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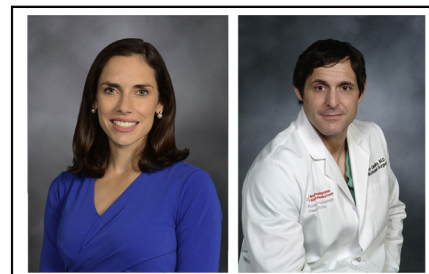
Commentary: “Get moving early!” Inpatient cardiac rehabilitation reduces unplanned hospitalizations

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In an era of fast-track recovery protocols after cardiac surgery, we face 2 challenges: (1) the underuse of cardiac rehabilitation (CR) worldwide, and (2) an increased rate of unplanned postoperative hospital readmissions.^{1,2} The unplanned postoperative hospital readmissions are costly and associated with greater mortality.^{2,3}

In this issue of the *Journal*, Ogawa and colleagues⁴ report findings from a retrospective cohort study in Japan in which unplanned hospitalizations were compared between a group that received conventional inpatient CR versus multidisciplinary inpatient CR. Among the 306 patients enrolled in the study, the unplanned hospitalization rate was lower among patients receiving multidisciplinary inpatient CR. The multidisciplinary inpatient CR was very comprehensive and included sessions taught by cardiologists, cardiology nurses, nutritionists, and physiotherapists. In addition to exercise training and prevention, patients and their caregivers in the multidisciplinary CR group received group education sessions and individual counseling on coping strategies, disease management, self-monitoring of heart failure symptoms, nutritional support, and how to incorporate self-care behaviors into a daily routine.⁴

Patients with chronic comorbid conditions were selectively enrolled in the multidisciplinary inpatient CR group. Although robust statistical analyses were used to adjust for these differences, unmeasured confounding factors likely added bias. Conversely, if patients who were enrolled in



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CENTRAL MESSAGE

Inpatient multidisciplinary cardiac rehabilitation is associated with lower unplanned hospital readmissions compared with conventional cardiac rehabilitation among patients undergoing cardiac surgery.

the multidisciplinary CR group were at greater risk of unplanned admissions before surgery, and they had lower unplanned admissions than the conventional CR group, then the true effect size of the intervention could have been underestimated. Despite the limitations of the retrospective, nonrandomized design, the study findings highlight the importance of acute-phase multidisciplinary cardiac rehabilitation after cardiac surgery, especially among patients with multiple chronic conditions. This study also supports the need to evaluate comprehensive multidisciplinary CR in a randomized trial across multiple sites.

This study was conducted in Japan, which has a unique health system that supports inpatient CR and allows for a mean length of stay over 3 weeks (21.3 ± 18.5 days), compared with less than a week in the United States.^{5,6} The longer length of stay allowed for about 2 weeks of proactive inpatient CR. Although inpatient CR is not the norm in most hospitals worldwide, the multidisciplinary focus on symptom and self-management for patients after cardiac surgery is nonetheless applicable to contexts with shorter mean hospital stays and to contexts in which most CR is provided outpatient.

More than one half of the unplanned hospitalizations in this study were due to worsening heart failure, which is frequently accompanied by volume overload.⁴ Patients undergoing cardiac surgery with multiple chronic conditions (ie, diabetes, heart failure, hypertension) need to perform routine and vigilant self-management, which could be

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complicated in the immediate postoperative phase. Patients need to be trained in the self-management skills of symptom monitoring so that early decompensation can be intervened upon before an unplanned hospitalization; this is especially important in countries with shorter postsurgical lengths of stay. These study findings highlight the need to get our cardiac surgery patients moving early and often with multidisciplinary support in place to ensure an expeditious recovery.

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Commentary: Lessons learned from multidisciplinary inpatient rehabilitation following cardiac surgery and the gap to broad application

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CENTRAL MESSAGE

Inpatient cardiac rehabilitation may not be available and/or desirable for most patients; surgical teams need to determine how to develop integrated care models to their specific clinical practice.

In this issue of the *Journal*, Ogawa and colleagues¹ outline their experience with acute-phase inpatient rehabilitation following elective cardiac surgery in 306 patients, specifically comparing outcomes on readmission in patients undergoing conventional inpatient cardiac rehabilitation (CR) compared with those enrolled in multidisciplinary CR. The authors should be commended on their commitment to CR and insight to the importance of psychoeducational and nutritional support in addition to exercise-based rehabilitation.

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While this was a retrospective study, treatment teams enrolled patients to multidisciplinary CR, in which they noted increased need for psychoeducational intervention, comorbidities, and/or unhealthy lifestyle habits.¹ Analysis included both propensity-matched outcomes and multivariable hazard regression modeling, both of which demonstrated benefit of multidisciplinary CR compared with conventional rehabilitation. The authors did not explore socioeconomic factors, which likely also