이식후 당뇨병 발생에 CCL5 다형성이 미치는 영향

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Significant Associations between CCL5 Gene Polymorphisms and Posttransplantational Diabetes Mellitus in Korean Renal Allograft Recipients

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Background: Posttransplantational diabetes mellitus (PTDM) is a serious metabolic complication after renal transplantation. Expression of chemokine (C-C motif) ligand 5 (CCL5) is inversely related to pancreatic β-cell function, and specific CCL5 gene polymorphisms are considered to be risk factors for diabetes. In this study, we first investigated the association between polymorphisms of the CCL5 gene and the occurrence of PTDM in Korean renal transplant patients.

Methods: A total of 311 patients who received kidney transplants without a prior history of diabetes were included. Three single nucleotide polymorphisms (SNPs) of the CCL5 gene were genotyped from the genomic DNA using direct sequencing.

Results: PTDM developed in 56 patients (18.0%). The results showed that the allele frequencies of rs2107538*T, rs2280789*C and rs3817655*A were significantly higher in the PTDM group. In logistic regression analysis, three SNPs (rs2107538, rs2280789 and rs3817655) of the CCL5 gene were significantly associated with the development of PTDM in the codominant 2 and recessive models. Among haplotypes of the three polymorphisms, the frequency of the TCA haplotype was significantly higher in PTDM.

Conclusions: Our results indicate that genetic polymorphisms of the CCL5 gene are associated with PTDM, suggesting that the CCL5 gene might confer susceptibility to PTDM in patients who receive renal transplants.

Key Words: 이식후 당뇨병, CCL5 유전자 다형성
Association, CCL5 polymorphism, Renal transplantation, PTDM