

## 혈액 투석 환자에서의 세포외 DNA의 임상적 의의

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### Clinical Significance of Plasma Cell-free DNA in Hemodialysis Patients

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**Background:** Plasma levels of cell-free DNA (cfDNA) are elevated in various proinflammatory or apoptotic conditions. Previously, increased cfDNA levels were reported during hemodialysis. However, there is limited data regarding its clinical relevance in HD patients. The aim of this study was to investigate the clinical significance of cfDNA in patients on maintenance HD.

**Methods:** We measured the pre-dialysis plasma levels of cfDNA and evaluate its clinical significance in 95 HD patients. cfDNA levels were determined using real-time EIF2C1 gene sequence amplification and analyzed the association with clinical parameters and hsCRP before 6, 3, 0 and after 3 months of cfDNA measurement.

**Results:** Plasma level of cfDNA was modestly, but significantly elevated in HD patients compared to 15 healthy controls ( $2302.1 \pm 2177.5$  vs.  $1420.7 \pm 1216.4$  GE/mL, respectively,  $p < 0.05$ ). In HD patients, cfDNA levels were significantly higher in patients with diabetes mellitus compared to non-diabetic patients ( $2214.5 \pm 2163.4$  vs.  $1452.6 \pm 1221.3$  GE/mL, respectively,  $p < 0.01$ ). Intriguingly, cfDNA was significantly correlated with current HbA1c ( $r = 0.38$ ,  $p < 0.01$ ), but not associated with those of other time points. Patients with previous history of cerebrovascular or cardiovascular disease had also higher levels of cfDNA. Among clinical parameters, systolic blood pressure was significantly correlated with the levels of cfDNA. Current WBC counts was significantly associated with higher level of cfDNA, but there was no association between cfDNA levels and inflammatory parameters of different time points. Finally, other parameters of dialysis adequacy including KT/V, nPCR and iPTH, were not associated with the plasma levels of cfDNA.

**Conclusion:** Our results indicate cfDNA could be a potential biomarker of proinflammatory or apoptotic milieu in maintenance HD patients. However, the underlying reasons for the release of cfDNA and its functional role in uremic condition should be further defined for its clinical application.

**Key Words:** 세포외 DNA, 혈액투석, 바이오마커

Cell free DNA, Hemodialysis, Biomarker