

신이식 수혜자의 G-137C IL-18 유전자 다형성이 급성거부반응에 미치는 영향

경북대학교 의학전문대학원 내과학교실

김찬덕 · 류혜명 · 최지영 · 최희정 · 최혁준 · 조지형 · 박선희 · 김용림

Association of G-137C IL-18 Promoter Polymorphism with Acute Allograft Rejection in Renal Transplant Recipients

Chan-Duck Kim, Hye-Myung Ryu, Ji-Young Choi, Hee-Jeong Choi
Hyuk-Joon Choi, Ji-Hyung Cho, Sun-Hee Park and Yong-Lim Kim

Department of Internal Medicine, Kyungpook National University Graduate School of Medicine

Background : Interleukin 18 (IL- 18) is a potent proinflammatory cytokine, which is postulated to play a role in mechanism of renal allograft rejection and strongly induces IFN- γ production. However, clinical studies that have explored the association between IL- 18 gene promoter polymorphisms and acute rejection or graft function are scarce. The aim of this study was to investigate the association of the G- 137C IL- 18 promoter polymorphism with acute allograft rejection in renal transplant recipients (RTRs).

Methods : A total of 226 RTRs and 148 controls were recruited for association analysis. Genotyping was performed by using a real- time polymerase chain reaction which was carried on the LightCycler 480. Acute rejection episodes were defined by typical biopsy proven appearances or an improvement in renal dysfunction with pulsed methylprednisolone. Patients were separated into either the acute rejection (AR) group (n=37) or the no AR group (n=189), depending on their history of acute rejection episodes. IL- 18 and IFN- γ serum levels of 73 randomly selected RTRs were measured by ELISA.

Results : Acute rejection episode occurred in 16.4% of the patients. No significant differences in genotype and allele frequencies were observed between the RTRs and the controls. Significant differences in genotype frequency (GG:GC:CC, 89.2%:8.1%:2.7% vs 69.3%:29.1%:1.6%, $\chi^2=8.377$, p=0.013) and allele frequency (G: C, 93.2%:6.8% vs 83.9%:16.1%, $\chi^2=4.367$, p=0.037) between the AR and no AR group were observed. The frequency of the - 137GG genotype was significantly increased in patients with AR (p=0.015, odds ratio=3.653, 95% CI=1.237 to 10.785). Serum levels of IL- 18 (348.9 ± 108.8 pg/mL vs 279.3 ± 109.2 pg/mL, respectively, p=0.016) and IFN- γ (11.9 ± 7.6 pg/mL vs 9.2 ± 3.3 pg/mL, respectively, p=0.039) were significantly elevated in the AR group as compared to the no AR group. In the AR group, patients with the - 137GG genotype had significantly higher IL- 18 serum levels compared to other genotypes.

Conclusion : These data demonstrate that the - 137GG genotype of the IL- 18 gene, encoding higher IL- 18 production, seems to be associated with acute rejection and may be a useful markers of AR risk in RTRs.

Key Words : 신이식, 급성거부반응, 다형성

Kidney transplantation, Acute rejection, Interleukin 18