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Commentary: Patients who move better do better: Implications of mobility limitations in transcatheter aortic valve replacement

Stephanie L. Mick, MD

As surgeons, we are accustomed to the exercise of calculating the Society of Thoracic Surgeons score and then adjusting our overall assessment of risk for factors not captured by the Society of Thoracic Surgeons score, such as frailty or malnutrition. But what component of frailty should we pay attention to the most? There is no current specified “gold standard” measure of frailty,^{1,2} but there is a growing literature suggesting that mobility measures are particularly important in the stratifying risk in patients planned for invasive interventions.³⁻⁵

In this issue of the *Journal*, van der Wulp and colleagues⁶ add to that literature in their consideration of 511 elderly (mean age 80 years) patients undergoing transcatheter aortic valve replacement (TAVR). These patients underwent a careful geriatric assessment pre-TAVR, were assessed for the presence of delirium 3 times per day post-TAVR, and their mortality over time was observed.

The pre-procedural assessment was performed by geriatricians and included a variety of measures: a mini-mental state examination, basic activities of daily living and instrumental activities of daily living (IADL) scoring, timed gait speed and/or get up and go tests, as well as a nutritional assessment. Patients were classified as having impaired mobility when gait speed was slow (less than or equal to 0.83 m/s) or the timed gait speed and/or get up and go tests was long (greater than or equal to 20 seconds).

The authors assessed the implications of these frailty components in the short term after TAVR, namely, their association with the development of postprocedural delirium and long term, ie, survival. The standout “red flag” risk factor in both cases was impaired mobility, or, to put it more colloquially, moving slowly.

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CENTRAL MESSAGE

Patients with decreased mobility demonstrate worse short- and long-term outcomes after TAVR. Decreased mobility should be treated as a red flag in risk assessments.

Diminished mobility was independently associated with becoming delirious after TAVR (odds ratio 2.1) and with a quite-notable reduction in 2-year survival (about 10% less than their more mobile counterparts). The second most important factor for developing delirium was limitation in IADL (eg, preparing meals, managing finances, and transportation) and the second most important factor for decreased survival was malnutrition.

A very important consideration relating to the findings surrounding delirium is that all patients in this group underwent general anesthesia at the time of TAVR, and the authors do acknowledge this.⁶ It is known that TAVR performed with general anesthesia compared with sedation is associated with longer hospital and intensive care unit stays, longer procedure times, and increased use of inotropic agents,⁷⁻⁹ all of which are themselves associated with increased risk of delirium.^{10,11} Taking this into account along with the present study, it is not too much of a leap to conclude that one should more strongly endeavor to avoid general anesthesia in TAVR in patients with compromised mobility, especially if they also have limitations in IADL.

Even with this caveat, this is an important study. Patients with decreased mobility demonstrated more delirium, experienced longer hospital stays, more atrial fibrillation post-TAVR, and strikingly decreased survival over time compared with their more mobile counterparts. It is wise to be alert to such a marker of vulnerability and to take pre-operative mobility limitations seriously in risk assessments. Patients who move better do better in both short and long term and patients who show impairment in mobility do not

do as well. Limited mobility is red flag, and patients who exhibit it should be considered a greater-risk population.

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Commentary: Recalibrating the eyeball test

Jason P. Glotzbach, MD, and Craig H. Selzman, MD

Although surgeons have been in the tricky business of risk assessment since Halstead, perhaps never in surgical history has preoperative patient selection and counseling been more central to decision-making than in the age of catheter-based structural heart interventions. In this issue of the *Journal*,¹ van der Wulp and colleagues offer another contribution to this evolving clinical paradigm. In a prospectively gathered cohort of 511 elderly patients with aortic stenosis, formalized geriatric assessment provided granular preoperative data on patient characteristics including cognitive,

Jason P. Glotzbach assessing Craig H. Selzman's frailty.

CENTRAL MESSAGE

Quantitative assessment of preoperative frailty is critical for patients undergoing transcatheter valve procedures to identify patients at high risk for postoperative delirium and poor outcomes.

functional, and nutritional status before transcatheter aortic valve replacement (TAVR). They found that impaired preoperative mobility predicted a greater risk of postoperative delirium and decreased 2-year survival from 91.4% to

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