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신장 이식 환자에서 IL1R1 과 IL1RN의 유전적 다형성과 거부반응과의 관계

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The Genetic Variants of IL1R1 and IL1RN are Associated with the Development of Acute Rejection in Kidney Transplantation

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Background: IL-1 is a pleiotropic cytokine involved in the initiation of inflammatory and immune responses. A complex of IL-1 (IL1A or IL1B), IL1RI and IL1RAP are needed for signal transduction. Patient genetic make-up of cytokine and cytokine receptor may contribute to a higher risk for acute rejection(AR) We investigated the effect of genetic polymorphisms in the IL1R1 and IL1RN genes on renal AR risk in 339 Korean kidney transplant recipients.

Methods: In total, 339 renal transplant recipients (recipient age ≥18 years) who underwent kidney transplantation between August 1991 and July 2009 at three kidney centers in the Republic of Korea (Kyung Hee University Medical Center, Kyung Hee University East-West Neo Medical Center, and Inje University Busan Paik Hospital) were included. The following data were obtained from patient medical records: age, gender, donor age, repeat transplantation, duration of dialysis, number of human leukocyte antigen (HLA) mismatches, causes of renal failure, panel-reactive antibody, serum creatinine levels, and acute rejection episodes. Patients were classified into two groups according to acute kidney allograft rejection.

Results: Single nucleotide polymorphisms (SNPs) in IL1R1 (rs 949963 and rs 2192752) and IL1RN (rs 315952 and rs 4251961) were genotyped in 62 AR patients and 277 control renal allograft recipients The genotype frequencies of the IL1R1 and IL1RN SNPs showed Hardy-Weinberg equilibrium in both the AR and control groups. The occurrence of AR was significantly associated with genetic variants of the IL1R1gene (rs2192752; OR=1.88, 95% CI=1.06-3.33, p=0.033, dominant model) and with genetic variants of the IL1RN gene (rs3159521; OR=2.03, 95% CI=1.08-3.82, p=0.023, dominant model).

Conclusion: Our results show that genetic variants of IL1R1 and IL1RN are associated with the development of AR. Our data suggest that genotyping these genes may contribute to predict AR risk in kidney transplantation patients.

Key Words: 유전적다형성, 신장이식
Genetic polymorphism, Kidney transplantation