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복막투석환자에서의 감염위험 인자로서의 TNF-alpha

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TNF-alpha as a Risk Factor for Infection in Peritoneal Dialysis Patients

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Background: Previous studies showed that TNF-alpha levels in blood were elevated in PD patients, however, its association with infection is unclear. In addition, many studies have been done to evaluate the effect of PD solution on host immune competence by measuring TNF-alpha secretion by peripheral blood mononuclear cells (PBMC) and peritoneal macrophage, however, the association of such secretory capacity with infection has not been elucidated. **Methods:** We enrolled 32 patients on maintenance PD and 10 healthy controls. Plasma and PBMC were isolated from blood. PBMC were stimulated with LPS in vitro. TNF-alpha and IL-6 were measured using ELISA. The information on the development of infections were obtained from the patients' medical records at the end of the study period. **Results:** After sampling blood, patients were followed for a mean duration of 775 days. Six patients developed organ infections (5 pneumonia and 1 liver abscess), 6 patients developed PD peritonitis and eight developed exit site infection. Plasma TNF-alpha and IL-6 levels were significantly elevated in the patients with organ infections but not in those with peritonitis or exit site infection. Plasma TNF-alpha was the only significant risk factor for the development of organ infections or pneumonia in multivariate analysis. Patients with high plasma TNF-alpha levels showed a significantly greater cumulative hazard rate for organ infections compared to those with low TNF-alpha levels. Plasma TNF-alpha levels did not correlate with nutritional parameters but inversely correlated with Kt/V. The secretion of TNF-alpha by activated PBMCs was significantly elevated in organ infections and it correlated with plasma TNF-alpha levels. Patients on lactate-buffered PD solutions showed significantly elevated TNF-alpha secretion by activated PBMC. **Conclusions:** This is the first study showing that plasma TNF-alpha is a significant risk factor for the development of infection in PD patients. We also showed heightened activation of PBMC may be related to the development of infection in PD patients.

Key Words: 복막투석, TNF-alpha, 감염
PD, TNF-alpha, Infection