EDITORIAL – THORACIC ONCOLOGY

Editorial: Preoperative Frailty Risk Assessment Prior to Esophagectomy, Where Are We?

K. A. Fay, MPH[1], and R. M. Hasson, MD, MPH, FACS[1,2,3]

[1]Department of Surgery, Dartmouth-Hitchcock Medical Center, Lebanon, NH; [2]Geisel School of Medicine at Dartmouth, Hanover, NH; [3]The Dartmouth Institute for Health Policy and Clinical Practice, Hanover, NH

With improvements in diagnosis and treatment practices, more and more patients can be considered for esophagectomy for their esophageal cancer. Nevertheless, even with an increased use of minimally invasive techniques, esophagectomy is still a major procedure that can be associated with significant morbidity postoperatively, which makes preoperative risk assessment increasingly important.

In their recent study, Yamashita et al. described the use of a preoperative Comprehensive Geriatric Assessment (CGA) to predict post-esophagectomy complications in 217 patients aged 75 years and older.[1] The CGA was composed of five different instruments, including the Mini-Mental State Examination, the Geriatric Depression Scale-15, the Vitality Index, the Barthel Index, and Instrumental Activities of Daily Living. After a 30-min interview, the geriatric medicine team was able to complete all instruments of the CGA and the results were used to categorize patients into three categories: robust, pre-frail, and frail. They found that the frail group had significantly more postoperative complications and longer hospital stays, and were significantly less likely to be discharged home. The authors conclude that the use of the CGA could be used as a criterion for whether esophagectomy is indicated, and that surgery should be carefully considered for patients in the frail group.

While this tool represents progress in efforts to employ personalized health care delivery, we challenge their notion that the CGA should be used alone to assess operative candidacy, and implore the authors to consider results of the CGA as a potential indication for prehabilitation (prehab). Prehab, with both multimodal and nutrition-based approaches, has been shown to be efficacious in abdominal cancer surgery, demonstrating decreases in postoperative complications.[2] There is emerging evidence to indicate that prehab is likely beneficial prior to esophagectomy, although no definitive relationship has been established.[3] One major limitation to the prehab literature is that studies specific to high-risk and older patients are largely lacking. The use of the CGA could be the tool that is used to best identify and describe this population. Additionally, Yamashita et al. noted that results from specific instruments of the CGA could be used to predict individual complications. For example, they noted that results from the Vitality Index were significantly associated with postoperative pneumonia.[1] This is a notable finding as this could be further used to tailor specific prehab regimens.

Furthermore, while the authors examine an important subgroup of patients with esophageal cancer, the idea of frailty should not just be limited to the elderly. Cancer, particularly esophageal cancer, often presents with malnutrition and sarcopenia as a result of the disease.[4] Sarcopenia has been traditionally documented as a phenomenon that occurs as a result of the aging process. However, we now know poor nutrition (and the resulting muscle wasting) contributes to sarcopenia; therefore, it can occur regardless of age.[5] Because sarcopenia is the loss of muscle mass, it can cause issues with physical function. It has also been documented that those with poor functional

status have worse postoperative outcomes, which further explains why sarcopenia has been shown to be an important component of a frailty workup.[5]

Emerging data describe food deserts as a risk factor for poor nutrition, resulting in worse postoperative outcomes in esophageal cancer.[6] In this study, the authors found that sarcopenia was not predictive of postoperative outcomes, but rather food desert status was a better predictor. The benefit of screening for food desert status is that it is quick and easy to screen for, as all that is needed is a home zip code. This contrasts with typical sarcopenia screening, which requires specific radiology imaging and subsequent specific measurements. As has been documented, not everyone in a food desert, and not everyone with signs of malnutrition, has a poor postoperative outcome. Therefore, it is likely these assessments need to be performed in conjunction with each other, and possibly those identified as living in a food desert should be flagged to have the CGA or a similar assessment performed, regardless of age. Future research should look to start combining assessments to better understand the utility of truly tailored risk assessments and cancer care.

While preoperative risk assessment is improving, it is still an imperfect science. We commend the authors in their quest to identify elderly patients at risk for esophageal complications, using their CGA. We encourage the allocation of more resources to this topic, given our current aging population, their impending need for complex medical care, and the multiple resources available to assess frailty that are unfortunately siloed in their current applications. In the future, it will be important to see how tailored preoperative risk assessment, and subsequent adapted perioperative care, impacts both short- and long-term outcomes. It will also be imperative to understand the benefit of tailored care on rates of morbidity and mortality, disease-free cases, and overall survival, along with patient and provider experiences. Finally, taking into consideration the substantial strain that the coronavirus disease 2019 (COVID-19) pandemic and current "tridemic" [COVID-19, influenza, and respiratory syncytial virus (RSV)] have had on the health care system, along with the threat of future expected epidemics, it is crucial that algorithms such as CGA are further developed to help our elderly patients receive the health care they need and deserve.

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