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복막투석 환자에서 저칼륨혈증이 사망률에 미치는 영향

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Serum Potassium and All-cause Mortality Outcome of Peritoneal Dialysis Patients: A Nationwide Prospective Observational Cohort Study in Korea

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Background: Hypokalemia has been suggested to be a risk factor in peritoneal dialysis (PD). Recently in US, a large peritoneal dialysis cohort study showed potassium abnormalities contribute disproportionately to the high death risk in PD patients. This issue was reviewed in Korean ESRD cohort comparing to hemodialysis (HD).

Patients and methods: A nationwide prospective observational cohort study (CRC-ESRD) was performed between August 2008 and October 2013. Among them, patients had been selected who checked serum potassium level at least twice within 18 months. Overall mortality rate was evaluated as outcome. Patients were divided into following four groups based on time-averaged potassium level: K<3.5, 3.5≤K<4.5, 4.5≤K<5.5, ≥5.5 mg/dL. They were analyzed to determine association of serum potassium with mortality using Cox proportional hazard model.

Results: Follow-up data were available for 1,686 patients (HD 62.3%, PD 37.7%). The mean age was 58.2±13.9 years, and the ratio of men to women was 57% to 43%. Overall duration of dialysis was 1.9±3.9 years. PD patients significantly had lower serum potassium level comparing to HD patients (p<0.001). Serum potassium was <3.5 mg/dL in 10.7% of PD patients, whereas 2.2% in HD patients. During the mean 2.2 year follow up period, 142 patients died of mainly cardiac arrest and infection. Univariate analysis indicated that older age, history of congestive heart failure or diabetes could be the risk factor for mortality. Multivariate analysis proved PD patients with <3.5 mg/dL of time-averaged serum potassium to have all-cause mortality with adjusted hazard ratio of 2.5 (95% CI, 1.33-4.41) (p=0.004), whereas, HD patients was not. Among adjusted variables, PD patients who had diabetes or congestive heart failure tended to have higher risk of death with adjusted hazard ratio 1.7 (95% CI, 0.99-2.76) and 2.3 (95% CI 1.24-4.19) respectively.

Conclusion: PD patients with hypokalemia (<3.5 mg/dL) have higher mortality risk. This study confirmed the previous cohort study in different ethnic group. Therefore, regardless of ethnicity, this result could be accepted.

Key Words: 복막투석, 저칼륨혈증, 사망률
Peritoneal dialysis, Hypokalemia, Mortality