Sometimes the “right” is wrong

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Central Message

Respiratory failure after pneumonectomy, especially right-sided or extrapleural, portends an extremely poor outcome. Preoperative and perioperative strategies to prevent reintubation are paramount.

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Pneumonectomy is one of the oldest thoracic procedures consistently reported in the literature,^{1,2} and it is one extremely technically challenging operation that we continue to improve on³ in terms of outcomes, survival, and quality. In this edition of *The Journal of Thoracic and Cardiovascular Surgery*, Blanc and colleagues⁴ perform an extensive and introspective review of a decade (2005-2015) of experience at their institution and investigate the impact of perioperative pulmonary insufficiency leading to invasive ventilation and the often profound implications for short and long-term survivals.

After an extensive review process, Blanc and colleagues⁴ provide substantive data that support many thoracic surgeons' anecdotal experience that postpneumonectomy pulmonary insufficiency leading to reintubation is a poor prognostic sign and that patients who undergo right-sided pneumonectomy fare worse, as do those who undergo extrapleural pneumonectomy and those with a greater degree of comorbid conditions. These data support the previous literature regarding worse outcomes after right-sided pneumonectomy^{5,6} and expand on those article to provide more granular detail regarding patient and perioperative factors that may be amenable to influence or at least identification before surgery.

Blanc and colleagues⁴ are to be commended for their clear definition of covariates, a consistent preoperative management strategy for patients undergoing pneumonectomy, and a standardized intraoperative management strategy for this population. What we find is that attention to patient-specific details and meticulous attention to surgical technique are of paramount importance.

Not surprisingly, we are shown that patients with a worse postoperative predicted pulmonary function, more aged patients, and those with more comorbidities (as measured by Charleston comorbidity index) fare worse. Preexisting cardiac disease is also found to be a negative prognosticator. What we are also able to infer is that perioperative

technique and meticulous attention to hemostasis and fluid management are vitally important. Those patients who have hemorrhage shock occur have a markedly worse outcome, and this could be the confounding variable for the correlation with the preexisting cardiac history or acute kidney injury. Concomitantly, the overwhelming correlation of sepsis and poor outcome is undoubtedly tied to minimization of contamination, surgical technique, and patient selection in this population of very sick, complicated, and highly risky operative candidates.

In the end, Blanc and colleagues⁴ have provided us with a very extensive and detailed analysis of patients who have early acute respiratory failure occur after pneumonectomy. From their analysis, we are able to identify areas for risk stratification preoperatively, intraoperatively, and postoperatively where opportunities for patient selection and surgical acumen may be focused to target improved outcomes. A right-sided pneumonectomy in the older, frailer patient should be considered with the highest degree of scrutiny.

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