Hospitalization Deteriorates Performance of Activities of Daily Living by Super-Elderly Patients With Heart Failure

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It has been a long time since bed rest was considered useful and exercise considered harmful for patients with heart failure (HF), in the belief that additional myocardial stress would cause further harm. Recently, however, exercise training has been shown to benefit patients with HF by improving their exercise tolerance and quality of life. Currently, exercise training is recommended in clinical guidelines for HF from Japan, Europe and the USA.

Several studies have shown that skeletal myopathy, including impaired muscle energy metabolism, transition of fiber type toward fast twitch fibers, and muscle atrophy, contributes to exercise intolerance with symptoms such as fatigue and dyspnea, and to improvements in exercise tolerance following exercise training in patients with HF. Bed rest during hospitalization for worsening HF results in skeletal muscle myopathy. The skeletal muscle myopathy induces early fatigue and an increased ventilator response to exercise, resulting in dyspnea. These symptoms make exercise an unpleasant experience and together with depressive mood status, lead to reduced physical activity. Thus, these patients continue with bed rest. This vicious cycle leads to further inactivity during hospitalization by patients with HF (Figure 1). In this way, patients with HF become exercise-intolerant and are less able to perform their activities of daily living (ADL). The mechanisms for skeletal myopathy in patients with HF are unknown. However, the beneficial effect of exercise training to improve skeletal myopathy in patients with HF demonstrates that this process is not irreversible.

With the aging of society, the number of patients with cardiovascular diseases is increasing in developed countries. The number of elderly patients with HF in Japan is increasing explosively and predicted to reach 1.0 million by 2030. The Japanese Cardiac Registry of Heart Failure in Cardiology (JCARE-CARD) demonstrated that elderly Japanese...
patients have a worse prognosis than non-elderly patients. Another Japanese study demonstrated that super-elderly patients (>85 years old) have significantly higher mortality rates compared with non-super-elderly patients (<85 years old); the 1-year mortality rate was 46.1% in the super-elderly and 13.4% in the non-super-elderly patients. In addition, increased numbers of elderly patients becomes a social issue, including the escalation in medical costs, which can place a burden on their families.

Therapeutic strategies for super-elderly patients, however, remain to be established, although guidelines for treatment of HF based on clinical investigations for relatively younger patients are well established. In addition, there exist few studies focused on the clinical characteristics and social backgrounds of super-elderly patients who need hospitalization for worsening HF.

In this issue of the Journal, Takabayashi et al report detailed information such as the clinical characteristics, management, social backgrounds, and outcomes of super-elderly patients hospitalized with HF. Their data came from the Kitakawachi Clinical Background and Outcome of Heart Failure (KICKOFF) Registry, which is a multicenter community-based cohort of patients with HF, including both 212 super-elderly patients and 435 non-super-elderly patients. In this study, almost 20% of the super-elderly patients had changed from independent walking before admission to a decline in performing ADL by the time of discharge, and the rate of decline in ADL in the super-elderly patients was higher than in non-super-elderly patients during hospitalization. Bed rest during hospitalization of super-elderly patients with HF causes the progressive reduction in exercise tolerance, which leads to impairment in performing ADL by the time of discharge (Figure 2). We should pay more attention to the underlying risk of functional decline in hospitalized super-elderly patients in the acute-phase of treatment of worsening HF. It is important to implement cardiac rehabilitation in the acute phase of such patients' hospital stay and for outpatients to continue the exercise regimen. Therefore, exercise-based cardiac rehabilitation should be considered an integral component of the acute-phase treatment of super-elderly patients hospitalized for worsening HF.

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