Predicting treatment response and renal survival in crescentic ANCA associated glemerulonephritis

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Objectives:

- Renal damage of crescentic ANCA associated glomerulonephritis (AAGN) is usually aggressive and requires intensive immunosuppressive therapy, but the long-term renal survival is still poor.
- we analyze the factors which may predict treatment response and long-term renal outcome in Chinese patients with crescentic AAGN.

Methods:

- Sixty Chinese patients with renal biopsy-proven crescentic AAGN from 1996 to 2014 were included.
- The patients were classified into renal replacement therapy(RRT) group(n=30) and non-RRT group.
- The patients received glucocorticoids with other immunosuppressant with or without plasmapheresis.
- Treatment response was recorded as good response(GR, defined as the patients got rid of RRT in RRT group, or Scr declined by ≥25% of the baseline value in non-RRT group) and non-response(NR, defined as the patients needed maintenance RRT in RRT group, or Scr declined ＜25% of the baseline in non-RRT group) at the three months of induction treatment.
- Clinical and histological predictors for treatment response and long-term renal outcome were analyzed.

Results:

Figure 1. Disease's development of all AAGN patients

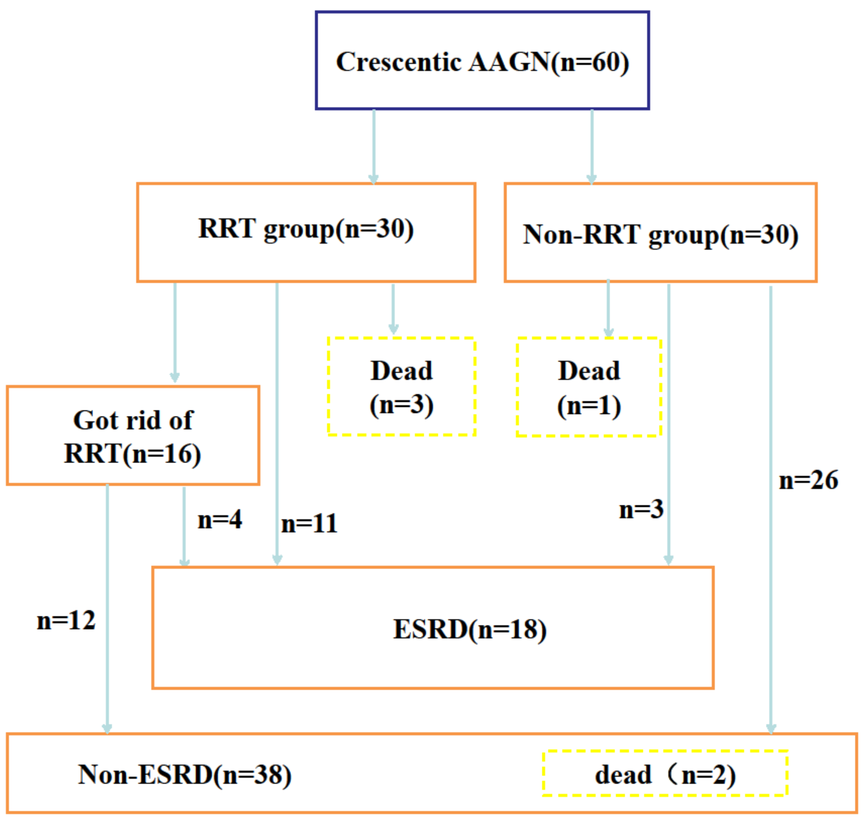

Figure 2. Treatment Response

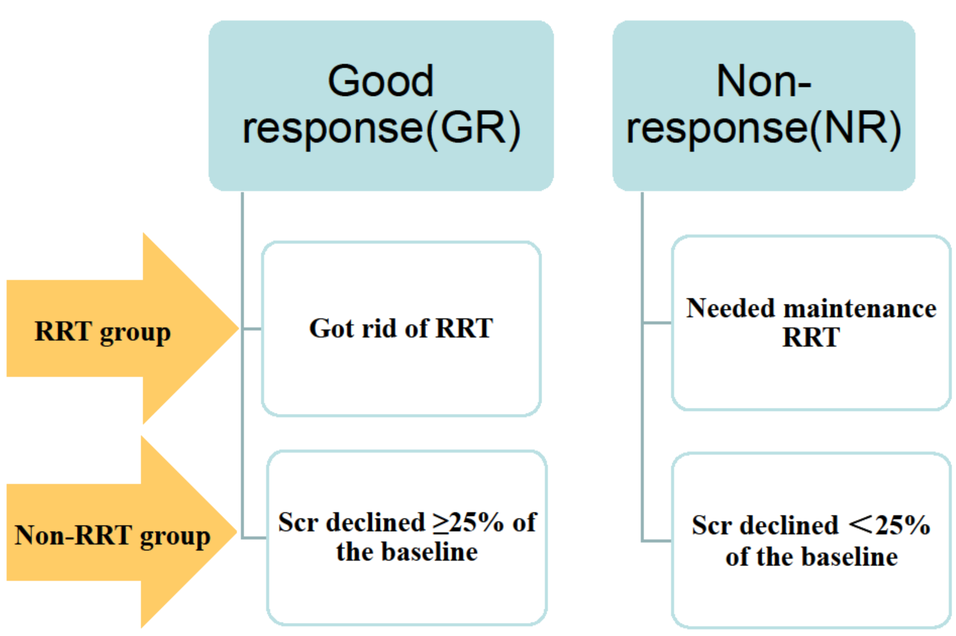

Table 1. treatment response in RRT group

	GR group(n=16)	NR group(n=11)	P value
Duration of renal disease,months	1(0.5-1)	1(1-2)	0.028
