

# CLINICAL MANIFESTATIONS AND PROGNOSTIC FACTOR OF IMMUNOGLOBULIN A NEPHROPATHY WITH LONG-TERM FOLLOW UP

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## OBJECTIVES

Immunoglobulin A nephropathy (IgAN) is the most common type of primary glomerulonephritis worldwide. It has variable clinical course and approximately 25-50% of the patients progress to end-stage renal disease (ESRD). Although, there were several studies to identify prognostic factors of IgAN, follow-up period was not sufficient for natural history of IgAN. The Aim of this study was to identify the prognostic factors in patients with IgAN who followed up at least 10 years.

## METHODS

We reviewed the medical records of the patients who diagnosed of IgAN in our center between April 1985 and March 2003. During the study periods, 184 patients with primary IgAN who followed up at least 10 years after kidney biopsy were enrolled.

## RESULTS

Table 1. Demographics

No. of patients	184
Age (year-old)	33.7 ± 11.5
Sex (M:F)	1.11:1
Hypertension (%)	35 (19.0)
Gross hematuria (%)	52 (28.3)
Microscopic hematuria (%)	114 (61.9)
Serum creatinine (mg/dL)	1.1 ± 0.5
eGFR (mL/min/1.73m <sup>2</sup> )	78.7 ± 31.8
Serum albumin (g/dL)	4.0 ± 2.8
24hour total urine protein (g/day)	2.5 ± 2.4
Serum IgA/C3 ratio	5.9 ± 5.2

Table 2. Comparison of clinical characteristics according to renal survival

	Preserved renal function	End-stage renal disease	p
No. of patients	111	73	-
Age	33.4 ± 11.0	34.0 ± 12.4	NS
M:F	56/55	41/32	NS
Hypertension (%)	15(11.5)	20(27.4)	<0.05
Gross hematuria (%)	37(31.4)	15(20.5)	NS
Microscopic hematuria (%)	65(58.6)	49(67.1)	NS
Serum creatinine (mg/dL)	1.0 ± 0.4	1.3 ± 0.5	<0.001
eGFR (mL/min/1.73m <sup>2</sup> )	84.4 ± 27.7	69.9 ± 35.6	<0.001
Serum albumin(g/dL)	4.2 ± 3.6	3.7 ± 0.6	NS
24hr TuP (g/day)	2.1 ± 2.0	3.2 ± 2.8	<0.001
Serum IgA/C3 ratio	6.3 ± 5.9	5.4 ± 4.0	NS

Table 3. Hazard ratio for renal survival

Parameters		Hazard ratio	95% CI	p
Hypertension	Yes	1.00		
	No	1.04	0.56-1.92	NS
Serum creatinine	<1.3	1.00		
	≥1.3	1.40	0.70-2.83	NS
eGFR	<60	1.00		
	≥60	1.81	0.89-3.68	NS
24hr TUP	<1.0	1.00		
	≥1.0	1.86	0.87-4.00	NS
Serum albumin	≥3.5	1.00		
	<3.5	1.65	0.91-2.99	NS
HAAS classification	V	1.00		
	I	0.06	0.01-0.50	<0.01
	II	0.15	0.06-0.37	<0.001
	III	0.20	0.08-0.46	<0.001
	IV	0.44	0.18-1.08	NS

