

혈액 투석 환자에서 투석 간 체중 증가가 사망률과 심혈관계 질환 발생에 미치는 영향

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Interdialytic Weight Gain as a Risk Factor for All-cause Mortality and Cardiovascular Events in Incident Hemodialysis Patients

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Background: Excessive interdialytic weight gain (IDWG) is regarded as a surrogate of fluid retention and non-compliance in end-stage renal disease (ESRD) patients on hemodialysis (HD), which result in unfavorable clinical outcome in these patients. Meanwhile, the amount of food intake also contributes to IDWG, and is associated with nutritional status. Such a paradoxical meaning of IDWG requires further investigation, particularly in terms of its prognostic value for adverse clinical outcomes.

Methods: A prospective cohort of 1,013 incident HD patients from 36 dialysis centers of the Clinical Research Center for ESRD in Korea was selected for this study, and the impact of the percentage of IDWG (IDWG%), which was defined as a ratio of absolute IDWG to dry weight, on the clinical outcome was clarified. Patients were divided into 5 groups according to IDWG%; <1.0, ≥4.0, and every 1.0 increment in between, and a composite of all-cause mortality and cardiovascular events was compared among the groups.

Results: The mean IDWG% was 2.7±1.8%. On multivariate linear regression analysis, IDWG% was found to be significantly related with the presence of diabetes mellitus, and serum phosphorus and albumin concentrations, while there was a significant inverse association of IDWG% with body mass index (BMI) and plasma sodium levels. During a mean follow-up duration of 18.7±11.7 months, 84 patients died and 99 cardiovascular events occurred. Compared to patients with IDWG% of 1.0-1.9, the hazard ratios (HRs) of IDWG% <1.0, 2.0-2.9, 3.0-3.9, and ≥4.0 groups were 1.30 [95% confidence interval (CI), 0.73-2.31; p=0.37], 1.37 (95% CI, 0.78-2.42; p=0.27), 1.91 (95% CI, 1.10-3.33; p=0.02), and 1.81 (95% CI, 1.04-3.16; p=0.03), respectively, after adjustment for demographic characteristics, and nutritional and inflammatory markers. In addition, sensitivity analysis revealed that a significant impact of high IDWG% (≥ 3.0) on the clinical outcome was consistent in male patients (HR, 1.57; 95% CI, 1.01-2.44; p=0.04), patients with older age (≥ 65 years) (HR, 1.69; 95% CI, 1.04-2.75; p=0.03), diabetes (HR, 1.75; 95% CI, 1.15-2.67; p=0.01), and BMI ≥ 22 kg/m² (HR, 1.79; 95% CI, 1.08-2.99; p=0.02).

Conclusions: High IDWG% (≥ 3.0) is a significant independent predictor of all-cause mortality and cardiovascular events in incident HD patients, suggesting that preventing excessive IDWG is recommended in HD patients in spite of a significant association between IDWG and nutritional status.

Key Words: 투석간 체중증가, 혈액투석, 사망률
IDWG, Hemodialysis, Mortality