFR. The end point was end stage renal disease or death from any cause, modelled using Cox regression analysis.

Results

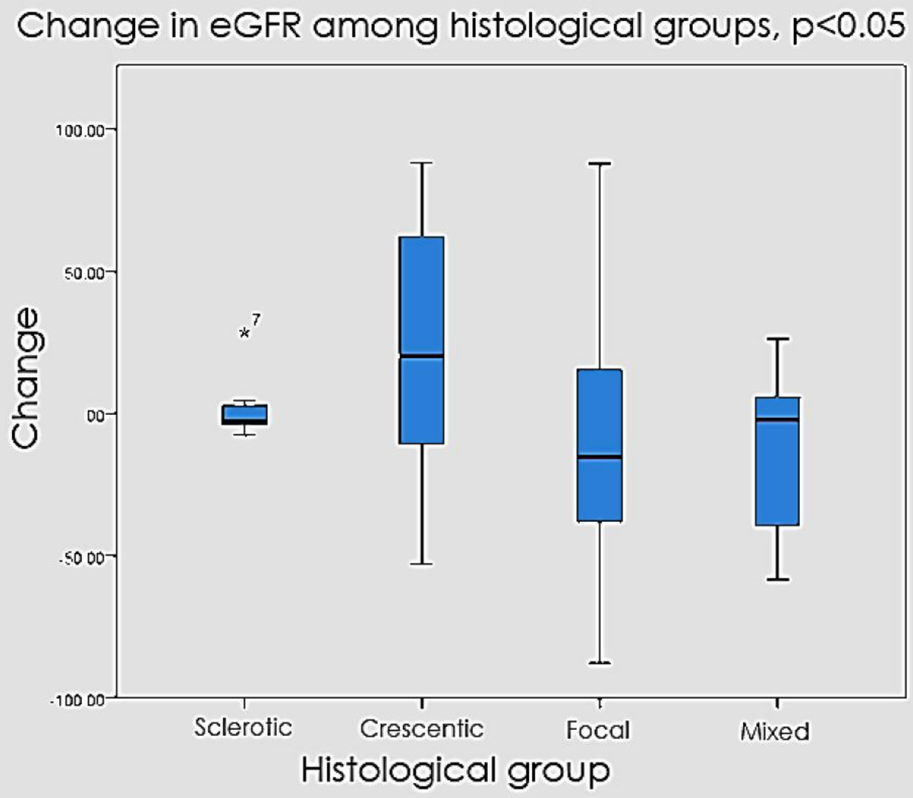
There were 34 (48.6 %) female and 36 (51.4 %) male patients with the average age of 54.4 ± 16.8 years. 31 (44.3 %), 17 (24.3 %), 8 (11.4 %) and 14 (20 %) patients were classified as focal, crescentic, sclerotic and mixed group, respectively. The mean serum creatinine at baseline was 251.5 ± 48.5 µmol/l, 488.2 ± 118.9 µmol/l, 618.9 ± 156 µmol/l and 411 ± 129 µmol/l in focal, crescentic, sclerotic and mixed group, respectively.

Table 1. Characteristics of histological groups

	Focal	Crescentic	Mixed	Sclerosis	P value
N of patients	31	17	14	8	
M:F	17:14	9:8	1:1	1:1	p > 0.05
Age	53.9 ± 16	56 ± 13.8	56.4 ± 19.9	57.8 ± 18.1	p > 0.05
CRP	Min 2, max 211.3	Min 6, max 220.7	Min 3.3, max 356	Min 3.6, max 161.7	p > 0.05
Leukocytes	9.8 ± 3.4	12.8 ± 8	11.6 ± 5.8	9.5 ± 3.1	p > 0.05
Thrombocytes	319 ± 115	347.8 ± 157	288 ± 76.3	232 ± 118	p > 0.05
Erythrocytes	3.67 ± 0.9	3.4 ± 0.8	3.7 ± 0.6	2.8 ± 0.6	p < 0.05
Haemoglobin	103.7 ± 25.7	93.1 ± 22.5	106.9 ± 22.3	78.1 ± 19	p < 0.05
Creatinine	251 ± 48.5	488.2 ± 118.9	411 ± 129	618.9 ± 156	p < 0.05
Urea	16.9 ± 12.5	26.1 ± 15.6	18.9 ± 4.4	27.7 ± 15.3	p < 0.05
Total protein	64.3 ± 8.9	57 ± 9.15	64 ± 11.2	56.8 ± 3.4	p < 0.05



