ANCA associated glomerulonephritis: histological predictors of renal outcome

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Background

A histological classification of ANCA glomerulonephritis based on glomerular lesions has been validated in several populations. Other proposed histological predictors of renal outcome have been investigated, including the number of normal glomeruli in the sample and the grade of interstitial fibrosis and tubular atrophy (IFTA).
We aimed to apply the histological classification to our population and to evaluate the number of normal glomeruli and the grade of IFTA and their impact in renal survival.

Methods

Renal biopsy specimens of patients diagnosed with ANCA GN in our center between January 2010 and January 2015 were revised and classified into four classes according to Berden's classification. We also divided the biopsies according to the percentage of normal glomeruli (<25%; 25-50%; 50-75%). To evaluate IFTA, we applied the 2013 revised Banff classification. Biopsies with less than 8 glomeruli and with overlap diseases were excluded. Statistical analysis was performed using SPSS®.

Results

Twenty-eight patients were included, 60,7% (n=17) were male, with a mean age of 64,3± 9,9 years. MPO positivity was more frequent (n=24; 85,7%). Twenty-one patients presented with rapidly progressive GN (75%).
Mean follow-up was

Berden's histopathological classification:
Mixed GN predominated (n=14), followed by crescentic (n=11) and focal (n=3).
No cases of sclerotic GN were identified.

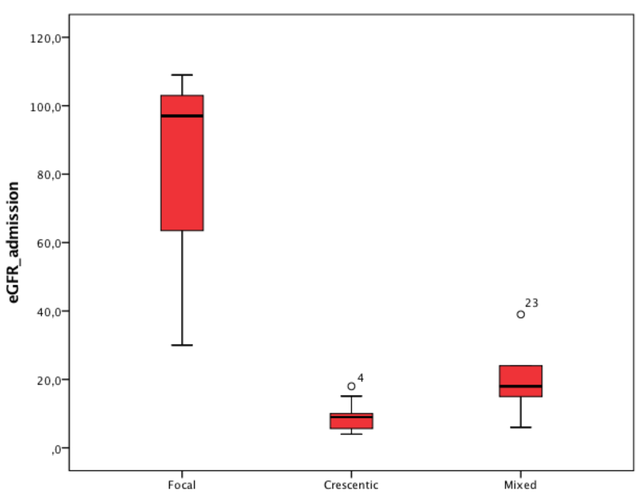

Fig. 1: eGFR at admission (mL/min/1,73m²): *P*= **0,002**
In the crescentic class, **54,5% of patients (n=6) needed hemodialysis** (HD) at admission opposed to 14,3% in the mixed class (***P*=0,049**).

