Cardiovascular disease (CVD) continues to be a very common cause of morbidity and mortality in Japan. Cardiac rehabilitation (CR) is the provision of comprehensive long-term services involving medical evaluation, prescriptive exercise, cardiac risk factor modification and education, counseling, and behavioral interventions. Exercise-based CR has been shown to be beneficial in improving exercise capacity, lipid profile, obesity indices, inflammation, psychological distress, autonomic tone and quality of life, and reducing major morbidity and mortality in patients with CVD (Table). Thus, exercise-based CR have an important role in both primary and secondary prevention of CVD.

Exercise-based CR and exercise testing have been useful in practical cardiology. Cardiovascular complications related to exercise-based CR and exercise testing were reported before the 1990s, the era of widespread use of revascularization. The complication rates are not necessarily generalizable to contemporary cardiovascular patients who receive more aggressive therapies and are generally older with more coexisting illness. Moreover, there has not been a large-scale study in Japan regarding the safety of exercise-based CR and exercise testing. Therefore, it would be very useful to this in the present time.

In this issue of the Journal, Saito et al report on their questionnaire sent to 1,875 hospitals to investigate the safety of exercise-based CR and exercise testing for cardiac patients in modern Japanese cardiology practice. Of the 1,059 hospitals giving effective replies, only 136 (12.8%) were providing recovery-phase CR. The incidence of life-threatening adverse events (LAEs) and of all adverse events (AEs) related to exercise-based CR was very low. With regard to fatal events, there were no deaths related to exercise-based CR. CR programs were categorized into Formal and Non-formal, defined respectively as a program in which the exercise prescription of each patient was determined according to individual exercise testing or without individual exercise prescription. Consequently, the incidence of LAEs and AEs during exercise sessions was significantly lower in hospitals with Formal CR than in those with Non-formal CR. With regard to exercise testing, the incidence of LAEs and AEs was low. The amount of exercise testing was markedly lower in hospitals with Non-formal CR than in those with Formal CR, although there were no differences in the numbers of patients with acute myocardial infarction (AMI) and percutaneous coronary intervention (PCI) procedure. Thus, both exercise-based CR and exercise testing

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| Exercise-Based Cardiac Rehabilitation Is Safe, Yet Underused in Japan |
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have been increasing in Japan in association with increases in coronary risk factors. Despite exercise-based CR, in which the individual exercise prescription is determined by exercise testing, being remarkably safe, it is still underused in Japan, so widespread use of exercise-based CR could contribute to a decrease in incidence of CVD, leading to reductions in morbidity and mortality.

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