Upro,g/24h	2.8 (1.5-4.9)	1.65(1.03-3.0)	0.064
Urine volume,ml/24h	1400(1050-1629)	900(355-1300)	0.057
Intensive therapy, n(%)	15(93.8)	6(54.5)	0.016
Crescents/glomeruli, %	26.3(16.2-33.7)	40 (31.6-56)	0.026
Circumferential Crescents/Crescents,%	43.7(25.9-51.5)	73.3 (50-80.7)	0.010
Sclerotic glomeruli, %	9.9(0-14.7)	20(5.6-28)	0.022

Table 2. Factors which may effect the long-term renal survival

	Univariate Cox regression		Multivariate Cox regression	
	HR(95%CI)	P	HR(95%CI)	P
age（≥62y）	2.58(1.06~6.33)	0.038		
Needing RRT	5.83(1.96~17.38)	0.002	7.09(2.32~21.65)	0.001
Urine volume(＜1500ml/24h)	2.98(2.09~8.15)	0.034		
Upro(≥3.5g/24h)	4.48(1.04~19.26)	0.044	5.90(1.35~25.88)	0.019
Hb(<9. 3g/dl)	3.11(1.05~9.20)	0.041		
Hypoproteinemia(<35g/l)	3.29(1.11~9.77)	0.032		
Scr (＞4mg/dl)	8.38(1.95~35.97)	0.004		
High ANCA titer(＞230u/ml)	2.84(1.17~6.87)	0.021		
Ratio of crescents(≤30%)	2.41 (1.0~6.0)	0.059		
Ratio of circumferential crescents(＞50%)	2.26(0.9~5.62)	0.079		

- Non-RRT group: the normal glomerular percentage was markedly higher in GR patients than in NR patients (median:20.4(12.3,29.0)% vs 5.3(2.3,11.5)%,p=0.02),with the normal glomerular percentage ＞7% being more likely to be GR(HR 13.3, CI 1.7~107.4, p=0.006).

Conclusions:

In crescentic ANCA associated glomerulonephritis, the extent of circumferential crescent and normal golmeruli predicts short-term treatment response, while the need for renal replacement therapy an nephrotic range proteinuria predict long-term renal survival.

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