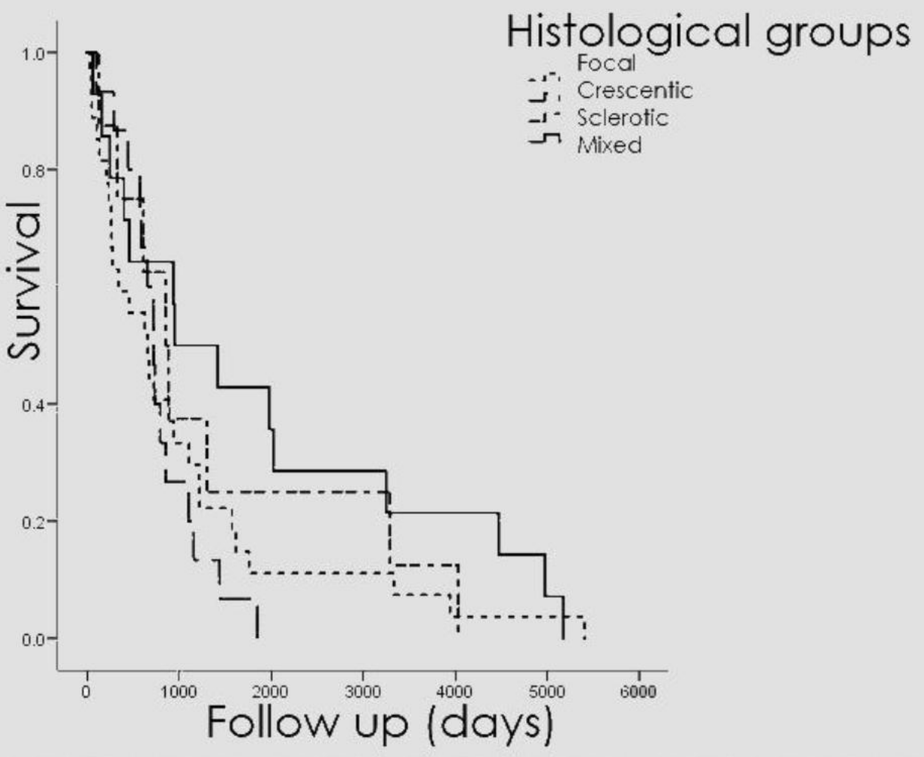
Four patients (5.7 %) died within 1 year. Patients with mixed pattern of glomerular damage had the lowest incidence of death and end stage renal disease.



The change in eGFR at 1 year among the survived patients was -11.7 ± 38.7 ml/min in focal group, 22.5 ± 49 ml/min in crescentic group, 2.3 ± 12.2 ml/min in sclerotic group and -13.1 ± 28 ml/min in mixed group (p < 0.05).

Table 2. Risk of death and ERSD assessed by Cox regression

Factor		HR, (95 % CI)	P value
Histological group			
	Mixed	1.00 (reference)	-
	Focal	1.08 (0.34 – 3.5)	0.89
	Crescentic	1.13 (0.29 – 4.45)	0.85
	Sclerotic	2.7 (0.85 – 8.62)	0.08
eGFR			
	>90	1 (reference)	-
	60-90	1.8 (0.16 – 20.1)	0.63
	30-60	1.9 (0.5 – 14.5)	0.94
	<30	8.6 (1.1 – 67.1)	0.03
Gender			
	Male	1 (reference)	-
	Female	0.6 (0.26 – 1.52)	0.19
Lung damage			
	No	1 (reference)	-
	Yes	0.93 (0.36 – 2.3)	0.88
Antibody status			
	ANCA	1 (reference)	-
	Other	0.86 (0.2 – 3.6)	0.84
	None	0.51 (0.16 – 1.7)	0.28



Conclusions

Our study has shown that the prognostic value of histopathological classification for crescentic glomerulonephritis irrespective of antibodies present in the blood is limited.

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