공여자-수혜자의 RANTES-CCR5 유전자 다형성이 이식 신장의 급성 거부반응에 미치는 영향

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Donor-recipient Patterns of RANTES-CCR5 Genetic Polymorphisms and Susceptibility of Acute Rejection in Kidney Transplantation

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Background and methods : Although with the application of new immunosuppressants and operation techniques short term survival of kidney allograft was increased significantly, the long term graft survival was not changed significantly. Chronic allograft nephropathy (CAN) has become the dominant cause of allograft failure and the repeated episodes of acute rejection (AR) contribute to the development of CAN. To test the notion that polymorphisms of chemokines and their receptors may alter leukocyte trafficking, thereby be associated with the risk of AR development, RANTES (−28C/G) and its receptor, CCR5 (59029G/A) polymorphisms were analyzed in the aspect of donor−recipient genetic patterns and AR development. We recruited 226 kidney recipients (male:female=158:68). DNA was extracted from whole blood and genetic polymorphisms were determined by TaqMan□ method. We reviewed patient medical records retrospectively. We defined early acute rejection (EAR) as biopsy proven episodes within 3 months after transplantation.

Results : Patients who were homozygous for RANTES C allele and who possess A allele of CCR5 had higher rates of EAR ($p<0.05$, $p<0.05$). In the analysis of donor−recipient genetic variations, patients received grafts carrying A variant of CCR5 showed higher rates of EAR and higher number of AR episodes ($p<0.05$, $p<0.05$, respectively). With the combined analysis of CCR5 and RANTES, patients who were homozygous for RANTES C allele had higher number of AR episodes when they received grafts carrying A variant of CCR5 ($p<0.05$). This subset of donor−recipient pairs tended to have higher rates of EAR, although it was not statistically significant ($p=0.067$).

Conclusion : Homozygosity for RANTES (−28C/G) C allele of recipients and grafts carrying A variant of CCR5 (59029G/A) were related with higher risk of EAR and repeated AR episodes. Added to established results, these studies about genetic polymorphism of chemokines and their receptors (especially donor−recipient pairs) will contribute to tailored medicine.