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Strengthening the Evidence for Cardiac Rehabilitation Benefits

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In 1982, Medicare policies provided for coverage of cardiac rehabilitation (CR) for patients recovering from myocardial infarction or coronary artery bypass graft surgery (CABG) or for those with stable angina.¹ This coverage decision was based primarily on evidence that CR provided safe and effective improvements in functional capacity and quality of life in these patients. Little by little, new published studies added additional weight to evidence for CR benefits in patients recovering from myocardial infarction, percutaneous coronary intervention, and CABG, including evidence of significant improvements in cardiovascular risk-factor control² and medication adherence,³ hospital readmission,⁴ and mortality⁵ rates.

Furthermore, additional studies emerged on the benefits of CR for other patient groups. In fact, in 2006, because of growing evidence of CR benefits, Medicare policies were expanded to include coverage for CR in patients undergoing heart valve surgery (either replacement or repair).¹ This expansion of coverage was based on additional evidence showing improvements in functional capacity and quality of life associated with CR in these patients.⁶ Up until that time, an association with mortality or other key outcomes had not been shown in published studies, but the existing evidence was deemed sufficient to support this expansion of Medicare coverage for CR services.

In this issue of *JAMA Cardiology*, Patel and colleagues⁷ report important and additional evidence that strengthens the case for CR in patients recovering from heart valve surgery. The authors find via analyses of Medicare data that patients with CR participation after heart valve surgery experienced a 61% lower mortality rate and a 34% lower hospital readmission rate compared with patients who did not participate in CR after heart valve surgery. These findings are remarkable and novel for several reasons.

First, most studies of survival in patients undergoing heart valve surgery have focused on patient characteristics, comorbid conditions, and procedural factors as variables associated with patient outcomes.⁸ To our knowledge, this study is the first national, large-scale study to assess aspects of posthospital care (eg, CR) on patient outcomes after heart valve surgery.

Previous studies of CR benefits have found that CR is associated with reduced hospital readmissions and improved survival following myocardial infarction, percutaneous coronary intervention, and CABG surgery.^{5,9} The study by Patel et al⁷ is, to our knowledge, the first

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large-scale study to show an association between CR participation and improvements in hospital readmissions and survival after heart valve surgery.

Early, single-center studies of CR in patients undergoing heart valve surgery have suggested a potential difference in outcomes for patients undergoing aortic versus mitral valve surgery.¹⁰ The findings of Patel et al⁷ show improved outcomes associated with CR participation for patients with aortic, mitral, and tricuspid valve surgery.

Finally, prior studies have also suggested that improvements in survival rates were greatest in patients undergoing valve plus CABG surgery (compared with valve-only surgery).¹⁰ The study by Patel et al⁷ shows evidence of similar, beneficial outcomes for patients undergoing either valve surgery plus a CABG procedure or valve-only surgery.

Patel and colleagues⁷ also report other findings consistent with prior studies that remain relevant and timely. They report that participation rates are relatively low in patients undergoing heart valve surgery (around 50%) and that variability in participation rates was noted by geography and racial/ethnic groups, which reflects the ongoing need to improve CR participation rates for all eligible patients. These findings have been noted in other patient groups^{2,5} and are at the heart of efforts to overcome barriers to CR delivery and improve CR participation using practice guidelines, performance measures, and other quality metrics to promote patient referral, enrollment, and adherence to CR. In terms of limitations, the study⁷ is based on observational data, lacks data on patients younger than 65 years, and lacks details regarding CR referral and interventions. Nonetheless, the study⁷ adds vital and solid evidence to increase understanding of the significant and meaningful benefits associated with CR for patients recovering from heart valve surgery.

As CR delivery methods, quality improvement practices, and coverage policies continue to evolve, health care practitioners and policy makers must implement more effective and innovative strategies to improve delivery of CR services to all eligible patients, including those patients undergoing heart valve surgery. Little by little, as additional scientific evidence and innovative delivery strategies continue to expand, such efforts will help patients travel far on the road to optimal rehabilitation and secondary prevention outcomes.

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