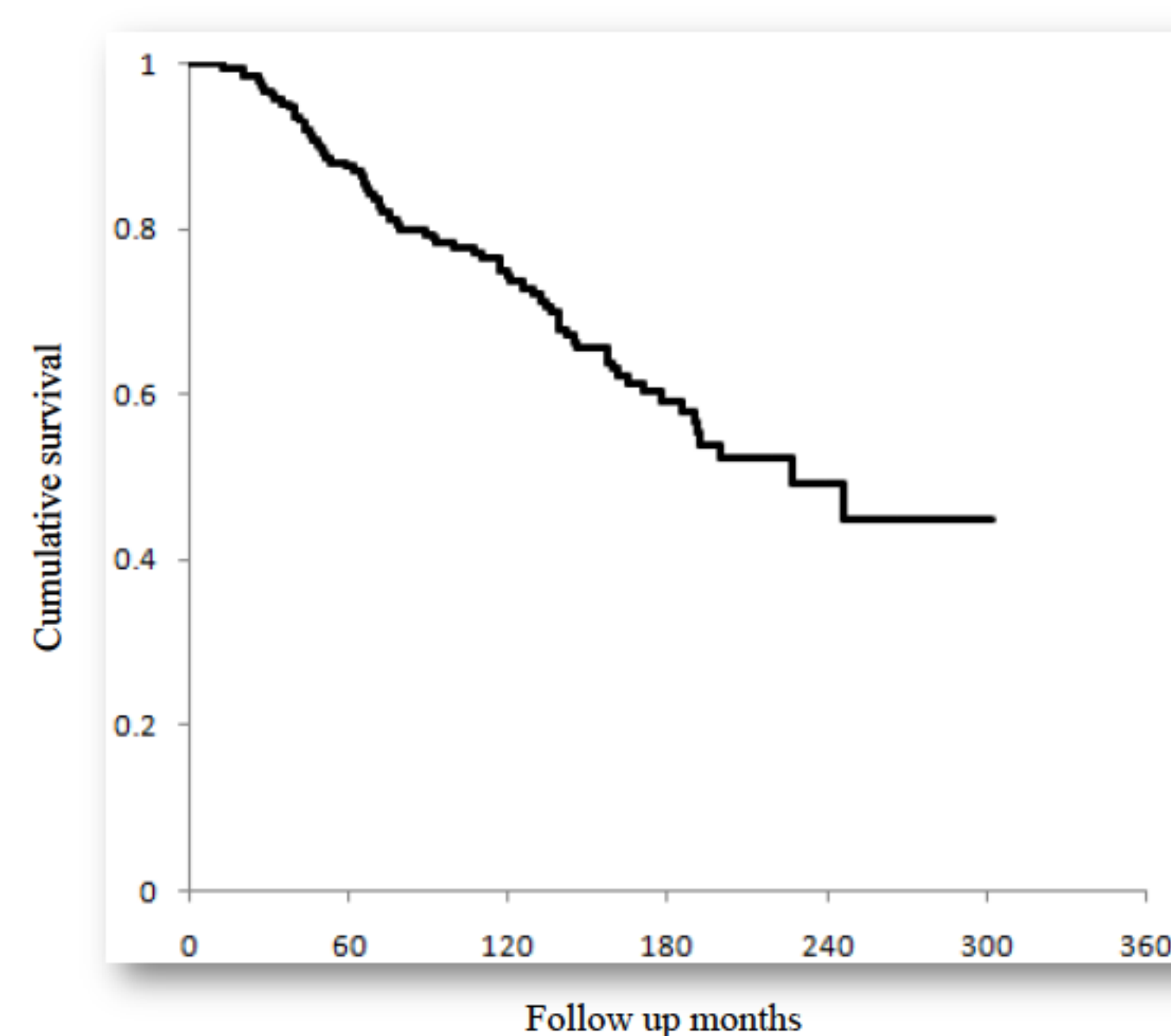


Fig 1. Cumulative survival of patients

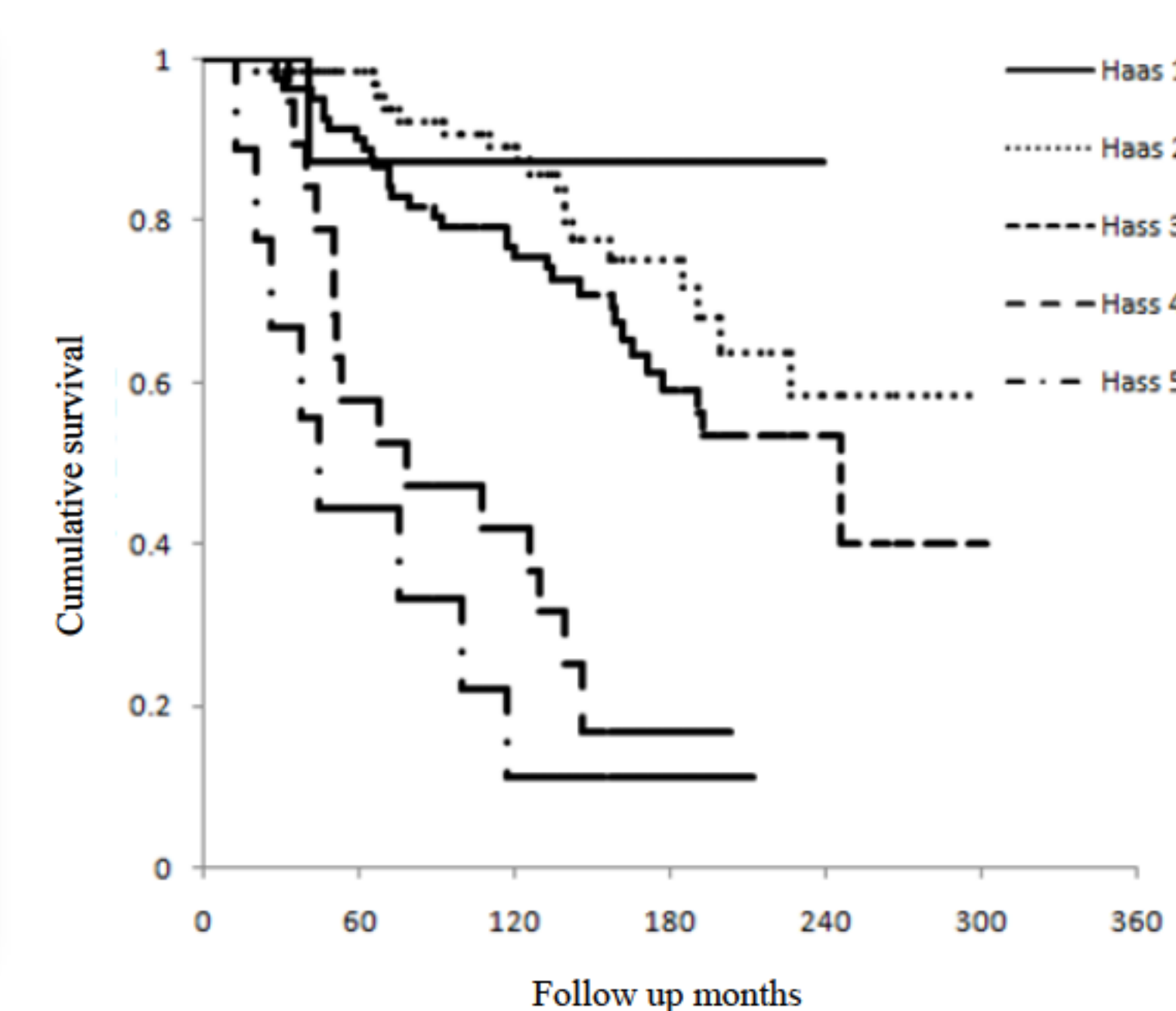


Fig 2. Cumulative survival of patients according to Haas classification

Among 184 patients, 97 were males (52.7%) and 87 were females (47.3%). Mean age was 33.7 ± 11.5 years and mean follow-up period was 181.3 ± 46.3 months. During the follow up, 73 patients (36.9%) had progressed to ESRD. Mean duration till ESRD was 98.1 ± 55.9 months. Overall renal survival rate was 60.3%, 10-year renal survival rate was 74.3% and 20-year renal survival rate was 49.3%. Univariate analyses indicated that hypertension, estimated glomerular filtration rate < 60 mL/min/1.73m<sup>2</sup>, serum albumin < 3.5 g/dL, proteinuria ≥ 1 g/day, severe renal pathology by Haas' subclassification were significantly associated with ESRD. When these factors were included into the multivariate Cox regression analyses, only severe renal pathology by Haas' subclassification was independent prognostic factor of IgAN.

## CONCLUSIONS

Careful follow-up and treatment is recommended especially in IgAN patients with severe renal pathology by Haas' subclassification.

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