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Commentary: Is segmentectomy ready to be accepted as the standard of care?

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CENTRAL MESSAGE

Even though the results of 2 ongoing trials are expected, it is still too early to consider segmentectomy as the standard of care for early stage lung cancers.

Lung cancers are increasingly detected at earlier stages with computed tomographic screening, especially those lesions containing ground glass opacities. In the article in this issue of the *Journal* by Ito and colleagues[1] for the Japan Clinical Oncology Group (JCOG), excellent survival and few recurrences were found for lung cancers containing ground glass opacities. It is thus reasonable to think of limited resections as an alternative to lobectomy for such small, indolent lesions.

Two things need to be verified before sublobar resections can be accepted as standard of care. The first is their oncologic noninferiority to lobectomy. The JCOG 0201 study heralded a series of beautifully designed imaging-guided trials focusing on sublobar resections, including JCOG 0804 (big wedge resection for tumors of size $\leq$2 cm and consolidation/tumor ratio [CTR] $\leq$0.25),[2] JCOG 1211 (segmentectomy for tumors of size $\leq$3 cm and CTR $\leq$0.5),[3] and JCOG 0802 (segmentectomy vs lobectomy for tumors of size $\leq$2 cm and CTR >0.5).[4] It is well known, however, that solid components on computed tomographic scans do not always correspond to invasive histologic type. Furthermore, many lesions containing ground glass opacities are heterogeneous in density or have multifocal solid components, making accurate measurement difficult. It would be interesting to see how the JCOG 0802 results coincide with the CALGB 140503 study,[5] which also compares segmentectomy versus lobectomy but is based on total tumor size only.

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Moreover, combination of total tumor size and CTR in the JCOG trials is not in accordance with the T descriptor in the current TNM staging.[6] According to the JCOG 0802 criteria, segmentectomy may be indicated for a tumor of 2 cm and a CTR of 0.6 (solid component size 1.2 cm) but not for a tumor of 2.5 cm and a similar CTR (solid component size 1.5 cm), although both would be staged as cT1b. For tumors of size 2 cm or less and CTR of 0.25 or less in the JCOG 0804 trial, it is doubtful whether surgery is indeed necessary, because current guidelines recommend against it in partially solid nodules with a solid component smaller than 0.5 cm.[7] Benefit of surgery in such small indolent, lesions should be carefully balanced with potential competing risks. As is reported in the JCOG article of Ito and colleagues,[1] all three deaths in group A were not cancer related; however, risk analysis for survival was adjusted only by age and sex, not by other potential factors, such as comorbidity or cardiopulmonary function.

The second question concerns the actual benefits of segmentectomy over lobectomy. In JCOG 0802,[8] 22 segmentectomies were converted to lobectomy because of intraoperative bleeding. Air leak rate was significantly higher after segmentectomy than after lobectomy. Similarly, 11 sublobar resections were converted to lobectomy in CALGB 140503.[9] In addition, segmentectomy showed no superiority relative lobectomy in postoperative morbidity. Although segmentectomy may help preserve more pulmonary function in general by removing less lung parenchyma, decrease in spirometry index after surgery is reported to be doubled when calculated per segment resected.[10]

It is thus far too early to define segmentectomy as the standard of care before we really know how segmentectomy would actually benefit which subsets of patients.

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