To the Editor:

We read the study by Kawamoto and colleagues with great interest. In this study, they aimed to determine the association between the distance from the mediastinum to the tumor and the frequency of occult mediastinal nodal metastasis (OMNM) in patients with clinical stage I lower-lobe non–small cell lung cancer (NSCLC). They found 17 patients with OMNM (8.5%) in a total of 200 patients with NSCLC. Furthermore, on the basis of multivariable analysis, their results revealed that the inner margin ratio was the only independent preoperative predictor of OMNM. Then, they concluded that the tumor distance from the mediastinum was the most important preoperative predictor of OMNM in patients with lower-lobe NSCLC. Despite these definitive results, we mention that a great statistical factor may have been ignored that could greatly influence the results of the predictor in this study.

Two conclusions were based on the results in Table 3 and supplemental data in the study of Kawamoto and colleagues. The first is that “inner-type tumors were the only independent preoperative predictors of OMNM” (based on Table 3); the other conclusion is that histologic subtype was the only independent preoperative predictor for lung adenocarcinoma cases (based on Table E3). However, there are 11 variables in these multivariable logistic regression analysis models, whereas the outcome (OMNM) patients numbered only 17 cases. Most importantly, this statistical method breaks the basic statistical rule of 1 variable per 10 outcome events in univariate and multivariate analyses. In other words, analyzing 11 variables demands 110 outcomes (OMNM) in this multivariable logistic regression analysis. Therefore, only 17 patients with OMNM could not reach the statistical significance, resulting in the overfitted logistic regression analysis. As a result, the finding or conclusion in this study may not be accurate, and we should be cautious of the conclusion “inner-type tumors were the only independent preoperative predictors of OMNM and histological subtype was the only independent preoperative predictor for lung adenocarcinoma cases.”

In addition, to reduce the sample sizes of variables before the multivariable logistic regression analysis in this study, the Fisher exact test could be used to calculate the significant categorical variables between the OMNM group and non-OMNM group, find the significant variables, and then use these reduced variables for the following univariate or multivariate logistic regression analysis, which could obtain more accurate statistical results. Finally, despite these comments, we show great gratitude to outstanding work of Kawamoto and colleagues.

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Conflict of Interest Statement

The author reported no conflicts of interest.

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References


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