cure and be accomplished with acceptable risk to those patients unable to quit.

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Commentary: Do we need to search for a patient's cigarettes or just count his or her wrinkles when counseling for lung cancer resection?

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Smoking increases your risk of problems during and after your operation. Quit smoking 4-6 weeks before your operation. That is a morsel of strong advice among many provided in the surgical patient education program published by the American College of Surgeons to prepare for the best recovery after surgery.¹

Smoking cessation remains an important facet of the management of patients with lung cancer requiring pulmonary resection. However, the influence of short-term

Smoking lounge: Last stop for a cigarette on the way to have my lung cancer resected?

CENTRAL MESSAGE

Never too late to quit. Smoking cessation remains important in the management of lung cancer patients requiring pulmonary resection, but discussion on best timing continues.

smoking cessation on surgical outcome remains unclear. To shed some light on this, authors from a quality collaborative in the State of Michigan report the results of a voluntary statewide review. In a cohort of 2267 patients undergoing lobectomy for lung cancer at 14 Michigan hospitals, postoperative 30-day mortality was 1.5%, and major morbidity was 9.6%. Smoking status at the time of surgery was not associated with poor outcome ($P = .56$), although tobacco load in pack-years ($P = .03$) was a significant independent predictor of mortality and morbidity along with male sex ($P = .04$), body mass index ($P < .001$), Zubrod score ($P = .02$), and open thoracotomy approach ($P < .001$). Higher American Society of Anesthesiologists class and advanced tumor stage were marginally associated with worse combined outcome ($P = .06$). Generated plots

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demonstrated a relatively linear relationship between pack-year and predicted outcome. For every 10 pack-year increase, there was 6% increase in the odds of worse composite outcomes (hazard ratio, 1.06; 95% confidence interval, 1.01-1.11).²

The conclusion that active smoking status did not lead to increased risk in the current study should be interpreted with caution. Two comments are important to discuss. Firstly, as addressed by the authors amongst other study limitations, smoking status was self-reported by patients. This may have led to underestimation in quantity and duration of former smoking. Moreover, some patients may well have been active tobacco users at the time of surgery unable to quit in the weeks before. They may not have admitted active smoking being afraid their chance for a curative cancer operation could be refused. These self-reported data could diminish any differences seen between groups. On the other hand, refusing to operate on a patient unable to quit cannot be supported by these data. Patients can still benefit from surgery with curative intent and limiting them to nonsurgical therapy may not be warranted.

Secondly, pulmonary function testing revealed that mean preoperative forced expiratory volume at 1 second was relatively high in this study (85.3% $\pm$ 19.6% predicted). This may explain why forced expiratory volume at 1 second surprisingly was not significantly associated with worse composite mortality and morbidity rate. Moreover, diffusion capacity for carbon monoxide (DLCO) was not included as a variable because too many patients were missing data. It is well known that postoperative risk after lobectomy is strongly correlated with DLCO.^{3,4} Cigarette smoking has an acute effect on DLCO,⁵ whereas a rapid improvement in DLCO is seen after smoking cessation.⁶

In a recent Japanese study of 666 patients, of whom 256 (38.4%) were never smokers and 410 (61.6%) were smokers, significant differences were found between the smokers and never smokers regarding 90-day mortality rate (2.0% vs 0%; $P = .025$) and respiratory complications (22.3% vs 3.5%; $P < .001$). In comparison with never smokers, the odd ratios for pulmonary complications at each cessation interval (current smoker/cessation for <1 month, 1-3 months, 3-6 months, 6-12 months, and >12 months) were 12.9 ($P < .001$), 10.3 ($P < .001$), 8.5 ($P < .001$), 6.3 ($P = .011$), 6.0 ($P = .003$), and 5.0 ($P < .001$), respectively. The authors concluded that smoking cessation at any time is valuable for lung cancer surgery and a longer tobacco-free period might be more effective for reducing the risk of pulmonary

complications.⁷ On the other hand, a longer interval between diagnosis and lobectomy has previously been reported to be associated with lesser postoperative outcome and long-term survival.^{8,9} Still, lung cancer patients should be educated before surgery. A nonrandomized trial on smoking cessation (ie, Murray project <https://clinicaltrials.gov/ct2/show/NCT04190966>) is currently ongoing in the United Kingdom in patients undergoing major elective thoracic surgery comparing the effectiveness of intervention integrated into the surgical pathway with usual care of standard smoking support.¹⁰

This study comes from a statewide quality collaborative consortium on general thoracic surgery providing constructive feedback for participating institutions and surgeons. We should be grateful to the Michigan Society of Thoracic and Cardiovascular Surgeons for their efforts toward improved outcomes for lung cancer patients statewide. Their quality collaborative examining insightful regional data with the help of the Society of Thoracic Surgeons General Thoracic Surgery Database with the goal of decreasing variation associated with lobectomies and improving perioperative patient care serves as an example for other states.

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