Effects of Left Ventricular Systolic Dysfunction and Cardio-renal Anemia Syndrome on Walking Ability and Activities of Daily Living in Patients with Heart Failure

Masakazu SAITOH, PT, Tetsuya OZAWA, PT, Yohei SHIOTANI, PT

Department of Physiotherapy, Sakakibara Heart Institute

Daisuke OKAMURA, PT, Miyako MABUCHI, PT

Department of Rehabilitation, St Luke's International Hospital

Mariko NAKAZAWA, PT, Marie AOYAGI, PT

Department of Physiotherapy, Ayase Heart Hospital

Junko SAKAMOTO, PT, Mitsutoshi AKIHO, PT

Department of Rehabilitation, Mitsui Memorial Hospital

Purpose: To assess the impact of left ventricular systolic dysfunction and cardio-renal anemia syndrome (CRAS) on activity of daily living (ADL) and walking ability in patients with heart failure.

Methods: Two hundred fifty-five patients (49 % of a woman, 79 ± 11 years) of decompensated heart failure were selected and divided into 2 groups depending on left ventricular ejection fraction (LVEF); 119 HFrEF groups (LVEF $< 40\%$) and 137 HFpEF groups (LVEF $\geq 40\%$). Serum hemoglobin (Hb): male < 12 g/dl and female < 11 g/dl was defined as anemia, estimated glomerular filtration rate < 60 ml/min/1.73 m² was defined as chronic kidney disease (CKD), and CRAS was classified into three groups (A group: neither CKD nor anemia, B group: either CKD or anemia, C group: both CKD and anemia). We investigated the Barthel index (BI) and walking ability of pre-hospital admission and at discharge.

Results: BI and walking ability of pre-hospital admission and at discharge in HFpEF group were lower than those in HFrEF group, respectively ($p < 0.05$). There is no interaction between CRAS and BI in both HFrEF and HFpEF group. However, there was the main effect of CRAS to BI in only HFrEF group ($p < 0.05$).

Conclusion: ADL level and walking ability in HFpEF group were lower than that in HFrEF group. On the other hand, ADL level was deteriorated depending on severity of CRAS in HFrEF group.