S-B6

혈액투석 환자에서 심혈관계 합병증의 예측 인자로서 내피 전구 세포의 역할

가천대학교 동인천길병원 신장내과[1], 경희대학교 의과대학 신장내과[2], 경희대학교 의과대학 순환기내과[3]

이홍주[1], 김원[3], 김우식[3], 문주영[2], 이상호[2], 임천규[2], 이태원[2], 정경환[2]

Reduced Number of Endothelial Progenitor Cells Predicts Cardiovascular Disease in End Stage Renal Disease Patients on Maintenance Hemodialysis

Hong Joo Lee[1], Weon Kim[3], Woo Shik Kim[3], Ju Young Moon[2], Sang Ho Lee[2]
Chun Gyoo Ihm[2], Tae Won Lee[2], Kyung Hwan Jeong[2]

Gachon University Dongincheon Gil Hospital Division of Nephrology[1]
Kyung Hee University School of Medicine Division of Nephrology[2]
Kyung Hee University School of Medicine Division of Cardiology[3]

Background: Endothelial progenitor cells (EPCs) are thought to be directly or indirectly involved in vasculogenesis and repair of injured endothelium. The number of EPCs has been identified as a surrogate biologic marker for vascular function and cumulative cardiovascular risk in the general population.
We hypothesized that reduced EPC counts may associated with future cardiovascular disease (CVD) and arteriovenous fistula(AVF) dysfunction in end stage renal disease(ESRD) patients on hemodialysis.
Methods: We quantified EPCs in blood samples from 70 ESRD patients on hemodialysis, EPC count was determined by double positive staining for CD34 and vascular endothelial growth factor receptor-2 VEGFR2 (KDR) with flow cytometry. CVD was defined as ischemic cardiovascular events including myocardial infarction, unstable angina and cardiovascular death. AVF dysfunction was considered as failure of the AVF to thrombosis or stenosis that required percutaneous transluminal angioplasty (PTA).
Results: Median follow up period was 15 months. Mean age was 57.8±12.7 years. 58.6% and 41.4% of all patients were male and had diabetes, respectively. Thirty four patients of seventy patients had previous CVD history. The mean number of EPCs was 26.04±48.17 CD34+/VEGFR+ cells/2×10^4 PMNC. Mean hemodialysis duration was 55.67± 41.64 months. CVD occurred in nine patients who were included three cardiovascular deaths. Twenty three PTA for AVF dysfunction were performed in eleven patients. Patients suffering from CVD had significantly lower numbers of EPCs (CVD, EPC count vs non-CVD, EPC count $p<0.05$). And, reduced numbers of EPCs were associated with a significantly higher incidence of AVF dysfunction ($p<0.05$), but not with all cause mortality. When the data were subjected to multivariate analysis, low EPC numbers were a significant, independent predictor of poor prognosis of CVD, even after adjustment for traditional cardiovascular risk factors and disease activity
Conclusion: Reduced levels of circulating EPCs independently predict atherosclerotic disease progression, thus supporting an important role for endogenous vascular repair to modulate the clinical course of CVD or AVF dysfunction.

Key Words: 내피전구세포, 심혈관질환, 혈액투석
Endothelial progenitor cell, CVD, Hemodialysis