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투석 전 만성 콩팥병 환자에서 염증성 CD14+CD16+ 단핵구와 혈관 석회화 정도와 연관성

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Pro-inflammtory CD14+CD16+ Monocytes are Associated with Vascular Stiffness in Pre-dialysis CKD Patients

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Introduction and Aims: Chronic inflammation is frequently noted in patients with chronic kidney disease (CKD) and thought to contribute to development and progression of cardiovascular diseases. Monocytes/macrophages are heterogenous population of cells and circulating monocytes can be divided into three subtypes with different phenotypes and functions based on CD14 and CD16 positivity. Our previous study revealed significantly increased percentage of CD14+CD16+ monocytes and also its possible contribution to chronic low grade inflammation in patients undergoing hemodialysis. In this study, we evaluated whether CD14+CD16+ monocytes are related with various inflammatory markers or cardiovascular risks in predialysis CKD patients.

Methods: We assessed monocyte heterogenecity using flow cytometry in 117 pre-dialysis CKD patients. Percentage of pro-inflammatory CD14+CD16+ monocytes were compared between the CKD stages. Various markers including pulse wave velocity (PWV) for the evaluation of vascular stiffness and plasma levels of cytokines and other clinical parameters were also checked.

Results: Percentage of CD14+CD16+ monocytes was significantly increased in patients with advanced stages (3 to 5) as compared with early stages (1 to 2) group of CKD (12.57±8.72 vs 5.65±5.57, $p<0.001$). PWV (1541.05±340.61 vs 1378.05±192.44, $p=0.012$) and pro-inflammatory cytokine, IL-6 (24.09±66.39 vs 17.64±62.22, $p=0.025$), was also increased in CKD stage 3 to 5 group. Percentage of CD14+CD16+ monocytes in CKD patients showed an independent positive correlation with PWV ($R=0.279$).

Conclusion: This study might suggest that increased subset of pro-inflammatory CD14+CD16+ monocytes partially account for chronic low grade inflammation and possible contribute to enhance cardiovascular risks in pre-dialysis CKD patients.

Key Words: 단핵구, 혈관 경직도, 만성 콩팥병
Monocyte, Vascular stiffness, Chronic kidney disease