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Editorial

Editorial: Sudden cardiovascular events and comprehensive cardiac rehabilitation: Come back from "a bolt out of the blue"

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Cardiovascular events, such as acute myocardial infarction (MI), aortic dissection, and life-threatening ventricular arrhythmia, often develop suddenly. Two-thirds of the patients with first ST segment elevation MI had no prodromal chest pain [1]. These sudden events that are like "a bolt out of the blue" for these patients may be associated with the risk of psychiatric comorbidity. Anxiety is common in patients with cardiovascular diseases. It was reported that the prevalence of anxiety is 70–80% even in patients with acute MI [2]. In addition, depression is three times more common in patients after acute MI than in the general community [3,4]. It was also reported that the prevalence of major depression is 15–20% in patients with acute MI and an even greater proportion show an elevated level of depressive symptoms [3].

Myocarditis is an inflammatory disease of the myocardium that results in ventricular systolic dysfunction and may account for up to 10% of acute-onset heart failure [5]. Fulminant myocarditis is characterized by uncommon features in clinical and histopathological findings distinct from the features of nonfulminant myocarditis. The patients with fulminant myocarditis present with an acute onset of severe heart failure, often in previously healthy individuals. Patients with fulminant myocarditis should be managed with aggressive inotropic support such as an intra-aortic balloon pump, and mechanical circulatory support at the early phase when needed. If fulminant myocarditis is quickly diagnosed and treated using aggressive strategies, more than 90% of the patients will make a full recovery with minimal long-term sequelae [5,6]. However, even after ventricular recovery, adequate medications of heart failure should be administered, and psychiatric support may also be needed because the prevalence of anxiety and depression were reported to be 38% and 27%, respectively, in fulminant myocarditis patients who were rescued by mechanical circulatory support [7].

In this issue of the journal, Sasanuma et al. [8] have reported a case of fulminant myocarditis, in which the patient underwent a stepwise and goal-oriented individualized comprehensive cardiac rehabilitation program for five years. The cardiac rehabilitation team started intervention on hospital day 3. The patient was allowed to walk indoors with assistance and to get into a wheelchair on hospital day 10. While, his cardiac function had smoothly recovered, his physical function and psychiatric problems, including anxiety and loss of self-confidence, did not sufficiently recover. Therefore, the multidisciplinary team continued physical rehabilitation, exercise therapies, and mental support, not only at the acute phase of onset but also after hospital discharge for five years. The comprehensive and long-term interventions succeeded to recover cardiopulmonary function within the normal range and improved the mental and physical component summaries assessed by the Quality of Life (QOL) scale above the mean levels of age- and gender-matched Japanese general populations.

Cardiac rehabilitation significantly improves physical function and cardiac risk factors and reduces morbidity and mortality in patients with cardiovascular diseases [9–11]. It also improves psychological problems, including anxiety, depression, lack of self-confidence, emotional stress, social isolation, and QOL [9,10]. Furthermore, previous studies reported that cardiac rehabilitation was performed in fulminant myocarditis patients with mechanical device supports [12–14]. Numerous studies have clearly demonstrated that exercise training reduces anxiety and depression, and improves QOL, exercise tolerance, and the risk of cardiovascular events [4,9,15]. In addition, cognitive behavior therapy provided by rehabilitation staff is obviously effective for improving negative perceptions in patients with cardiovascular diseases [4]. Patients are taught to modify their thoughts, change maladaptive behaviors, and develop skills for adapting to negative feelings [4].

There are several limitations for performing and continuing cardiac rehabilitation in a clinical setting. First, the implementation of cardiac rehabilitation, particularly for the recovery phase in outpatient clinics, is not necessarily sufficient even in Japan. Second, patient compliance to participate in cardiac rehabilitation is also one of the major limitations. It has been reported that compliance with cardiac rehabilitation gradually decreases after discharge, even in patients with heart failure who were enrolled in sophisticated clinical randomized trials [15]. Third, a comprehensive cardiac rehabilitation program includes psychological

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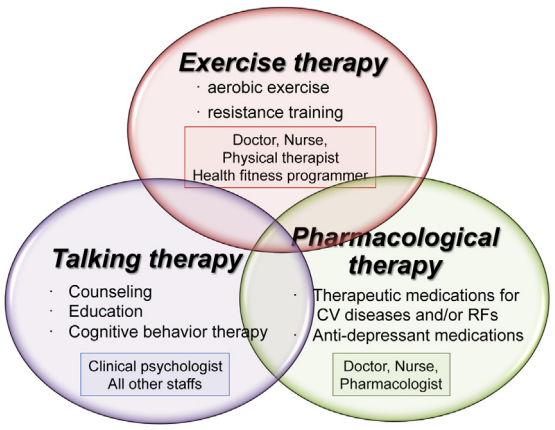

Fig. 1. Possible core components of cardiac rehabilitation in patients with sudden cardiovascular events and psychiatric disorders. CV, cardiovascular; RFs, risk factors.

interventions for patients with psychiatric problems. However, a psychiatric specialist such as a clinical psychologist could not necessarily contribute to the cardiac rehabilitation program. In this situation, physical therapists, nurses, and doctors, instead of clinical psychologists, should provide psychiatric support. Indeed, many physical therapists must be involved in "exercise and talking therapies" as reported in this case report [8]. Therefore, the cardiac rehabilitation staff needs to acquire skills for providing psychiatric support.

At present, there is growing evidence that antidepressant medications such as selective serotonin receptor reuptake inhibitors (SSRIs) have improved depression in patients with cardiovascular diseases [4]. However, some clinical trials have failed to show the beneficial effects of antidepressant medication for cardiac patients [4]. It may be possible that comprehensive cardiac rehabilitation, comprising exercise, talking, and pharmacological therapies, leads to tremendous benefits to patients with cardiac and psychological problems (Fig. 1). Further studies are needed to improve morbidity and mortality in previously healthy individuals with sudden cardiovascular events.

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Conflict of interest

There is no conflict of interest.

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Kazunori Shimada (MD, FJCC)*
Department of Cardiovascular Medicine, Juntendo University Graduate School of Medicine, Tokyo, Japan

*Correspondence to: Department of Cardiovascular Medicine, Juntendo University Graduate School of Medicine, 2-1-1 Hongo Bunkyo-ku, Tokyo 113-8421, Japan. Tel.: +81 3 5802 1056; fax: +81 3 5689 0627
E-mail address: shimakaz@juntendo.ac.jp (K. Shimada).

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