

혈액투석환자에서 혈청 중탄산염농도가 사망률에 미치는 영향

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The Impact of High Serum Bicarbonate Levels on Mortality in Hemodialysis Patients

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Background: The optimal serum bicarbonate level is controversial for patients who are undergoing hemodialysis (HD). In this study, we analyzed the impact of serum bicarbonate levels on mortality among HD patients.

Methods: Prevalent HD patients were selected from the Clinical Research Center registry for End Stage Renal Disease cohort in Korea. Patients were categorized into quartiles according to their total carbon dioxide (tCO₂) levels: 'quartile 1', a tCO₂ of <19.4 mEq/L; 'quartile 2', a tCO₂ of 19.4-21.5 mEq/L; 'quartile 3', a tCO₂ of 21.6-23.9 mEq/L; and 'quartile 4', a tCO₂ of ≥ 24 mEq/L. Cox regression analysis was used to calculate the adjusted hazard ratio (HR) and confidence interval (CI) for mortality.

Results: We included 1,159 prevalent HD patients, with a median follow-up period of 37 months. Kaplan-Meier analysis revealed that the all-cause mortality was significantly higher in patients from quartile 4, compared to those from quartile 3 (the reference category) (p=0.009, log-rank test). The multivariate Cox proportional hazard model revealed that patients from quartile 4 had significantly higher risk of mortality than those from quartile 3, after adjusting for the clinical variables in model 1 (HR: 1.99, 95% CI: 1.15-3.45, p=0.01) and model 2 (HR: 1.82, 95% CI: 1.03-3.22, p=0.04).

Conclusions: Our data indicate that high serum bicarbonate levels (≥24 mEq/L) are associated with increased mortality in chronic HD patients. These findings suggest that efforts are needed to decrease the dialysate bicarbonate concentration or correct metabolic alkalosis in chronic HD patients.

Key Words: 혈액투석, 사망률, 중탄산염
Hemodialysis, Mortality, Bicarbonate