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Association of Transforming Growth Factor-beta Receptor II (TGFBR2)Gene Polymorphism with Acute Rejection in Korean Kidney Transplantation Recipients

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Background: Transforming growth factor β (TGF-β) signaling pathway occupies a central position in regulating cell growth, differentiation, apoptosis, immune reaction, angiogenesis and extracellular matrix formation. The signaling transduction initiates with TGF-β activation, and the activated TGF-β then binds with the TGF-β receptor II (TGFBR2). Any quantitative and qualitative changes in TGFBR1 and TGFBR2 will be expected to affect TGF-b-mediated growth inhibition in cells.Recent studies have shown that TGF-β1 gene polymorphisms may confer susceptibility to early acute and chronic allograft rejection in kidney transplantation recipients by enhancing fibrogenesis. In this study, we examined whether polymorphisms of the TGFBR2 gene were associated with susceptibility to kidney transplantation rejection.

Methods: In total,347 patients who had received kidney transplants were included. We extracted genomic DNA from blood samples and amplified the genomic DNA using the primers for each SNP. Three SNPs of TGFBR2gene were genotyped from genomic DNA with direct sequencing. We analyzed 3 SNPs of TGFBR2gene (rs2228048, rs764522, rs3087465).

Results: Acute rejection developed in 63 patients (18%). There is no significant differences in age, number of HLA mismatches, cause of renal failure, immunosuppressant regimen between the AR and non-AR group. The one SNP (rs3087465) of the TGFBR2gene were significantly associated with the fewer episode of acute rejection in the recessive model. (odds ratio 0.0 ; 95% confidence interval 0.00-NA, P=0.042)

Conclusion: Our results demonstrate that genomic variants of TGFBR2 may be associated with the lower risk of acute rejection in kidney transplantation.

Key Words: TGF-b 유전자 다형성, 신장이식, 거부반응
TGF-b gene polymorphisms, Transplantation, Rejection