

Comment on: Vertebral Fractures Increase the Long-Term Mortality of Patients with Coronavirus Disease 2019

LETTER TO THE EDITOR
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To the Editor,

We read with great interest a published article in The Journal of Endocrinology Research and Practice 2024 entitled Vertebral Fractures Increase the Long-Term Mortality of Patients with Coronavirus Disease 2019 (COVID-19).¹ This article addresses an intriguing topic regarding the association between vertebral fractures and COVID-19 mortality, concluding that vertebral fractures are significant predictors of mortality in patients with COVID-19.

However, the statistical analysis in this research needed to sufficiently address age, which is a crucial factor in COVID-19 mortality. The lack of age adjustment may lead to a misinterpretation of the relationship between vertebral fractures and COVID-19 mortality, potentially overestimating the impact of fractures on mortality risk.

Age is well-established among the most significant variables influencing COVID-19 mortality. Therefore, recent studies investigating the causes predicting mortality in COVID-19 adjust the age factor between groups using statistical methods such as propensity score matching.² Age is also one of the most critical determinants for vertebral fractures.

In the study, the mean age of the fracture group was 55.3, while it was 43.4 in the non-fracture group. To prevent confounding interactions and identify the independent effects of fracture, adjustments were made for diabetes mellitus, hypertension, cardiovascular disease, renal disease, and malignancy using Cox regression analysis. However, no adjustment was made for age despite the significant age difference between the groups.

The association between COVID-19 mortality and vertebral fractures has also been previously studied. As in this current study, there is a concern that the findings may reflect age-related confounding rather than an independent effect of vertebral fractures. Similarly, di Filippo's earlier study reported comparable results without age adjustment.³ We have previously noted in that this publication's lack of age adjustment did not allow for an accurate assessment.⁴ In the study by Battisti, cited in the current paper's discussion, age-adjusted analysis showed no association between vertebral fractures and increased COVID-19 mortality.⁵

Additional analyses would have been more informative in clarifying this issue. However, it is difficult to argue that vertebral fractures independently increase COVID-19 mortality in this situation, as this likely attributable to the older age of individuals with fractures. Assessing COVID-19 mortality risk using age-adjusted vertebral fracture data would provide a more accurate and reliable analysis.

Availability of Data and Materials: The data mentioned on this study are openly available.


Peer-review: Externally peer-reviewed.

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