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신장 이식 후 결핵의 발병과 QuantiFERON-TB 검사법의 진단적 효용

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Utility of QuantiFERON-TB assay for Prediction of TB Development in Kidney Transplant Patients in an Intermediate-TB-burden Country

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Purpose: Tuberculosis (TB) in kidney transplant (KT) patients has higher morbidity and mortality compared with those in general population. Although latent tuberculosis infection (LTBI) is a risk factor for active TB, diagnosis of LTBI is difficult in end stage renal disease patients. We compared results of QuantiFERON-TB (QFT) test and tuberculin skin test (TST) in patients on the waiting list for KT, and investigated whether QFT test can predict TB development in KT recipients in an intermediate-TB burden country.

Method: A total of 1274 patients who received KT in the Seoul National University Hospital were reviewed for the development of tuberculosis and to find its risk factors. One-hundred thirty-one KT patients who had been tested for QFT were selectively analyzed to assess its ability to predict TB. Next, 130 patients on the waiting list for KT received TST and QFT test simultaneously, and discrepancies between the two tests were analyzed.

Results: The incidence of post-KT TB was 2.80 cases/1,000-patient-year. TB was a significant risk factor for mortality [OR (odds ratio), 6.093; 95% confidence interval (CI), 1.421-26.111]. The sign of previous TB infection in chest x-ray, history of inadequately-treated TB (OR, 8.032, 95% CI, 2.323-27.763), and pneumocystis infection (OR, 6.020; 95% CI, 1.380-26.260) were risk factors for TB development. Among 131 recipients who had QFT test, 42 patients (32%) had positive QFT. At follow-up for 16.3±7.1 months, 1 patient with positive QFT results developed TB after KT, and 1 of the 89 patients with negative QFT results (n=87) developed TB after KT. In both two cases, active tuberculosis developed in spite of isoniazid prophylaxis. Among patients on the waiting list of KT, TST and QFT were positive in 21.5% and 37.6%, respectively. The degree of agreement between the two tests was poor (κ=0.336). Further, larger-scale study is needed to confirm our results.

Conclusion: TB increases mortality of KT recipients. QuantiFERON-TB test is promising for predicting the subsequent development of TB in KT recipients, where the sensitivity of TST was low.

Key Words: 신장 이식, 이식 후 결핵, 콴티페론 결핵 검사법
Kidney transplantation, Tuberculosis, interferon gamma assay