



The 6th Annual
**HEART IN
DIABETES**

Relationship between vaccines against coronavirus disease 2019 (COVID-19) and myocarditis

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Background

Due to 2019 coronavirus disease (COVID-19) pandemic, it was necessary to develop a vaccine able to reduce the severity of the disease, decreasing hospitalization and death. The approval of the emergency use of these immunizers brought concerns about monitoring possible adverse effects, including myocarditis.

Objective

This study aimed to analyse the incidence of myocarditis after immunization against COVID-19.

Methods

A systematic review was conducted using the PRISMA method, searching the bibliographic databases PubMed, Cochrane and Scielo, April 2022, with the following descriptors: [covid-19 vaccine] AND [myocarditis] AND [adverse effect]. Inclusion criteria were articles published in the last 5 years approaching review, systematic review and meta-analysis type that addressed the association of immunization against COVID-19 with the development of myocarditis, in English. A total of 162 articles were found and 24 were eligible.

Discussion

Vaccines can induce an immune response including antibodies production against pathogens.

On account of COVID-19, vaccines were developed with different technologies such as messenger RNA and, as their side effect, myocarditis has been observed, mostly in young adults and male teenagers, days after immunization and usually after the second dose. Studies suggest that a possible cause for the male incidence of post-vaccine myocarditis would be the difference in sexual hormones in the immune response.

Conclusion

More research should be carried out to understand better the risk-benefit ratio of COVID-19 vaccines, even though there are already reports where the benefits and effectiveness of vaccines have been shown outweighing the risk of myocarditis.