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Commentary: Quantifying “fit for esophagectomy”—Grasping for more metrics

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In this issue of the *Journal*, Tang and colleagues¹ present a single-institution prospective study of 77 patients to evaluate a novel composite measure of 4 physiologic metrics (grip strength, timed sit-stands, psoas muscle area to height ratio, and 6-minute walk distance) to predict perioperative outcomes following esophagectomy. The investigators' measure was then compared with 2 commonly used frailty indices. Overall, the authors concluded that their “Esophageal Vitality Index” outperformed established qualitative frailty indices in prediction of the composite morbidity metric.

At the core of the current study remains the conundrum of variation in surgeon assessment and understanding of frailty.^{2,3} Although the literature has established a strong association between frailty and perioperative surgical outcomes, there are limited reports specific to esophagectomy, a procedure associated with considerable morbidity,⁴⁻⁹ indicating that more accurate assessments are needed to identify patients likely to experience adverse outcomes following esophagectomy. In addressing this knowledge gap, the authors used physiologic metrics to improve the prediction of postoperative morbidity related to esophagectomy.

What do Tang and colleagues¹ add to what has already been established in the literature? Their work provides objective data, assessing patient physiologic function to define “frailty,” and enhances a nebulous myriad of subjective assessments, measures, and scores, specifically in the context of evaluation for esophagectomy. While a single metric is unlikely to replace the surgeon's intuition of

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CENTRAL MESSAGE

Physiologic metrics in the form of a novel composite measure add to quantitative and subjective assessments of frailty in patients being considered for esophagectomy.

who may be considered “high risk,” it may serve to complement these evaluations.

While the Esophageal Vitality Index provides quantitative data to support a surgeon's assessment of functional status, there are some weaknesses. Notably, the authors did not report patient functional status using this measure before neoadjuvant therapy. Changes in preoperative functional status related to such therapy may provide a better assessment of patient resilience to subsequent operative intervention. This is further underscored by previous literature that has demonstrated declines in functional status during neoadjuvant therapy for esophageal cancer.¹⁰

Nonetheless, Tang and colleagues¹ build a foundation for future efforts aimed at identifying patients at risk for adverse events following esophagectomy. Several questions remain to be addressed, including whether this index or other similar quantitative measures can be used to assess functional status longitudinally, such as during neoadjuvant treatment in patients that are considered to be “marginal” surgical candidates. As the authors indicate in their concluding remarks, indices such as proposed in this study may be useful to identify patients who would benefit most from risk mediation through a “prehabilitation” exercise and nutrition program. Although novel metrics to evaluate functional status are unlikely to displace our current subjective evaluations, they provide additional data to augment our assessment of functional status. The Esophageal Vitality Index, with further validation in larger patient cohorts

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and refinement as needed, may help surgical teams get a better grasp of functional status for patients being considered for esophagectomy.

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Commentary: Surgical risk assessment in 2020: Is a handshake and a walking test really the best we've got?

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Minimally invasive approaches to many disease processes, including esophageal cancer, can help lower the risk of morbidity and mortality.¹ Accurate preoperative assessment is a key component in stratifying patients who present to clinic for possible esophagectomy. These tools allow both medical oncologists and general thoracic surgeons the ability to predict the outcomes of various treatment plans,

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CENTRAL MESSAGE

There is a need for better pre-operative assessment in patients undergoing esophagectomy. The Esophagectomy Vitality Index is a novel system that assesses physical status and fitness in these patients.

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including multimodal therapy and esophagectomy, and identify nonsurgical candidates. An accurate predictive assessment might also help us decide when a period of physical rehabilitation and medical “tune-up” might be considered when the initial risk assessment appears concerning. While the literature has presented many methods for assessing surgical candidacy,²⁻⁶ there continues to be a need to improve our preoperative assessment tools, since esophagectomy continues to be associated with major morbidity and mortality even in the era of minimally invasive esophagectomy.⁷