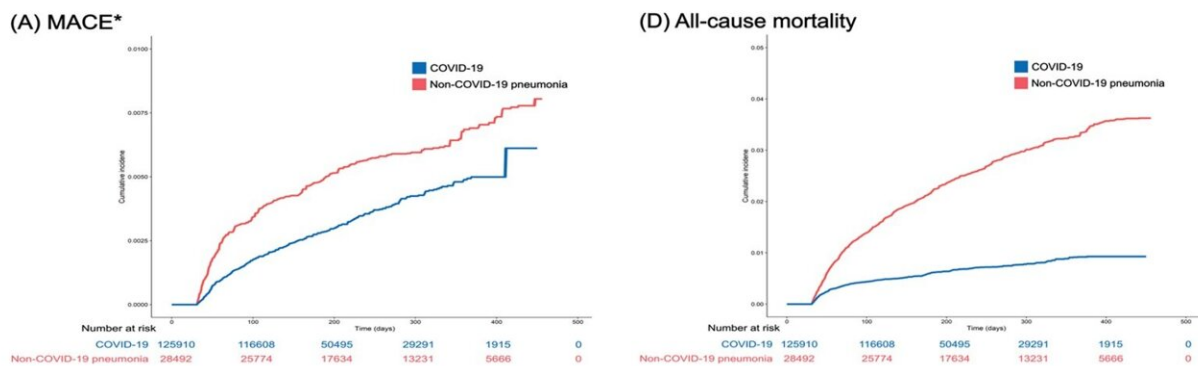


Study looks at cardiovascular risks in COVID-19 survivors

January 11 2024



Researchers analyze primary and secondary cardiovascular outcomes in 132,784 inpatients with COVID-19 (October 8, 2020 to September 30, 2021) and 31,173 inpatients with non-COVID-19 pneumonia (January 1, 2019 to December 31, 2019) in Korea. The results indicate a lower risk of cardiovascular disease in COVID-19 patients. Credit: Won-Young Kim, Chung-Ang University

The emergence of COVID-19 pandemic caused as a result of severe acute respiratory syndrome-coronavirus marked a global health crisis with over 770 million cases of infection and 6 million deaths by September 6, 2023. Around 6.2% of the recovered individuals, however, face lingering symptoms such as fatigue or respiratory problems.

Although interstitial pneumonitis and severe acute respiratory distress syndrome are the main effects of COVID-19 on the lungs, the virus also

affects other organs, especially the [cardiovascular system](#). Despite this, previous studies assessing cardiovascular outcomes in post-acute COVID-19 patients were limited by insufficiently adjusting for preexisting cardiovascular conditions among hospitalized individuals.

To overcome this limitation, a team of scientists led by Dr. Won-Young Kim, along with Professor Sun-Young Jung from Chung-Ang University, Korea, conducted a nationwide population-based cohort study. They aimed to explore the risk of cardiovascular outcomes among individuals who survived acute COVID-19 hospitalization without preexisting cardiovascular conditions. The results of their study were [published in *BMC Medicine*](#).

The researchers used hospitalized patients with non-COVID-19 pneumonia as a historical comparison control group.

Dr. Kim explains the rationale for this [study design](#) further: "Previous studies that assessed the risk of cardiovascular outcomes after COVID-19 selected general hospital admission as controls, neglecting the potential cardiovascular risks following non-COVID-19 pneumonia hospitalization. In addition, the demographic composition of previous studies (based on mostly White and older male populations) may limit the generalizability of the results."

The study utilized the Korean National Health Insurance Service database, encompassing nearly 97% of Korea's population. The database offered comprehensive details on demographics, diagnoses, treatments, and outcomes linked to confirmed cases and vaccination information.

The research focused on two groups—the first comprised 132,784 adults hospitalized for COVID-19 between October 2020 and September 2021, while the second consisted of a historical control group of 31,173 adults hospitalized for non-COVID pneumonia between January and December

2019.

The primary outcome measured was major adverse cardiovascular events, with secondary outcomes encompassing specific cardiovascular conditions and mortality. Various other subgroup and sensitivity analyses were conducted along with statistical analyses.

Interestingly, the researchers found no increased incidence of post-acute cardiovascular issues in those adults hospitalized with COVID-19 compared to those hospitalized for non-COVID-19 pneumonia. COVID-19 survivors exhibited lower risks of all-cause mortality, [congestive heart failure](#), and [cardiac arrest](#) but faced notably higher risks of acute myocarditis and deep vein thrombosis.

Further, younger COVID-19 patients, especially those without cardiovascular risk factors, showed elevated risks of cardiovascular complications, implying that COVID-19 may be an independent risk factor in this subgroup.

Sensitivity analyses with preexisting cardiovascular disease and subgroup assessments confirmed these trends, emphasizing the impact of COVID-19 on cardiovascular outcomes. Additionally, non-vaccinated COVID-19 patients exhibited increased risks of various adverse cardiovascular events.

Discussing the results further, Dr. Kim remarks, "Our results suggest that COVID-19 vaccination may prevent cardiovascular outcomes. This supports vaccination, especially for patients with preexisting cardiovascular disease."

This study is the first to compare the risk of [cardiovascular outcomes](#) between COVID-19 and non-COVID-19 pneumonia among the East Asian population.

While prior Western studies suggested elevated cardiovascular risks post-COVID-19, this research has revealed low risks in Korean patients following acute COVID-19 hospitalizations. Going ahead, these findings can offer valuable insights for health care practitioners and policymakers to devise effective strategies for the long-term care of COVID-19 patients.

More information: Min-Taek Lee et al, Cardiovascular outcomes between COVID-19 and non-COVID-19 pneumonia: a nationwide cohort study, *BMC Medicine* (2023). [DOI: 10.1186/s12916-023-03106-z](https://doi.org/10.1186/s12916-023-03106-z)

Provided by Chung Ang University

Citation: Study looks at cardiovascular risks in COVID-19 survivors (2024, January 11) retrieved 29 April 2024 from <https://medicalxpress.com/news/2024-01-cardiovascular-covid-survivors.html>

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