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혈액 투석 환자에서 혈청 내 microparticle과 혈관통로 기능부전의 연관성에 관한 연구

이화여자대학교 의학전문대학원 신장내과학교실[1], 이화여자대학교 의학전문대학원 의과학연구소[2]

류정화[1] · 이정민[1] · 강보영[2] · 류동열[1] · 김승정[1] · 강덕희[1] · 최규복[1] · 윤견일[1]

Association between Microparticles and Vascular Access Failure in Hemodialysis (HD) Patients

Jung-Hwa Ryu[1], Jung-Min Lee[1], Bo-Young Kang[2], Dong-Ryeol Ryu[1]
Seung-Jung Kim[1], Duk-Hee Kang[1], Kyu-Bok Choi[1] and Kyun-Il Yoon[1]

Division of Nephrology Department of Internal Medicine Ewha Womans University School of Medicine[1]
Medical Research Institute Ewha Womans University School of Medicine[2]

Purpose : Microparticles are fragments derived from cell membrane through cellular activation or apoptosis in response to various stimuli. Microparticles previously called as cellular dust have been suggested that they are associated with coagulation, thrombotic propensity, vascular dysfunction, and inflammation. Vascular access failure is major risk factor for morbidity in HD patients and developed mainly by vascular thrombotic event. This study investigated the relationship between circulatory microparticles and vascular access patency or inflammatory markers in HD patients.

Methods : Eighty four hemodynamically stable HD patients were enrolled. We used flow cytometry to measure: 1) endothelial microparticles (EMP) identified by CD31+, CD42- or CD51+; 2) platelet microparticles (PMP) identified by CD31+, CD42+. Vascular access patency was defined as the interval from time of access formation to time of first vascular stenosis in each patient. Plasma hsCRP and interleukin 6 (IL- 6) levels were measured. Twenty four healthy peoples were enrolled for control group.

Results : CD51+ EMP level was higher in HD patients group than healthy control group. CD31+, CD42- EMP and CD31+CD42+ PMP were not significantly different between HD and control group. There was linear correlation between CD51+ and CD31+CD42- markers of EMP. There were no significant relationships between micro-particles (EMP and PMP) and HD vascular access patency or inflammatory markers such as IL- 6 and hsCRP levels, respectively.

Conclusion : This study did not show definite association between microparticles and vascular access patency in HD patients. Elevated CD51+ EMP in HD patients may suggest that existence of chronic endothelial injury in HD patients. Further studies for whether microparticles are pathognomic markers of vascular thrombosis in HD patients or mere product from endothelial injury are required.

Key Words : Microparticle, 혈관통로 기능부전, 혈액투석
Microparticle, Vascular access patency, Hemodialysis