

Report details 7 cases of myocarditis after COVID-19 vaccination

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Editor's note: For the latest news on COVID-19, visit <http://bit.ly/AAPNewsCOVID19>.

A new report takes a close look at seven teen boys who developed myocarditis after COVID-19 vaccination, each of whom had similar symptoms, timing and outcomes.

While health officials investigate whether vaccination caused this condition, Judith A. Guzman-Cottrill, D.O., a corresponding author of the report, said she hoped the report would raise clinicians' awareness to suspect and report these cases.

"The takeaway is if an adolescent or young adult presents with symptoms that could be from myocarditis or pericarditis — and really chest pain is the primary symptom that was consistent in all seven of our cases — then all clinicians should know they should ask about a recent COVID-19 vaccine," said Dr. Guzman-Cottrill, professor of pediatric infectious diseases at Oregon Health and Science University and an Oregon Pediatric Society affiliate member. She recommended a full diagnostic evaluation.

The Centers for Disease Control and Prevention (CDC) has not released a count of myocarditis cases following COVID-19 vaccination but has called them rare. More than 169 million people in the U.S. have received at least one dose of COVID-19 vaccine, including 5.8 million adolescents ages 12-17, [CDC data show](#). The myocarditis cases have occurred [primarily among adolescent and young adult males](#) within several days of receiving an mRNA COVID-19 vaccine.

Authors of the new *Pediatrics* report identified seven cases by talking to colleagues around the country and published their findings today in “Symptomatic Acute Myocarditis in Seven Adolescents Following Pfizer-BioNTech COVID-19 Vaccination,” (Marshall M, et al. *Pediatrics*. June 4, 2021, <https://doi.org/10.1542/peds.2021-052478>).

The seven patients were males ages 14-19 who were otherwise healthy. They experienced symptoms of myocarditis or myopericarditis two to four days after their second dose of the Pfizer-BioNTech COVID-19 vaccine. All of them had chest pain, and five had a fever. Other symptoms seen in one or more patients included shortness of breath, fatigue, pain in both arms, nausea, vomiting, headache, anorexia and weakness. All of the teens had elevated troponin levels and abnormal electrocardiogram and cardiac MRI results, according to the report.

Tests showed none of the boys had COVID-19 or multisystem inflammatory syndrome at the time they were diagnosed with myocarditis. Six had no evidence of a prior COVID-19 infection. Additional testing did not point to another viral cause of the inflammation.

Six of the teens were treated with nonsteroidal anti-inflammatory drugs, including three who did not undergo any additional treatment. Four received intravenous immune globulin and corticosteroids. All recovered with hospital stays ranging from two to six days.

The cases are not deterring Dr. Guzman-Cottrill or AAP Committee on Infectious Diseases (COID) Vice Chair Sean T. O’Leary, M.D., M.P.H., FAAP, from recommending COVID-19 vaccine to adolescents.

“Given the mild nature of the cases and rarity of these events, even if it is (a real connection), I think the benefits of vaccination continue to outweigh the risks,” Dr. O’Leary said. He noted that numerous surveillance systems are monitoring vaccine safety closely.

Dr. O’Leary, a pediatric infectious disease specialist at the University of Colorado Anschutz Medical Campus/Children’s Hospital Colorado, and COID Chair Yvonne A. Maldonado, M.D., FAAP, explore the published case series on myocarditis following COVID-19 vaccination in a [related commentary](#) published today.

They note these myocarditis cases happened within days after vaccination and are similar in presentation. Myocarditis has only been linked to one other vaccine, the smallpox vaccine. However, unlike the smallpox vaccine, the COVID-19 vaccines do not contain live virus, and myocarditis onset was shorter after COVID-19 vaccination. In addition, the prevalence and demographics of myocarditis cases appear similar to expected cases from other causes in recent months.

The papers come just days after the Ministry of Health in Israel, where more than 5 million people have been vaccinated, [said it had identified 275 myocarditis cases](#) since December 2020, including 148 around the time of COVID-19 vaccination. It concluded, “There is some probability for a possible link between the second vaccine dose and the onset of myocarditis among young men aged 16 to 30.”

[The CDC recommends clinicians](#) consider myocarditis and pericarditis in patients who develop acute chest pain, shortness of breath or heart palpitations within a week after vaccination. Initial evaluation may include an ECG, a troponin level and tests for inflammatory markers such as C-reactive protein and erythrocyte sedimentation rate.

Clinicians who suspect myocarditis or pericarditis should consider consulting with a pediatric cardiologist. They also can consult an infectious disease specialist and/or rheumatologist to help rule out other potential

causes of myocarditis such as common circulating viruses.

Clinicians should report cases of myocarditis and/or pericarditis after COVID-19 vaccination to the [Vaccine Adverse Event Reporting System](#).

“That’s really how we’re going to get a better sense if this is a safety signal related to the vaccine or if many of the cases reported are actually caused by other things,” Dr. Guzman-Cottrill said.

Resources

- [CDC guidance for clinicians on myocarditis after COVID-19 vaccination](#)
- [Information from the CDC on clinical considerations for COVID-19 vaccines](#)
- [CDC COVID vaccination toolkit for pediatricians](#)
- [AAP guidance on providing COVID-19 vaccines to adolescents](#)
- [Information for parents from HealthyChildren.org on myocarditis after vaccination](#)
- [Information for parents from HealthyChildren.org on preparing children and adolescents for COVID-19 vaccination](#)

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