that has been overlooked in previous meta-analyses that compared 'sublobar resections' with lobectomy procedures [2, 3]. We concur with the authors that the current literature lacks robust high-level evidence on this topic and a meta-analysis of observational studies may provide insightful guidance for clinicians.

Results of this study found that patients who underwent segmentectomy for Stage I, IA and IA (2–3 cm) NSCLC were associated with inferior combined overall survival (OS) and cancer-specific survival (CSS) outcomes compared with those who underwent lobectomy. However, patients with Stage IA (≤2 cm) NSCLC had no statistically significant difference in survival compared with lobectomy. It is imperative to analyse these results in detail to avoid misleading conclusions. In two of the four analysed subgroups, Stage IA and Stage IA (2–3 cm), OS outcomes were significantly worse after segmentectomy, but CSS was not significant. The combined OS/CSS were significant in both subgroups, and the authors concluded that patients who underwent segmentectomy in these cohorts resulted in inferior outcomes. However, it must be emphasized that patient baseline characteristics between these two treatment groups differed significantly, and patients were often selected for segmentectomies due to significant comorbidities and limited pulmonary reserve prohibiting them from lobectomy procedures [4, 5]. In such cases, differences in OS may be misleading compared with CSS, as patients died due to causes unrelated to NSCLC and the oncologic efficacy of their surgical procedures. Hence, worse OS outcomes in the segmentectomy group may be a reflection of their patient characteristics rather than their operative outcome. Similarly, a combined statistic of OS and CSS may overestimate the adverse survival outcomes of segmentectomy procedures.

To address the issue of differing patient baseline characteristics, Tsutani et al. [6] recently published a propensity-score analysis involving 481 patients with clinical Stage IA adenocarcinoma who were subsequently matched into 81 pairs according to clinicopathological factors. Results of this matched study demonstrated no differences in regard to OS and recurrence-free survival at 3 years. In our opinion, it is no longer controversial to perform sublobar resections for patients with NSCLC who are deemed ineligible for lobectomy procedures due to comorbidities or limited pulmonary function. The area of interest lies with the cohort of patients who can tolerate either a segmentectomy or a lobectomy procedure. For this growing patient population who are diagnosed with early stage NSCLC through more aggressive screening programmes, oncological efficacy needs to be balanced with pulmonary preservation and potentially reduced perioperative complications associated with segmentectomy. Future analyses should aim to differentiate data from studies that included 'compromised' patients who underwent sublobar resections as a result of their inability to undergo lobectomy, or ‘intentional’ patients who could have tolerated either procedure.

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REFERENCES


LETTER TO THE EDITOR RESPONSE

Reply to Cao et al.

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We thank Cao et al. [1] for their insightful comments on our manuscript recently published in the European Journal of Cardio-Thoracic Surgery [2]. Cao et al. addressed, in their letter to the editor, two important and controversial aspects of segmentectomy comparing with lobectomy for early stage non-small-cell lung cancer (NSCLC), which we would like to discuss in detail. The first issue emphasized by Cao et al. was the rationality of using combined overall survival (OS) and cancer-specific survival (CSS) outcomes to compare the two different surgical procedures. Our study aimed at assessing the survival difference between segmentectomy and lobectomy. We must admit that combining OS and CSS does have some shortcomings such as it may...
overestimate the adverse survival outcomes of segmentectomy procedures just as Cao et al. pointed out. However, the data we based our study on were divergent, with few providing CSS, whereas most of the published studies use OS to assess the two procedures. The overestimation exists in each published study which selected the patients with limited cardiopulmonary function as candidates for segmentectomy; it is inevitable for us to avoid such overestimation. Besides, a previously published paper also used combined OS and CSS to assess oncological outcomes [3]. It is insufficient to conduct meta-analysis for the comparison of segmentectomy and lobectomy exclusively based on either OS or CSS data and it would be possible in future to conduct such a meta-analysis with subgroups of OS and CSS as new suitable data are published.

The other issue proposed by Cao et al. is to differentiate the intentional segmentectomy from the compromised one; recently, several studies also excluded compromised segmentectomy and aimed to compare intentional segmentectomy with lobectomy [4, 5]. Some studies, such as Tsutani et al. [6], reported the use of propensity score analysis. We agree with Cao et al. that these studies would be the future direction. However, as the data are insufficient, it is still meaningful to estimate the oncological effects of segmentectomy including both compromised and intentional procedures. We are also undertaking a prospective study aimed at selecting the optimal candidates for intentional segmentectomy. The issue that segmentectomy, especially the intentional one, or lobectomy, which is suitable for early stage NSCLC, would be long-existing until the future randomized controlled trials such as CALGB 140503 and JCOG 0802. We are grateful to Cao et al. [1] for their kind and insightful comments, and we thank them for taking the time to remark on our work.

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REFERENCES