

혈액투석 환자에서 잠복결핵의 진단을 위한 인터페론 감마 측정법의 연속 검사

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Serial Testing of Interferon- γ -release Assays for the Diagnosis of Latent Tuberculosis in Hemodialysis Patients

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Background: Hemodialysis (HD) patients have a high risk for reactivation of latent tuberculosis (LTB) and periodic monitoring for latent tuberculosis is needed in HD centers. Interferon- γ -release assays (IGRAs) were proven useful for the diagnosis of LTB. However, the performance of these serial IGRAs has not been studied in HD patients.

Methods: The QuantiFERON-Gold TB In tube test[®] (QFT) and T-SPOT TB test[®] (TSPOT) were performed one year after initial testing at a HD center in Korea, an intermediate TB-burden country.

Results: One hundred thirteen patients were enrolled. Fifteen patients had indeterminate results in the follow-up IGRAs and were excluded in the analysis. The positive rates for the tuberculin test, QFT and TSPOT at baseline were 26.5%, 43.9% and 58.2%, respectively. The positive rates of the follow-up QFT and TSPOT were 52.0% and 53.1%, respectively. The high-risk group for LTB showed significantly higher positive response at the follow-up IGRAs ($P < 0.001$). Conversion rates of QFT (initial IFN- γ less than 0.35 IU/mL and follow-up IFN- γ greater than or equal to 0.70 IU/mL) and TSPOT (initial spot number less than 6 and follow-up spot number greater than or equal to 9) were 20.0% and 26.8%, respectively. Reversion rates of QFT (initial IFN- γ greater than or equal to 0.70 IU/mL and follow-up IFN- γ less than 0.35 IU/mL) and TSPOT (initial spot number greater than or equal to 9 and follow-up spot number less than 6) were 16.3% and 29.8%, respectively. However, conversion rates of the QFT and the TSPOT in patients with concordantly negative response at the initial TST were 16.0% and 22.2%, respectively. Reversion rates of the QFT and the TSPOT in patients with concordantly positive response at the initial TST, decreased to 0.0% and 4.8%, respectively. Both IGRAs showed moderate agreement in conversion ($\kappa = 0.463$) and fair agreement in reversion, respectively ($\kappa = 0.246$). High risk group for LTB, a surrogate marker of LTB infection increased the risk for the QFT conversion (odds ratio [95% confidence interval], 1.97 [0.45–8.71]) and TSPOT conversion (7.76 [1.27–47.40]). The low risk group was associated with reversion of both the QFT (18.92 [2.01–178.65]) and TSPOT (6.16 [1.57–24.19]).

Conclusions: Both conversion and reversion of the IGRAs were significantly associated with the risk of LTB in HD patients. However, serial IGRAs results should be interpreted very carefully due to their high variability.

Key Words: 혈액투석; 인터페론 감마 측정법; 잠복결핵

Hemodialysis, Interferon- γ release assays, Latent tuberculosis