

See Article page 491 in the December 2021 issue.



Commentary: Presurgical frailty assessment can predict adverse outcomes in patients undergoing cardiac surgery... but where do we go from here?

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Past research has highlighted frailty assessment as a means of identifying who may be at an increased risk of poor outcomes associated with the stress of cardiac surgery.¹ In the December 2021 issue of *JTCVS Open*, Sarkar and colleagues² build on this knowledge using a retrospective hospital record-based frailty assessment of 3463 cardiac surgery patients. Independent of the traditional metric of age, the generated tool predicted prolonged hospitalization, nonhome discharge, 30-day readmission, 30-day mortality, and increased hospital cost. While this study provides an excellent example of knowledge mobilization by using a registry-based frailty risk stratification in a specific clinical setting, recommending potential changes to clinical practice should be approached with caution when commonly used clinical tools for risk stratification are not provided as comparison or for assessing additive value.

Another critical element of this analysis is the reliance on administrative data for the generated 20-point frailty score that fails to identify the intervenable aspects of frailty. The approach of Sarkar and colleagues is also retrospective,

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CENTRAL MESSAGE

Presurgical frailty assessments identify those at risk of adverse outcomes independent of age. Patient-centered perioperative interventions are needed to reduce adverse outcomes and health care costs.

identifying frailty largely through the presence of cardiac-focused comorbidities (frailty index), which may identify different individuals compared with functional assessments.³ However, the frailty stratification identifies those most at risk who may benefit from subsequent intensive assessment, such as the Comprehensive Geriatric Assessment, an approach recommended by the International Conference on Frailty and Sarcopenia Research group.⁴ Beyond that, the approach of Sarkar and colleagues provides an opportunity for clinicians to use that risk stratification to refer at-risk individuals to targeted interventions before their surgery. Such an intervention has recently been described by the bundle of protocols advocated by the Enhanced Recovery After Surgery (ERAS)–Cardiac Society. The proposed bundle of enhancing recovery protocols includes recommendations⁵ such as implementing prehabilitation to improve an individual's readiness for surgery.⁶ Prehabilitation programs have been recommended to include nutrition optimization, exercise training, and worry reduction in the NEW approach.⁷

Sex-based differences require a much more in-depth exploration, as called for by the Sex and Gender Equity in Research (SAGER) reporting guidelines and the Lancet Women and Cardiovascular Disease Commission.^{8,9} Notably, Sarkar and colleagues report the sex distribution of their sample in addition to reporting the results of their sex-based analyses. Female sex was found to be an independent predictor of the composite outcome (nonhome discharge and increased length of stay) and associated with an approximately \$2105 greater average hospital cost. However, the data were not provided disaggregated by sex. Data disaggregation, even if presented

in the Supplemental material, is essential to promote a greater understanding of sex and gender-based differences in cardiovascular health by facilitating the generation of future hypotheses and future meta-analyses.^{8,9}

Where do we go from here? Sarkar and colleagues² demonstrate administrative data-derived frailty assessment identifies risk in an increasingly vulnerable population referred for cardiac surgery; this necessitates action to improve outcomes. The development and evaluation of multimodal enhanced recovery programs are needed. Moreover, care pathways must focus on outcomes that matter to patients with frailty. Researchers must consider sex and gender-based differences and include patient-centered outcomes such as quality of life in addition to traditional measures of mortality, hospitalization, and cerebrovascular complications to further improvements in care.¹⁰

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