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Commentary: Patient frailty also drives long-term outcomes after R0 resection for lung cancer

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CENTRAL MESSAGE

The Eurolung risk model is a useful adjunct for counseling patients on long-term survival after lung cancer surgery, although it may represent the effects of poor health and frailty on outcomes.

The parsimonious Eurolung risk model was derived from the European Society of Thoracic Surgeons dataset to predict postoperative 30-day morbidity and mortality.[1] Brunelli and colleagues[2] have applied this same risk model to examine long-term outcomes of overall and disease-specific survival, finding the Eurolung score to be an independent predictor of both, even after adjusting for tumor size and nodal involvement. Although this score provides compelling information regarding early postoperative morbidity and mortality, and now overall and disease-specific survival, the model seems to be a surrogate for frailty, which can drive patients' long-term outcomes.

In this study, 1359 patients who underwent R0 anatomic resection for non–small cell lung cancer were examined and assigned a Eurolung score, which is a score based on 6 components: age, postoperative predicted forced expiratory volume in 1 second, body mass index, gender, open surgery (vs minimally invasive) and pneumonectomy (vs lesser resection). For analysis, the patients were categorized into 4 groups of ascending score, with a higher score/category representing higher risk. Examining these 6 components individually, one can easily see how each may correlate with frailty; the increase in age, the decrease postoperative predicted forced expiratory volume in 1 second, the decrease in body mass index, male gender, and the increased traumas of open surgery and pneumonectomy. One may expect that frailty would be associated with overall survival, but from this study, frailty was also found be associated with disease-specific survival, which has significant implications because frailty may be a marker of disease burden and frail patients are less likely to tolerate additional therapy after surgery. The literature supports the results found by Brunelli and colleagues[2]: many of the 6 components of the Eurolung score have also been shown by other investigators to be associated with long-term survival.[3-5]

Limitations of this study are few but worth mentioning. The follow-up is short, with median at just more than 2 years. Patient comorbidity is not accounted for, which has previously been shown to be an independent factor associated with long-term survival.[6] The parsimonious Eurolung risk model was adjusted from its original version, eliminating some of its comorbidity components and tailored to examine short-term outcomes; thus, it may be in need of recalibration to more accurately assess long-term outcomes.

Brunelli and colleagues[2] provide data to confirm what thoracic surgeons have known for some time, that outcomes—both short and long-term—are poor in frail patients. The study also has great potential to influence clinical practice. The Eurolung risk model can now shape the conversation that we have with our patients when counseling them on the options of therapy. Long-term outcomes are not only dependent on disease stage and treatment, but also on patient frailty. With the availability of nonsurgical treatments for early-stage lung cancer, such as stereotactic

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radiation and ablation procedures, the Eurolung risk model becomes an important tool to help us select the most appropriate therapy for our patients.

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Commentary: Eurolung score as a predictor of long-term survival: It is not all about the tumor

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CENTRAL MESSAGE

The Eurolung score may correlate with overall and disease-specific survival after curative resection of lung cancer. This may assist surgeons during shared decision making with patients.

Thoracic surgeons must care for an aging population with lung cancer, and lung resection in elderly patients has become relatively common.[1] With increased patient age comes increased comorbidities and frailty. It is intuitive that survival in elderly patients with lung cancer is not dependent on traditional TNM staging alone. Scores evaluating comorbid conditions and frailty have been shown to predict surgical mortality and also may correlate with long-term survival.[2-5] These studies illuminate the need for a thorough evaluation of candidates for lung resection that includes careful assessment of nononcologic measures that may determine survival independent of TNM cancer staging.

In their article in this issue of the *Journal*, Brunelli and colleagues[6] provide a retrospective review of a prospectively collected database evaluating the Eurolung risk score and patient survival after curative resection for lung cancer. Although the Eurolung score was developed to stratify the risk of postoperative 30-day morbidity and mortality in patients undergoing lung resection, the authors applied the model to investigate its association with long-term survival.[6] A total of 1359 consecutive patients who underwent potentially curative (R0) anatomic lung resection for non–small-cell lung cancer were analyzed, with a median follow-up of 802 days. Patients were categorized into 4 risk classes

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