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혈액 투석 환자와 복막 투석 환자에서 조혈제 치료에 대한 반응이 생존률에 미치는 영향 비교

가톨릭대학교 의과대학 내과학교실 신장내과

배명남, 김용균

Impact of Erythropoiesis-Stimulating Agent Responsiveness on Mortality in Hemodialysis and Peritoneal Dialysis Patients

Myoung Nam Bae, Yong Kyun Kim

Department of Internal Medicine, College of Medicine, The Catholic University of Korea, Seoul

Background: Erythropoiesis-stimulating agent (ESA) responsiveness has been reported to be associated with increased mortality in hemodialysis (HD) patients. However, the association between ESA responsiveness and mortality in peritoneal dialysis (PD) patients has not been established. Our study aimed to compare the impact of ESA responsiveness on mortality between HD and PD patients.

Methods: HD and PD patients were selected from the Clinical Research Center registry for end-stage renal disease, a prospective cohort study in Korea. ESA responsiveness was estimated using an erythropoietin resistant index (ERI) (U/kg/week/g/dL). Patients were divided into three groups by tertiles of ERI. We also defined 4 categories of ESA responsiveness based on a combination of ESA dosage and hemoglobin levels. The primary outcome was all-cause mortality.

Results: A total of 1,594 HD and 876 PD patients were included. The median ERI was higher in HD patients than in PD patients (10.37 and 7.04 U/kg/week/g/dL, respectively, $p<0.01$). The median follow-up period was 40 months. HD patients within the highest ERI tertile had a significantly higher risk for all-cause mortality (HR 1.96, 95% CI, 1.07 to 3.59, $p<0.05$). In PD patients, the Kaplan-Meier plot showed no association between ERI and all-cause mortality ($p=0.247$, log-rank test). HD patients with high-dose ESA and low Hb levels (ESA hypo-responsiveness) had a significantly higher risk of all-cause mortality (HR 2.24, 95% CI, 1.16 to 4.31, $p=0.016$). However, in PD patients, ESA hypo-responsiveness was not associated with all-cause mortality (HR=1.75, 95% CI, 0.58 to 5.28, $p=0.319$).

Conclusions: Our data showed that ESA hypo-responsiveness was associated with an increased risk of all-cause mortality in HD patients. However, ESA hypo-responsiveness was not related to mortality in PD patients. These findings suggest that ESA hypo- responsiveness has prognostic value only in HD patient, not in PD patients.

Key Words: 조혈제, 혈액투석, 사망률, 복막투석
Erythropoietin, Hemodialysis,
Mortality, Peritoneal dialysis

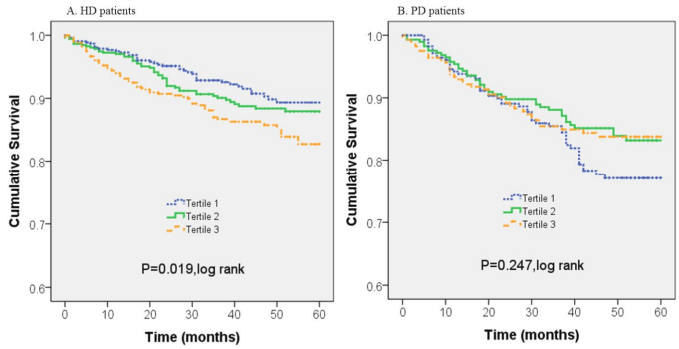

Fig. 2. Kaplan-Meier plot of patient survival by tertiles of ERI in HD and PD patients.