

## IgA 신증환자에서 Klotho 유전자 다형성과 신증의 진행 및 생존율과의 연관성

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### The Association of Klotho Polymorphism with Disease Progression and Mortality in IgA Nephropathy

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**Backgrounds:** IgA nephropathy is most common in primary glomerulonephritis causing end stage renal disease (ESRD), and vasculopathy is known to involve disease progression. Klotho, a gene related to aging, has been reported to play a role in atherosclerosis and endothelial dysfunction. We investigated whether klotho gene polymorphism affect clinical course of IgA nephropathy.

**Methods:** The data registered for PREMIER study which enrolled the patients with biopsy proven IgA nephropathy from 34 hospitals and clinics were analyzed. Two single nucleotide polymorphisms for klotho gene, G395A of promoter region and C1818T of exon 4, were examined using Taqman PCR assay, and investigated the association of genotypes of klotho with the progression of IgA nephropathy and patients survival.

**Results:** Among 1078 patients, clinical data from 973 patients confirmed about survival were analyzed. The allele frequency was 0.170 for A allele of G395A and 0.184 for T allele of C1818T complied with Hardy–Weinberg equilibrium. Death was observed more frequently in A allele carrier of G395A polymorphism (0.7 vs 2.6% in GG vs GA+AA,  $p=0.04$ ). Proportion of patients progressed to ESRD treated with dialysis also tended to be larger in A allele of G395A polymorphisms ( $p=0.07$ ), and renal survival was worse in same group ( $p=0.04$ ). In subgroup analysis of CKD stage I to III patients at enrollment, more patients progressed to CKD stage IV and V in T allele carrier of C1818T polymorphism (5.9 vs 10.0% in CC vs CT+TT,  $p=0.04$ )

**Conclusion:** Klotho gene polymorphism was associated with patients' survival and disease progression of IgA nephropathy. The exact role and mechanism of Klotho protein in IgA nephropathy should be studied further in the future.

**Key Words:** IgA신증, 유전자다형성, klotho유전자  
IgA nephropathy, Polymorphism, Klotho gene