

Factors related to renal cortical atrophy development after glucocorticoid therapy in IgG4-related kidney disease

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Background:

In immunoglobulin G4-related kidney disease (IgG4-RKD), focal or diffuse renal cortical atrophy is often observed in the clinical course after glucocorticoid therapy [1]. This study aimed to clarify the factors related to renal atrophy after glucocorticoid therapy in IgG4-RKD.

Method:

We retrospectively evaluated clinical features including laboratory data and computed tomography (CT) findings before and after glucocorticoid therapy in 23 patients diagnosed with IgG4-RKD [2], all of whom were followed up for more than 24 months.

Results:

Seventeen patients were men, and six were women (average age 62.0 years). Average follow-up period was 54.9 months. The average estimated glomerular filtration rate (eGFR) at diagnosis was 81.7 mL/min/1.73m². All patients had had multiple low-density lesions on contrast-enhanced CT before glucocorticoid therapy, and showed disappearance or reduction of these lesions after it. Pre-treatment eGFR and serum IgE level in 11 patients in whom partial renal cortical atrophy developed 24 months after the start of glucocorticoid therapy were significantly different from those in 12 patients in whom no obvious atrophy was found then (68.9 ± 30.1 vs 93.5 ± 14.1 mL/min/1.73m², P=0.036, and 587 ± 254 vs 284 ± 263 IU/mL, P=0.008, respectively). Pre-treatment eGFR and serum IgE level were also significant risk factors for renal atrophy development 24 months after the start of therapy with a odds ratio of 0.520 [per 10 mL/min/1.73m², 95% confidence interval (CI): 0.273-0.993, P=0.048] and 1.090 (per 10 IU/mL, 95% CI: 1.013-1.174, P=0.022), respectively, in age-, sex-, serum IgG4 level-adjusted logistic regression analysis. Receiver operating characteristic (ROC) curve analysis showed that eGFR of less than 71.0 mL/min/1.73m² and serum IgE of more than 436.5 IU/mL were the most appropriate cut-offs and yielded a sensitivity of 63.6% and a specificity of 100%, and a sensitivity of 90.9% and a specificity of 75.0%, respectively, in predicting renal atrophy development.

Conclusions:

This study suggests that pre-treatment renal insufficiency and serum IgE elevation predict renal atrophy development after glucocorticoid therapy in IgG4-RKD.

References:

1. Saeki T et al. The clinical course of patients with IgG4-related kidney disease. *Kidney Int.* 2013 Oct;84(4):826-33.
2. Kawano M et al. Proposal for diagnostic criteria for IgG4-related kidney disease. *Clin Exp Nephrol.* 2011 Oct;15(5):615-26.