

## 혈액투석환자에서 체성분 분석을 통한 체액량 조절의 염증 및 아디포카인에 미치는 영향: 전향적 16주 임상시험

가천의과학대학교 내과학교실<sup>1</sup>, 서울대학교 의과대학 내과학교실<sup>2</sup>

김세중<sup>1</sup>, 정은숙<sup>2</sup>, 박혜인조<sup>2</sup>, 이하정<sup>2</sup>, 성지윤<sup>1</sup>, 진호준<sup>2</sup>, 김동기<sup>2</sup>, 김연수<sup>2</sup>, 한진석<sup>2</sup>, 주권욱<sup>2</sup>

### Effect of Body Composition Monitor-guided Volume Control on Inflammation and Adipokines in Hemodialysis Patients: A Prospective 16-week Interventional Study

Sejoong Kim<sup>1</sup>, Eun Sook Jung<sup>2</sup>, Hayne Cho Park<sup>2</sup>, Hajeong Lee<sup>2</sup>, Jiyeon Sung<sup>1</sup>  
Ho Jun Chin<sup>2</sup>, Dong Ki Kim<sup>2</sup>, Yon Su Kim<sup>2</sup>, Jin Suk Han<sup>2</sup>, Kwon Wook Joo<sup>2</sup>

Department of Internal Medicine<sup>1</sup> Gachon University of Medicine and Science  
Department of Internal Medicine<sup>2</sup> Seoul National University College of Medicine

**Background:** Inappropriate volume control can be linked to an increased cardiovascular morbidity in hemodialysis (HD) patients, although there is no accurate method to monitor patients' water contents. Also, inflammation and adipokines are related to cardiovascular outcome in HD patients. We evaluated the effect of body composition monitor (BCM)-guided volume control on inflammation and adipokines in hemodialysis patients.

**Methods:** We enrolled 120 patients who received more than 3-month hemodialysis in major 3 dialysis centers. According to the amount of fluid overload, which was provided by BCM (Fresenius Medical Care Korea), we divided into 3 groups: overhydrated group (OH; fluid overload  $\geq 1.1L$ ), normohydrated group (NH;  $-1.1L \leq$  fluid overload  $< 1.1L$ ), and dehydrated group (DH; fluid overload  $< -1.1L$ ) and optimized body weight towards an objective target for normohydration for 16 weeks. We also measured inflammation markers (interleukin-6 [IL6], and monocyte chemoattractant protein-1 [MCP1]) and adipokines (leptin, adiponectin, and resistin) every 8 weeks.

**Results:** The proportion of OH group was 36.6% (44/120), and that of DH group was 15% (18/120). Intervention failure rate was 16% (10/62). In OH group, serum levels of IL6 and MCP1 were significantly decreased after 8-week intervention period (IL6:  $1.17 \pm 1.34$  at week 0 vs.  $0.06 \pm 1.18$  log [pg/mL] at week 8,  $p < 0.001$ ; MCP1:  $5.66 \pm 0.77$  at week 0 vs.  $5.33 \pm 0.39$  log [pg/mL] at week 8,  $p = 0.019$ ). After 8-week intervention period, serum leptin levels were decreased, while serum adiponectin levels were increased in OH group (leptin:  $8.84 \pm 1.54$  at week 0 vs.  $8.23 \pm 1.44$  log [pg/mL] at week 8,  $p = 0.004$ ; adiponectin:  $14.04 \pm 0.15$  at week 0 vs.  $15.85 \pm 0.34$  log [pg/mL] at week 8,  $p < 0.001$ ). Those changes were persistent until another 8-week observation. In DH group, serum adiponectin levels were significantly increased every 8 weeks ( $14.02 \pm 0.14$  at week 0 vs.  $15.84 \pm 0.31$  at week 8 vs.  $16.15 \pm 0.40$  log [pg/mL] at week 16).

**Conclusion:** This results showed that inflammatory markers and adipokines improved after the correction of patients' overhydrated status and adiponectin levels increased after the optimization of patients' dehydrated status in hemodialysis patients.

**Key Words:** 혈액투석, 아디포카인, 염증  
Hemodialysis, Adipokine, Inflammation