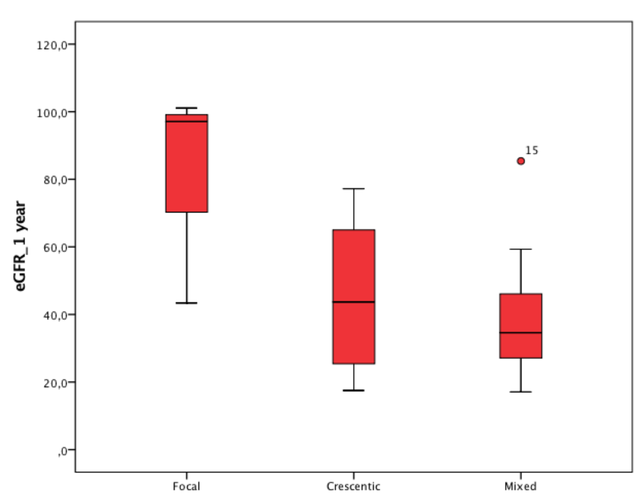

Fig. 2: eGFR after one year (mL/min/1,73m²): *P*= **0,135**

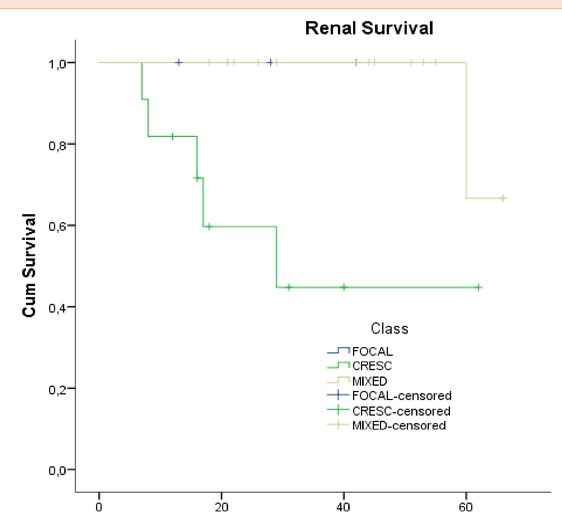

Fig. 3: Renal survival (censored for death) was 100% in the focal class, 93% in the mixed and 54,5% in the crescentic (**log rank *P*=0,039**). Three patients died (2 with crescentic and 1 with mixed).

Percentage of normal glomeruli

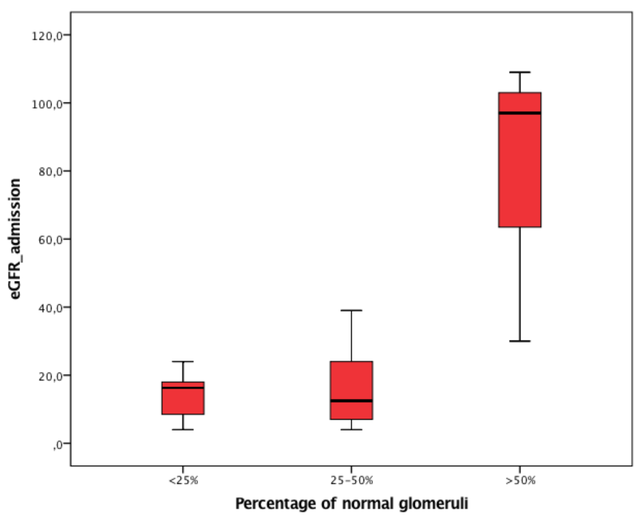

Fig. 4: eGFR (mL7min/1,73m²) distribution by the percentage of normal glomeruli: *P*=**0,02**

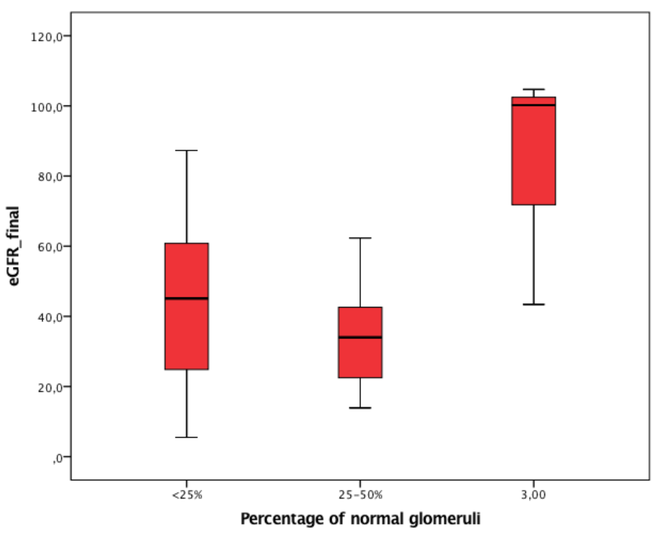

Fig. 5: eGFR (mL7min/1,73m²) distribution by the percentage of normal glomeruli: *P*=**0,01**

IFTA

	IFTA 1 (n=21)	IFTA 2 (n=7)	P
eGFR at presentation (mL/min/1.73m²)	22,8±27,8	16,1±11,2	0,54
eGFR at the end of follow-up	44,3±28,6	49,8±27,9	0,69

Table 1: eGFR distribution by Interstitial fibrosis and tubular atrophy (IFTA) according to Banff 2013

Conclusions

The classification proposed by Berden is useful to identify patients more prone to renal recovery or progression to ESRD, allowing immunosuppression individualization, although it might be important to improve the criteria to distinguish mixed and crescentic class. As in the original study, patients with focal class had the best renal function and survival rate, but contrary to previous results patients with crescentic class who started haemodialysis had the worst renal survival. As in recent reports, patients included in mixed class didn´t have a better renal function after one year comparing to crescentic class, maybe explained by their heterogeneity. The percentage of normal glomeruli predicts short-term renal prognosis. The assessment of IFTA doesn't seems to anticipate renal outcome in our cohort.

Bibliography

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