



It is time to consider incorporating sarcopenia assessment in the surgical management of non-small-cell lung cancer

Han-Yu Deng¹ · Rui Jiang¹

Received: 14 April 2019 / Accepted: 20 May 2019 / Published online: 27 May 2019
© The Japanese Association for Thoracic Surgery 2019

Keywords Sarcopenia · Non-small-cell lung cancer · Surgery

Dear editor,

With interest, we read the article by Kawaguchi et al. [1] entitled “Sarcopenia predicts poor postoperative outcome in elderly patients with lung cancer”, which has recently been published in the *General Thoracic and Cardiovascular Surgery*. In this study, Kawaguchi et al. [1] investigated the impact of sarcopenia on both short-term and long-term outcomes of elderly patients with surgically treated non-small-cell lung cancer (NSCLC). They measured the cross-sectional area of the psoas muscle at the third lumbar vertebral level on computed tomography scans for each patient and normalized it for height. Based on the postoperative complications, they defined sarcopenia as a psoas muscle mass index $< 3.7 \text{ cm}^2/\text{m}^2$ for men and $< 2.5 \text{ cm}^2/\text{m}^2$ for women and they finally included a total of 173 patients over 75 years who underwent surgery for NSCLC (32 sarcopenic patients and 141 non-sarcopenic patients). They found that sarcopenic patients yielded a significantly higher rate of postoperative complications than non-sarcopenic patients (22.7% vs 62.5%; $P < 0.001$). Moreover, sarcopenic patients were found to yield a significantly lower 5-year survival rate than non-sarcopenic patients (26.5% vs 66.3%; $P < 0.001$) and sarcopenia was found to be an independent unfavorable prognostic factor of overall survival (OS) in elderly patients with surgically treated NSCLC ($P < 0.001$) [1].

Actually, sarcopenia had significantly unfavorable impact not only on elderly patients with surgically treated NSCLC,

but also on the entire population of NSCLC patients treated with surgery. The previous literatures also showed that sarcopenia was correlated with a significantly increased risk of postoperative complications in the entire population of patients with surgically treated NSCLC [2] and sarcopenia was also found to be significantly associated with 30-day mortality and length of in-hospital stay of these patients [3]. For long-term survival, in our recent meta-analysis [4], we also found that sarcopenic patients had a significantly lower 5-year survival rate than non-sarcopenic patients (61.1% vs 74.2%, $P = 0.008$), and sarcopenia was also found to be an independent predictor of poor OS in NSCLC patients after surgery [hazard ratio (HR) 2.85, 95% confidence interval (CI): 1.67–4.86; $P < 0.001$]. Moreover, we also found that in the patients with stage I NSCLC, sarcopenia was associated with a significantly lower 5-year disease-free survival rate (risk ratio = 1.59; 95% CI 1.01–2.52; $P = 0.046$) [4]. Taken together, we believe that sarcopenia could serve as a predictor of poor postoperative outcomes as well as long-term prognosis of patients with surgically treated NSCLC [5]. As a result, sarcopenia should remain to be an unneglectable nutritional parameter during the surgical management of NSCLC [6] and routine assessment of sarcopenia should be emphasized not only in the preoperative evaluation for surgical risk, but also in the postoperative follow-up. Therefore, it is time to consider incorporating sarcopenia assessment in surgical management of NSCLC. Once recognized, patients with sarcopenia should be carefully managed with physical exercise and nutritional rehabilitation for possible correction of sarcopenic status.

This commentary refers to the article <https://doi.org/10.1007/s11748-019-01125-3>.

✉ Han-Yu Deng
hanyudeng@stu.scu.edu.cn

¹ Lung Cancer Center, West China Hospital, Sichuan University, No. 37 Guoxue Alley, Chengdu 610041, China

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Kawaguchi Y, Hanaoka J, Ohshio Y, Okamoto K, Kaku R, Hayashi K, et al. Sarcopenia predicts poor postoperative outcome in elderly patients with lung cancer. *Gen Thorac Cardiovasc Surg*. 2019;5:5. <https://doi.org/10.1007/s11748-019-01125-3>.
2. Nakamura R, Inage Y, Tobita R, Yoneyama S, Numata T, Ota K, et al. Sarcopenia in resected NSCLC: effect on postoperative outcomes. *J Thorac Oncol*. 2018;13(7):895–903.
3. Miller JA, Harris K, Roche C, Dhillon S, Battoo A, Demmy T, et al. Sarcopenia is a predictor of outcomes after lobectomy. *J Thorac Dis*. 2018;10(1):432–40.
4. Deng HY, Hou L, Zha P, Huang KL, Peng L. Sarcopenia is an independent unfavorable prognostic factor of non-small cell lung cancer after surgical resection: a comprehensive systematic review and meta-analysis. *Eur J Surg Oncol*. 2019;45(5):728–35.
5. Deng HY, Zha P, Hou L, Huang KL. Does sarcopenia have any impact on survival of patients with surgically treated non-small-cell lung cancer? *Interact Cardiovasc Thorac Surg*. 2019;5:5. <https://doi.org/10.1093/icvts/ivz039>.
6. Deng HY, Zha P, Zhou Q. Sarcopenia: an unneglectable nutritional status for patients with surgically treated non-small-cell lung cancer. *Eur J Cardiothorac Surg*. 2018;5:5. <https://doi.org/10.1093/ejcts/ezy435>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.