

## 온라인 혈액투석 여과법이 미세 염증반응에 미치는 영향: 단핵구 다양성에 초점을 맞추어

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### The Effect of On-Line HDF on Microinflammation in Dialysis Patients: Focusing on Monocyte Heterogeneity

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Monocytes are heterogenous cell population with subset specific phenotype and function and it is increasingly recognized that CD14<sup>+</sup> CD16<sup>+</sup> nonclassical monocyte subset is expanded in elderly or patients with chronic inflammatory conditions and causally linked to premature onset of aging associated diseases such as cardiovascular diseases.

Chronic low grade inflammation has been known to be prevalent in CKD patients and to contribute to increased cardiovascular morbidity and mortality in these patients. In this study, we tested whether increased percentage of pro-inflammatory CD14<sup>+</sup>CD16<sup>+</sup> monocytes might contribute to chronic low grade inflammation in hemodialysis (HD) patients and also the effect of on-line hemodiafiltration (on-line HDF) on inflammation.

Flow cytometric detection of monocytes in patients undergoing HD, on-line HDF and healthy controls as well as plasma cytokines and cytokine mRNA measurement were performed. Percent pro-inflammatory CD14<sup>+</sup> CD16<sup>+</sup> nonclassical monocyte subset, plasma cytokines and cytokine mRNA significantly increased in HD patients compared to healthy control. Intracellular cytokine staining showed pro-inflammatory monocytes were the predominant source of tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ). Percent pro-inflammatory monocytes positively correlated with plasma inflammatory cytokines. Percent pro-inflammatory monocytes, plasma cytokines and cytokine mRNA significantly decreased in on-line HDF patients. In conclusion, expansion of pro-inflammatory CD14<sup>+</sup> CD16<sup>+</sup> monocytes are likely to contribute to inflammation in HD patients and beneficial effect of on-line HDF might be partially mediated by modulating the inflammatory response.