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급성감염이 동반된 무증상 투석환자에서 Troponin I 상승의 임상적 의미

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Clinical Implications of Elevated Cardiac Troponin I in Asymptomatic ESRD Patients with Severe Acute Infection

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Background : ESRD and sepsis are common conditions associated with elevated cardiac troponin (cTn) levels without symptomatic acute coronary syndrome. The cTn elevation in sepsis patients has been shown to indicate LV dysfunction and a poor prognosis. Also, several studies have revealed that the cTn elevation is predictive for cardiovascular events and mortality in ESRD patients. However, their prognostic value in combined conditions is unknown. Therefore, this study aimed to elucidate the clinical implications of elevated cardiac troponin I (cTnI) levels in asymptomatic ESRD patients with severe acute infection.

Methods : A total of 205 ESRD patients who were admitted at our center due to severe acute infection between Jan 2000 and Jun 2007 were included. Demographic and laboratory data on admission were collected. Data for cTnI were eligible in 122 patients, thus these patients were included in the final analysis. The study endpoint were in- hospital and overall mortality.

Results : Based on baseline cTnI levels, patients were divided into two groups as elevated cTnI group (ET, >0.2 ng/ml, n=51) and normal cTnI group (NT, ≤0.2 ng/ml, n=71). There were no differences in gender, diabetes, CAOD history, dialysis duration, dialysis modalities, bacteremia, and mean arterial pressure between the two groups. However, patients in ET group were significantly older and had lower albumin levels compared with those in NT group. In addition, CRP levels and CK- MB levels were significantly higher in ET group ($p<0.05$). In- hospital and total deaths occurred in 54.9% and 82.4% of ET group whereas those occurred in 26.4% and 54.9% of NT group ($p<0.05$). The ET group had more cardiac deaths (26.2% vs. 2.6%, $p<0.05$) but used less inotropics (11.8% vs. 33.8%, $p<0.05$). Kaplan- Meier plot for overall patient survival revealed a significantly higher mortality rate in ET group compared with NT group. In a multivariate Cox regression analysis, older age, lower serum albumin, and elevated cTnI levels were independent determinants for mortality.

Conclusion : This study showed that elevated cTnI levels were significantly associated with adverse outcomes in ESRD patients with acute infection. Although mechanism for the elevated cTnI levels was not clear in this study, it can be speculated that acute infection may be associated with myocardial injury in ESRD patients. Therefore, elevated cTnI levels in these patients should not be ignored and be followed- up for cardiovascular comorbidity.

Key Words : 말기신부전, 급성감염, 트로포닌 I
ESRD, acute infection, cardiac Troponin I