S-B11

IgA 신병증의 발생과 진행에 대한 Stromal Cell-Derived Factor 1 유전자 다형성의 영향

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Impact of Stromal Cell-Derived Factor 1 Polymorphism on the Development and the Progression of IgA Nephropathy

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Objectives : The chemokine stromal cell-derived factor 1 (SDF-1) is associated with the kidney development and repair process in pathologic status. Previous studies suggest that genetic polymorphism in the 3' untranslated region of SDF-1 (rs1801157; G→A) may have a regulatory function by controlling the level of SDF-1 expression. Here, we investigate the impact of SDF-1 rs1801157 polymorphism on development and progression of immunoglobulin A nephropathy (IgAN).

Methods : We have studied 3' UTR region polymorphism in a cohort of 224 patients with biopsy-proven IgAN. 253 healthy subjects with normal renal function were included as controls. Genotyping was performed by Taqman method.

Results : Significant difference was observed in genotype distribution between IgAN patients and healthy controls. GG, GA and AA were 49.1%, 35.3% and 15.6% in IgAN patients and 60.1%, 32.0% and 7.9% in controls (χ^2 =9.119, P=0.010). The G allele frequency was 0.667 in IgAN patients and 0.761 in controls (χ^2 = 9.77, p=0.0018). Age at diagnosis, gender, systolic BP, prevalence of diabetes, initial serum creatinine (sCr) level, number of patients with significant proteinuria (random urine protein creatinine ratio >1 or 24hr urine protein >1 g/day) and pathologic grade did not differ significantly according to the genotypes. Patients whose renal function was deteriorated, had higher prevalence of hypertension (HTN) and frequency of AA genotype and A allele; progressor vs. non-progressor, 72.4% vs. 38.4% in HTN (p<0.001), 25.9% vs. 11.9% in AA genotype (p=0.041), 41.7% vs. 29.7% in A allele (p=0.02). The rs1801157 polymorphism remained an independent risk factor for disease progression after multivariate analysis (Logistic regression model, OR for rs1801157 genotype: 1.63, 95% CI 1.026-2.591, p=0.039).

Conclusion : Our results suggest that SDF-1 rs1801157 polymorphism could influence disease susceptibility and progression in IgAN. However, further studies are necessary to confirm these findings.

Key Words : SDF-1, 유전자 다형성 IgA 신병증
SDF-1, polymorphism, IgA nephropathy