

혈액투석 환자에서 조혈제 저항성과 동맥 미세석회화의 관계

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Resistance to Erythropoiesis-stimulating Agents is Associated with Arterial Micro-calcification in Early Hemodialysis Patients

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Objectives: Anemia is a common complication in patients with chronic kidney disease because of their relative erythropoietin deficiency. Despite treatment with erythropoiesis-stimulating agents (ESAs), some patients experienced ESA hyporesponsiveness. The aim of this study was to evaluate the relationship between arterial microcalcification (AMiC) and ESA hyporesponsiveness in hemodialysis patients.

Methods: 82 hemodialysis patients received with ESAs for anemia without iron deficiency were evaluated. We assessed ESA hyporesponsiveness of patients using ESA hyporesponsiveness index (EHRI), defined as the weekly ESA dose per kilogram of body weight divided by the hemoglobin level. The arterial microcalcification was diagnosed by pathologic examination of arterial specimen by von Kossa stain, which was acquired during the operation.

Results: AMiC was detected in 33 (40.2%) of 82 patients. Patients with diabetes had a higher incidence of AMiC than patients without diabetes. The serum levels of albumin and cholesterol were higher in patients without AMiC than in patients with AMiC. The serum levels of intact parathyroid hormone were lower in patients with AMiC than in patients without AMiC. The serum levels of phosphate and calcium-phosphorus product did not differ between the two groups. The mean EHRI value was higher in patients with AMiC than in patients without AMiC. In multivariate analyses, ESA hyporesponsiveness and diabetes showed a significant association with AMiC.

Conclusion: ESA hyporesponsiveness may be a clinical relevant parameters related to AMiC in hemodialysis patients. Further large-scaled studies are needed to validate this relevance more clearly.

Key Words: 조혈제저항성, 미세석회화, 혈액투석

ESA hyporesponsiveness, Micro-calcification, Hemodialysis