

신 이식 후 당뇨병 발생과 다양한 interleukins의 유전자 다형성의 연관성에 관한 연구

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Gene Polymorphisms of Interleukines Associated with PTDM in Korean Renal Allograft Recipients

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Background: Posttransplantation diabetes mellitus (PTDM) is a serious metabolic complication after renal transplantation. Although β -cell dysfunction is considered the main contributing factor for the development of PTDM, precise pathogenesis was not identified. Although there are several studies about various cytokines that induce inflammation of islet beta cells in diabetes mellitus, there is rare study associated with β -cell dysfunction in PTDM. So, we examined the association between PTDM and 18 single nucleotide polymorphisms (SNPs) located within the genes of 10 interleukins or their receptors, which were related to diabetes mellitus in Korean renal allograft recipients.

Methods: A total of 305 renal transplants recipients were included without a history of diabetes. Then we analyzed the association between the PTDM development and the 18 SNPs within genes of 10 IL or their receptors.

Results: In allele frequencies, rs2069763*T in IL2 gene, rs1494558*A and rs2172749*C in IL7R gene, rs4819554*A in IL17R were significantly higher in the patients with PTDM. Eleven SNPs in 5 genes were significantly associated with PTDM development after adjusting with age, sex : IL1B (rs3136558), IL4 (rs2243250, rs2070874), IL17E (rs1124053), IL7R (rs1494558, rs2172749, rs1494555), IL17R (rs2229151, rs4819554), IL17RB (rs1043261, rs1025689, rs3733075).

Conclusion: These data suggest that genomic variations in IL1B, IL2, IL4, IL7R, IL17E, IL17R and IL17RB are significantly associated with PTDM in Korea. Especially, significant variations of IL7R, IL17E and IL17R, which was recently reported to be associated with type 1 DM, could elucidate the pathogenesis of PTDM in renal transplant recipients.

Key Words: 이식 후 당뇨, 유전자 다형성, 인터루킨
PTDM, SNP, Interleukins