

# Review of: "Sarcopenia is associated with poor prognosis after chemoradiotherapy in patients with stage III non-small-cell lung cancer: a retrospective analysis"

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**Potential competing interests:** The author(s) declared that no potential competing interests exist.

## Comments:

This is a small sample study conducted in a single hospital in Japan which retrospectively explored the association between sarcopenia and prognosis after chemoradiotherapy in patients with stage III nonsmallcell lung cancer (NSCLC). It obtained computed tomography (CT) images of the third lumbar vertebra for each area to calculate the skeletal mass muscle index (SMI). The principal finding was that among patients with stage III NSCLC undergoing chemoradiotherapy (CCRT), low SMI was correlated with their poor prognosis. Despite significant limitations in the study design which suggest it fail to assess the muscle strength, an age-related variate, which has been considered as a section of sarcopenia and defined recommendation of its cutoff value (Age and Ageing, doi: 10.1093/ageing/afy169), it should take caution to extend this study to clinic use.

There remain some concerns with this study which include the following:

1. As the European Working Group on Sarcopenia in Older People (EWGSOP) mentioned that muscle mass peak in young adulthood, and after a plateau, start decreasing gradually with a faster decline (The Lancet, <http://dx.doi.org/10.1016/>). Studies have been also confirmed that 65-85 years old patients tended to have low muscle mass (BMC Geriatrics, doi: 10.1186/s12877-016-0349-4). So, it is reasonable to speculated the potential interaction effect between age and muscle mass. The median age of this study was 66 years old, range 35 to 87, 53.3% of the cases are older than 66, but the univariate cox analysis demonstrated that the age variate ( $\geq 66$  vs  $< 66$ ) had no significant effect on prognosis of OS for those stage III NSCLC. it would be more convinced if authors could provide the interactive analysis between age and SMI.
2. Although the EWGSOP updated in 2019 (EWGSOP2) have referred that the magnetic resonance imaging (MRI) and computed tomography (CT) are considered to be gold standards for non-invasive assessment of muscle quantity/mass in research study, and recommended cut-off points for different parameters to increase harmonization of sarcopenia studies (Age and Ageing, doi: 10.1093/ageing/afy169), but it failed to defined the cutoff of muscle mass assessment by using CT. The cutoff value for SMI in this study was calculated based to individual time-dependent receiver operating curves, which is adopted in many common studies, but this study failed to provide the AUC area and Youden index. Moreover, it would be more integrated and clinical useful if authors established a prognostic model for OS according to variates

identified by the multivariate cox analysis and verified this model in another study cohort.

3. Authors mainly referred the 1-, 3-, 5-year survival rates, it would be more clearly understood for readers if the X-axis in Figure 2 and Figure 3 were brokened by a year or 12-month.

4. Overall speaking, it is novel and interesting to evaluated the SMI by means of CT and develop its potential clinic value in prognosis for patients with stage III NSCLC receiving CCRT, but failing to address these issues suggest that authors might overstate their findings and limit this results extension in clinic.