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EDITORIAL COMMENT

Can We Do Something About the Abysmal Cardiac Rehabilitation Enrollment Rates After TAVR?*

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"Exercise should be regarded as a tribute to the heart."
—Gene Tunney

A patient with localized non-small cell lung cancer who undergoes surgical resection can expect a reduction in the risk of death by 11% from their disease if they complete adjuvant chemotherapy (HR: 0.89; 95% CI: 0.82-0.96).[1] Upward of 50% of patients undergoing such an operation go on to receive a guideline-concordant chemotherapeutic regimen, with all its side effects and intolerances.[2] By comparison, cardiac rehabilitation (CR) offers improvements in multiple outcomes related to functional status and quality of life; it bears no risk of toxicity and can be done in patients' homes, with a small risk of musculoskeletal injury and an infinitesimal risk of provoked ventricular arrhythmias.[3] In addition, in some cohorts with an indication for CR, including a recent valve replacement, patients experience a significant (~30%) relative risk reduction in mortality.[4] However, in spite of such an overwhelmingly positive benefit to risk ratio, it is surprising (and possibly embarrassing as a society) that only 30% of patients undergoing transcatheter aortic valve replacement (TAVR) complete at least one session of CR. How can we excuse such poor adherence to such a high benefit/risk ratio? What can/should we do as a society to improve the utilization of CR?

In this issue of *JACC: Advances*, Sukul et al[5] highlight the poor enrollment rates in CR for patients undergoing TAVR in the state of Michigan. The authors highlight important patient demographic, socioeconomic, and clinical factors associated with CR enrollment. While the COVID-19 pandemic may account for a drop in enrollment rates in mid-2020, previous enrollment rates were as low as 27% in 2016. More concerning than absolute enrollment, though, are the potential factors associated with lower enrollment. Patients with higher Society of Thoracic Surgeons predicted risk of mortality, lower baseline Kansas City Cardiomyopathy Questionnaire-12 overall scores, slower walk times, older age, renal failure, atrial fibrillation, and tobacco use were less likely to enroll in CR. Those with Medicaid insurance, likely reflecting a lower socioeconomic status, were also less likely to enroll. The analysis suggests that the sicker and more vulnerable patients, ostensibly in greater need of the benefits of CR, are the least likely to receive those benefits. This is as much a societal issue as it is a medical.

CR enrollment varied across hospitals, with an adjustment for patient case mix failing to explain this variability. Moreover, patient perception of hospital quality was strongly associated with CR enrollment. This highlights the substantial variability in hospital quality and processes of care across different institutions and suggests a hospital-level intervention as a potential target for mitigating poor CR enrollment rates. Higher enrollment rates should be tied to hospital rankings, with patients' completion of a CR program offering an additional bonus. More importantly, payers should implement financial incentives for CR. For example, a hospital performing

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TAVR on a stable outpatient who is then discharged home could receive only partial reimbursement until the patient is enrolled in CR. For inpatients, or those with recent hospitalization, who may be more frail and more likely to discharge to a nursing facility rather than home after their procedure, payers could offer an additional a financial incentive to the hospital for each session of CR completed. Although severe symptomatic aortic stenosis is a contraindication to intense CR, perhaps the rehabilitation process should begin upstream before the procedure (especially in patients with longer preprocedural inpatient stays), with physical therapy sessions identifying those patients who are most likely to benefit from CR and maximizing rehabilitation potential postoperatively. As a society, we should also be investing in processes that improve access to such programs, including providing transportation and increasing the number of high-quality CR facilities. Streamlining reimbursement would also be crucial. We owe it to our patients, especially those most vulnerable, to ensure that they receive the maximum benefit from CR, especially when it offers such substantial benefits with so little risk.

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