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Commentary: Frailty and cardiac surgery: Is there strength in numbers?

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The cardiac surgery literature is now rife with studies demonstrating the deleterious effect of patient frailty on clinical outcomes following surgery.^{1,2} The vast majority of these studies ascribe frailty as solely a patient-level risk factor, however; very few studies have looked at frailty as an institution-level variable.

A recent study by McIsaac and colleagues³ examined the association between hospital volume of frail patients and outcomes following elective major noncardiac surgery using linked administrative data from Ontario, Canada. Frailty was defined by the presence at least 1 of 10 clusters of frailty-defining diagnoses (eg, malnutrition, mobility impairment, decubitus ulcer, dementia) according to the Johns Hopkins Adjusted Clinical Groups Frailty indicators.⁴ Hospitals were separated into frailty volume quintiles based on their annual frailty volumes, and those with higher frailty volumes were found to have improved 30-day survival and lower failure-to-rescue rates.

In this issue of the *Journal*, Goel and colleagues⁵ evaluated the effect of hospital frailty volume on rates of adverse outcomes following cardiac surgery. Through the United States Nationwide Readmissions Database, the authors identified more than 72,000 frail adult patients who underwent

From left to right, Dustin Scott Kehler, PhD, Ansar Hassan, MD, PhD, and Rakesh Arora, MD, PhD

CENTRAL MESSAGE

Centers that care for a higher volume of patients with frailty may perform better than lower-volume centers. Understanding the nuances of care that impact the care of frail patients is needed.

coronary artery bypass or valve replacement surgery between 2010 and 2014. In this study, frailty was defined using the Johns Hopkins Adjusted Clinical Groups Frailty Indicator, and hospital patient frailty volumes as well as total operative volumes were divided into quartiles. The authors found that the hospitals identified as having the highest volume of frail patients had a shorter median length of stay (highest quartile, 17 days [range, 10-29 days]; lowest quartile, 21 days [range, 13-33 days]) and a reduced odds of in-hospital mortality (odds ratio [OR], 0.79; 95% confidence interval [CI], 0.67-0.94 vs lowest quartile) and failure-to-rescue (OR, 0.83; 95% CI, 0.70-0.98 vs lowest quartile). These findings were suggestive of a frail patient volume–outcomes relationship in patients undergoing cardiac surgery. Interestingly, total operative volume was not associated with adverse outcomes.

Based on the current literature on enhancing recovery after surgery, this study provides valuable insight into the role that hospitals or hospital systems can play in managing frail patients undergoing cardiac surgery. The development, adaptation, and use of enhanced recovery protocols require, by their design, clinical transformation changes.⁶ In this context, it should push healthcare teams and administrators to inquire as to which institutional practices best serve to improve outcomes in frail patients. Do higher-performing centers undertake formal screening for frailty? Do they engage specialists in the care of older adults? Do they advocate for prehabilitation, delirium screening, early mobilization, and other clinical strategies to mitigate poor outcomes and enhance recovery in vulnerable patients?

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The frailty volume–outcome proposed relationship by Goel and colleagues is of great interest. However, further study is needed to determine the institutional mechanisms that underlie effective care. In the meantime, efforts must be taken at all cardiac surgery centers, irrespective of frailty volume, to assume comprehensive strategies to ensure better care and enhanced recovery for frail patients. Simply stated, it is not enough that frail patients survive; rather, they must thrive no matter where they undergo their cardiac operation.

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Commentary: Frailty, surgical volume and outcomes: Implication for percutaneous treatment

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When I accepted to write this editorial commentary, my first thought was to ask my colleagues to help me in defining the relationship between frailty and cardiac surgery. As expected, we independently concluded that frailty is an under-used concept and its assessment is complex, because “the eye ball test” at the end of the bed does not reflex the real patient’s conditions. A multidisciplinary team (“heart team”) is the key to success in identifying the best treatment option for that given condition and minimizing the potential risks. Frailty is a syndrome characterized by increased vulnerability to stressors owing to a loss of physiologic reserve. It is age-dependent, and its prevalence in patients

CENTRAL MESSAGE

A multidisciplinary approach is required for decision making between percutaneous and surgical treatment, especially for low-risk frailty patients.

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aged >65 years ranges from 8% to 20%.¹ Several frailty risk scores have been developed, comprising a combination of functional tests, descriptive scales, nutrition and cognitive assessments, and questionnaires.² However, these scores are often underused because they are complex and time consuming. In addition, no consensus has been reached regarding how frailty should be assessed. Afilalo and colleagues³ proposed the incorporation of some frailty markers in most common risk stratification tools. Nevertheless, the outcomes could depend on the volume outcomes as well.⁴ In this issue of the *Journal*, Goel and colleagues⁵ report a relationship between the outcomes and the