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WCN24-AB-2269 Moderate-severe intrarenal arteriosclerosis and circulating GDF-15 levels may influence the cardiac and renal prognosis of IgAN patients

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Background and Aims

The cardiovascular risk among patients with IgA nephropathy (IgAN) is gradually garnering increased attention. The KDIGO guidelines explicity emphasize the importance of evaluating cardiovascular risk in the management of IgAN patients and implementing



appropriate interventions when necessary. The aim of this study was to investigate the risk factors affecting cardiac-renal prognosis in patients with IgAN.

Method

This is a retrospective study. A total of 353 IgAN patients with regular follow-up for at least 1 year at Beijing Anzhen Hospital were recruited. Patients were divided into group A (n=85, yes) and group B (n=268, no) according to the occurrence of cardio-renal composite endpoint events. Clinical and pathological characteristics of the two groups were compared and analyzed. The risk factors affecting the cardiac and renal prognosis in IgAN patients were analyzed by univariate and multivariate Cox models. In addition, serum GDF-15 of IgAN patients were detected.

Results

Approximately 14.7% (52/353) of IgAN patients presented with cardiovascular diseases at the time of renal biopsy. 55.8% (197/353) patients presented with hypertension. Prognostic analysis showed that hypertension (HR, 1.810; 95% confidence interval, 1.073 to 3.053; P=0.026), 24-hour urinary protein (24hUTP) (HR, 1.081; 95% confidence interval, 1.006 to 1.162; P=0.033), eGFR (HR, 0.980; 95% confidence interval, 0.973 to 0.987; P<0.001), the presence of endocapillary proliferation (E1) (HR, 1.697; 95% confidence interval, 1.079 to 2.669; P=0.022), tubular atrophy/interstitial fibrosis (T2) (HR, 3.757; 95% confidence interval, 1.959 to 7.203; P<0.001), and moderate-severe intrarenal arteriosclerosis (HR, 3.320; 95% confidence interval, 1.289 to 8.548; P=0.013) are independent risk factors affecting the cardiac-renal prognosis of IgAN. In IgAN patients with moderate-severe intrarenal arteriosclerosis, 24-hour urinary protein (24hUTP) (HR, 1.131; 95%) confidence interval, 1.014 to 1.261; P=0.028), eGFR (HR, 0.982; 95% confidence interval, 0.971 to 0.993; P=0.001) and E1 (HR, 2.583; 95% confidence interval, 1.379 to 4.841; P=0.003) are independent risk factors affecting the cardiac-renal prognosis of IgAN patients.

	0	50	100	150
No. at risk	Survival time(months)			
broup I	86	36	9	0
Group II	130	48	10	0
Group III	137	36	6	0

Figure 1. Kaplan-Meier analysis of cardio-renal composite endpoint in patients of IgAN according to the intrarenal arteriolar lesions.

Patients with IgAN were divided into three groups according to the intrarenal arteriolar lesions: Group I, without arteriolar lesion group; Group II, mild arteriolar lesion group; Group III, moderate or severe arteriolar lesion group. There were significant differences in cardio-renal survival rates among the three groups in patients of IgAN (P < 0.001).

The serum GDF-15 level is positively correlated with 24hUTP (r=0.405, P<0.001) and negatively correlated with eGFR (r= -0.606, P<0.001). Compared with those with benign cardio-renal composite outcome, the serum level of GDF-15 in IgAN with poor cardio-renal composite outcome were significantly higher (1591.69 (1001.65, 2546.36) pg/ml vs 775.85 (546.82, 1310.29) pg/ml, P<0.001).

Conclusion

The occurrence of cardiovascular diseases in patients with IgAN is frequently observed. In addition to the conventional risk factors associated with IgAN, including hypertension, initial proteinuria, eGFR, E1 and T2 lesion, moderate-severe intrarenal arteriosclerosis also contributes to the cardiac-renal prognosis of individuals with IgAN. In IgAN patients with moderatesevere intrarenal arteriosclerosis, Oxford-E lesion is an independent risk factor affecting the cardiac-renal prognosis of IgAN patients. This study suggested that the impairment of endothelial cells could potentially serve as a link between heart and kidney disease. The circulating levels of GDF-15 might contribute to the cardiacrenal prognosis of IgAN.