



Why was the study done?

Clinical trial study data before vaccine licensing did not suggest any risk of severe adverse events after administering mRNA COVID-19 vaccines. However, these studies are usually conducted in a controlled setting with a smaller number of people who have specific demographic and clinical characteristics. As large populations are vaccinated, we may observe certain rare health events not detected during the pre-marketing clinical studies. Large-scale post-marketing studies have suggested that heart inflammation (myocarditis) may be related to mRNA SARS-CoV-2 vaccines commonly known as Pfizer-BioNTech Comirnaty and Moderna Spikevax. Our study aimed to **determine the incidence of myocarditis after mRNA vaccination and to compare these results to the incidence of myocarditis before vaccination in the same population (observed vs. expected analysis).**

What were the results of the study?

Our study used data from the British Columbia COVID-19 Cohort (BCC19C). We found a **higher risk of myocarditis after receiving mRNA vaccines compared to the risk in the unexposed population.** However, the overall risk is very low, i.e., **1 case in every 100,000 doses.** Compared to the unvaccinated population, the **highest risk** of myocarditis was seen **after the second dose among males aged 18–29 years who received the Moderna vaccine.**

How can these findings be used?

Although we found a comparatively higher risk of heart inflammation (myocarditis) after vaccination compared to the non-vaccinated population, it is crucial to understand that myocarditis after COVID-19 vaccination is **rare**. This evidence indicates that the two vaccines are relatively safe and should be continued to be administered. Overall, our study suggests that type of vaccine, age, and sex are important factors to consider when strategizing vaccine administration to reduce the risk of post-vaccination myocarditis. Our findings support the preferential use of the Pfizer vaccine over the Moderna vaccine for people aged 18–29 years.

What is the reference for this study?

Naveed Z, Li J, Spencer M, Wilton J, Naus M, García HA, Otterstatter M, Janjua NZ. Observed versus expected rates of myocarditis after SARS-CoV-2 vaccination: a population-based cohort study. *CMAJ*. 2022 Nov 21;194(45):E1529-36. doi: 10.1503/cmaj.220676.

