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COVID-19 Infection, Vaccination, and Severe Coronary Artery Disease: Comment

LETTER TO THE EDITOR

To the Editor,

The publication on "COVID-19 Infection, Vaccination, and Severe Coronary Artery Disease in Türkiye: A Retrospective Analysis"[1] is an interesting report. This study, which looked at the effects of COVID-19 vaccinations and COVID-19 infection on coronary artery disease (CAD) in Turkish patients, is noteworthy because it is the first time this topic has been thoroughly investigated. However, there are significant flaws in the statistical methodologies and study design that may jeopardize the reliability and interpretation of the findings.

One of the main limitations is the use of weak statistics to analyze the relationship between variables, such as using only *P*-values to decide whether there is an association between variables like the number of vaccines received and the development of CAD, or the time after COVID-19 infection, without using sophisticated analyses or adjusting for possible factors that may affect the results, such as health factors that may influence the development of CAD, such as age. Failure to address these aspects may result in incomplete results.

Furthermore, the use of a large sample size (1935 persons) is an advantage of this study; nevertheless, in some circumstances, the selection of patients who underwent angiography may limit the results in representing general demographic features. The sample's selection from people who underwent angiography may create alternative biases, preventing the results from being extrapolated to unexamined or low-risk populations.

This study did not take into account factors that may influence the long-term development of CAD, such as the duration of COVID-19 infection or the timing of vaccination, which may change the body's reaction and risk of developing CAD. Furthermore, utilizing data from only patients enrolled between November 2021 and November 2022 may not accurately reflect the long-term effects of illness or immunization.

In future investigations, more complex methods, such as multivariate analysis or controlling for factors that may influence CAD development, should be utilized to ensure the accuracy and precision of the results. Furthermore, increasing the sample size to include a broader range of risk groups and investigating the long-term effects of COVID-19 vaccines and infection will enable a more comprehensive assessment of the impact on cardiovascular disease and provide useful information for future medical policy development.

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REFERENCE

1. Çetinkaya E, Taş A. COVID-19 infection, vaccination, and severe coronary artery disease in Turkiye: a retrospective analysis. *Anatol J Cardiol*. 2025. [CrossRef] [online ahead of print].

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Hinpetch Daungsupawong[1]
Viroj Wiwanitkit[2]

[1]*Private Academic Consultant, Phon-Hong, Lao People's Democratic Republic*
[2]*Department of Research Analytics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India*

Corresponding author:
Hinpetch Daungsupawong
✉ hinpetchdaung@gmail.com

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