Commentary

Commentary to: Pectoralis Muscle Area Measured at T4 Level is Closely Associated With Adverse COVID-19 Outcomes in Hospitalized Patients

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To the editor:

We read with interest Tekin et al.'s[1] report about a single centre, retrospective cross-sectional study on the prognostic effectiveness of axial CT skeletal muscle area (SMA) of the pectoralis major and erector spinae muscles at T4 level on clinical outcome parameters such as ICU stay, length of hospitalisation, and mortality in hospitalised COVID-19 patients. Of the 167 patients included, 140 survived and 27 died, SMA of pectoralis and back muscles was lower in patients admitted to the ICU and those who died[1]. SMA <2800 mm^2 has been found to predict ICU admission and mortality[1]. It was concluded that reduced pectoralis SMA is associated with poor outcome and ICU admission[1]. Some points require discussion.

The major limitation of the study is its retrospective design. A retrospective design has the disadvantages of not allowing control over the accuracy of the data stored, not systematically applying the same examinations to all included patients, producing missing data, not allowing complement data, and not being suitable for generating desirable new data. Importantly, the axial plane at which the CT scan was performed was not standardised. Although T4 was chosen as the reference for the retrospective analysis, each measurement may have been performed at a slightly different axial plane. This can lead to different cross-sectional areas of the pectoris muscles and therefore different results in SMA.

A second limitation is that the group of deceased patients was significantly older compared to survivors (60.8 vs 73,4 years)[1]. Because sarcopenia is a feature of senescence[2], differences in muscle SMA could simply be due to the age difference. Compared to younger patients, older patients are also more likely to have comorbidities that could contribute to limited mobility. Older patients may also have different dietary habits as compared to younger patients, which can also affect muscle mass.

The third limitation is that decedents more likely had ICU admission. Patients in the ICU are at risk of developing critically ill myopathy, usually complicated by muscle wasting. Therefore, it is imperative to know how many of the deceased patients had critically ill myopathy, which could explain the reduced pectoralis and back muscle SMAs. In addition, patients in the ICU are more likely to be immobilised due to sedation, muscle relaxation, and mechanical ventilation than non-ICU patients. The level of in-hospital mobility of non-ICU patients is usually higher (continuous exercise can prevent muscle wasting) than ICU patients who cannot exercise their muscles on their own).

A fourth limitation is that the preclinical physical status of the enrolled patients was not included in the assessment[1]. We should know how many exercised regularly, how many had normal lives, how many were disabled, and how many were already immobilised before the SARS-CoV-2 infection.

Until the cohorts of interest are homogenised and matched for age, gender, previous physical condition, comorbidities, regularly taken medications, and dietary habits, it cannot be concluded that reduced pectoralis SMA in COVID-19 patients predicts ICU admission and mortality.

References

1. Tekin ZN, Dogruoz Karatekin B, Dogan MB, Bilgi Z. Pectoralis muscle area measured at T4 level is closely associated with adverse COVID-19 outcomes in hospitalized patients. J Musculoskelet Neuronal Interact 2023;23(2):196-204.
2. Ye L, Liang R, Liu X, Li J, Yue J, Zhang X. Frailty and sarcopenia: A bibliometric analysis of their association and potential targets for intervention. Ageing Res Rev 2023;92:102111.