Lung resection is a standard therapeutic option for early-stage non-small cell lung cancer (NSCLC) and it is widely performed in developed and developing countries (1). Despite recent progress of imaging technology and surgical devices, postoperative outcomes have not been changed for decades (2,3). For improving postoperative outcomes, appropriate markers that have potential to stratify risk of postoperative outcomes are necessary in preoperative management.

Postoperative outcomes consist of postoperative complications and long-term survival outcomes. Given long-term survival, despite prognostic factors for tumor histologic, molecular, and genomic features have been reported, what reflect the general condition is still poorly understood. The significance of these factors regarded to general condition is going to increase as high aged population increases. Thus, it is demanded to identify preoperative clinical factors that reflect general condition and better predict postoperative complications (4,5) as well as long-term survival (6,7). On the other hand, usefulness of conventional risk factors related to general condition such as age and performance status is limited in perioperative management as it is impossible to improve these factors with any therapeutic options.

Sarcopenia is defined as the physical component of syndromes characterized by significant loss of skeletal muscle mass and function that is related to aging and poor-nutrition status which is associated with high risk of physical disability, poor quality of life, and death (8). Lots of publications demonstrated their association to postoperative survival outcome in various pathologies including cardiovascular (9,10), chronic renal failure (11), and sepsis (12). In addition, its clinical significance in predicting survival outcomes of solid malignancies has been well documented (13-16). However, the clinical significance of sarcopenia in patients undergoing lung resection has not been well understood. Especially, prognostic significance of sarcopenia in thoracic surgery for NSCLC is controversial.

On the backgrounds, a systematic review by Nishimura et al. demonstrated the clinically useful findings that CT-assessed measurement of skeletal muscle mass is a significant predictor for postoperative complications (odds ratio 2.51; 95% CI: 1.55–4.08, P<0.001) and worse long-term survival (hazard ratio 2.31; 95% CI: 1.26–4.24, P=0.007) (17). The methodology of the study is appropriate and quite sophisticated using abundant literature systematically searched so that the findings seem to be robust. Whereas, it is still unknown whether sarcopenia is a cause of the unfavorable outcomes in patients undergoing lung resection for NSCLC. Moreover, it should be resolved if the CT-assessed skeletal muscle mass is an optimal marker of sarcopenia.

In considering future routine use of preoperative CT-assessed skeletal muscle mass, the optimal cut-off value...
is another point. Of note, the prevalence of sarcopenia is 42.8% in average (range: 22.4–55.8%) among the 1,010 patients in the study objectives (17). Since the prevalence seems quite high, it may be more demanding to improve the sarcopenic condition in patients before treatment. Some clinical trials demonstrated that physical exercise and nutrition intervention including supplementation of proteins, essential amino acids, and β-hydroxy-β-methylbutyrate, have positive impact on muscle mass and function (18). Although the influence of the surgical outcomes especially in patients with solid malignancies, the findings may be a fundamental data of the future clinical trial in patients undergoing lung resection for NSCLC.

In summary, the paper of Nishimura clearly demonstrated that CT-assessed skeletal muscle mass is significantly associated with higher risk of postoperative complications as well as long-term survival outcomes among the patients undergoing lung resection for NSCLC. It is a simple and cost-effective method to evaluate sarcopenic condition because chest and abdominal CT is widely available in the population. It may be required to investigate optimal cut-off value to appropriately reflect sarcopenia in CT-assessed skeletal muscle mass. In addition, therapeutic options should be clinically useful to improve outcomes of the sarcopenic patients as the prevalence of sarcopenia is not low. Better risk stratification of postoperative complication and survival may improve our clinical practice and impact on medical economy in the near future.

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**Footnote**

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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