

# COVID mRNA vaccines are safe in patients with heart failure

August 22 2022

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COVID mRNA vaccines are associated with a decreased risk of death in patients with heart failure, according to research presented at ESC Congress 2022. The study also found that the vaccines were not associated with an increased risk of worsening heart failure, venous thromboembolism or myocarditis in heart failure patients.

"Our results indicate that [heart failure](#) patients should be prioritized for COVID-19 vaccinations and boosters," said study author Dr. Caroline Sindet-Pedersen of Herlev and Gentofte Hospital, Hellerup, Denmark. "COVID-19 vaccines will continue to be important for preventing morbidity and mortality in vulnerable patient populations. Thus, studies emphasizing the safety of these vaccines are essential to reassure those who might be hesitant and ensure continued uptake of vaccinations."

Patients with heart failure are at increased risk of hospitalization, need for [mechanical ventilation](#), and death due to COVID-19. Vaccination reduces the risk of serious illness from COVID-19. However, "Due to perceptions about possible cardiovascular side effects from mRNA vaccines in [heart failure patients](#), this study examined the risk of cardiovascular complications and death associated with mRNA vaccines in a nationwide cohort of patients with heart failure," said Dr. Sindet-Pedersen.

The study included 50,893 unvaccinated patients with heart failure in 2019 and 50,893 patients with heart failure in 2021 who were vaccinated with either of the two mRNA vaccines (BNT162B2 or mRNA-1273). The two groups were matched for age, sex, and duration of heart failure. The median age of participants was 74 years and 35% were women. The median duration of heart failure was 4.1 years. Participants were followed for 90 days for all-cause mortality, worsening heart failure, venous thromboembolism, and myocarditis, starting from the date of the second vaccination for the 2021 group and the same date in 2019 for the unvaccinated group.

The researchers compared the risk of adverse outcomes in the two groups, after standardizing for age, sex, heart failure duration, use of heart failure medications, [ischemic heart disease](#), cancer, diabetes, [atrial fibrillation](#), and admission with heart failure less than 90 days before the first date of follow up. Dr. Sindet-Pedersen explained, "Standardization

imitates a randomized trial and is a way to obtain a better causal interpretation of the results from [observational studies](#)."

Among 101,786 heart failure patients, the researchers found that receiving an mRNA vaccine was not associated with an increased risk of worsening heart failure, myocarditis or venous thromboembolism but was associated with a decreased risk of all-cause mortality. The standardized risk of all-cause mortality within 90 days was 2.2% in the 2021 cohort (vaccinated) and 2.6% in the 2019 cohort (not vaccinated), showing a significantly lower risk for all-cause mortality in 2021 versus 2019. The standardized risk of worsening heart failure within 90 days was 1.1% in both cohorts. Similarly, no significant differences were found between groups for [venous thromboembolism](#) or myocarditis.

Dr. Sindet-Pedersen concluded, "The study suggests that there should be no concern about cardiovascular side effects from mRNA vaccines in heart failure patients. In addition, the results point to a beneficial effect of vaccination on mortality."

**More information:** The abstract "Risk of worsening heart failure and all-cause mortality following mRNA COVID-19 vaccination in patients with heart failure: a Danish nationwide real-world safety study" [will be presented](#) during the session COVID-19 and heart failure on Friday 26 August at 08:15 to 09:00 CEST at Station 3.

Provided by European Society of Cardiology

Citation: COVID mRNA vaccines are safe in patients with heart failure (2022, August 22) retrieved 24 April 2024 from <https://medicalxpress.com/news/2022-08-covid-mrna-vaccines-safe-patients.html>

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