



Introduction

- Myocarditis after the COVID-19 vaccination has been recently reported.
- The Centers for Disease Control and Prevention Advisory Committee on Immunization Practices has identified a “likely association” between the vaccine and acute myocarditis.
- We report a case series of 6 patients hospitalized for acute myocarditis-like illness following mRNA COVID-19 vaccination and their short-term outcomes.



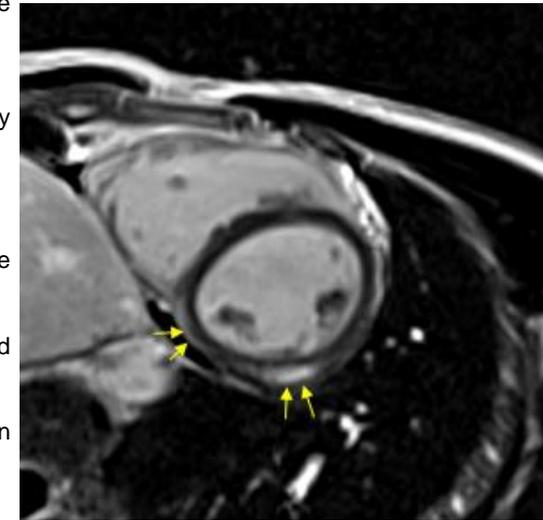
Methods

- Single-center retrospective review of cases of myocarditis after mRNA COVID-19 vaccination at the University of Kentucky.
- Institutional review board approval was obtained for this report.



Results

- All 6 cases were males and of White/Asian/Hispanic race/ethnicity with an average age was 15.7 years (range 15-20).
- All patients received the first and second doses of the mRNA COVID-19 vaccine (Pfizer/BioNTech).
- One patient had reported a history of prior COVID-19 infection.
- All patients presented 2-5 days post-vaccination with acute onset chest pain and elevated high-sensitivity Troponin (average peak value:1531 ng/mL (range 690-2119)).
- All were hemodynamically stable.
- Electrocardiogram (ECG) patterns varied with ST-elevations being the most common (n=3).
- Elevated C-reactive protein (>0.3 mg/dL) was observed in all patients (average 21.1 mg/dL, range 2.4-55.4).
- Echocardiograms showed left ventricular ejection fraction (LVEF) ranging from 35% to 66% with only one patient having some degree of hypokinesis.
- 5/6 patients underwent cardiac magnetic resonance (CMR) between 2 and 5 days after vaccination.
- Multi-focal subepicardial LGE was present in 4/5 patients and additional mid-myocardial LGE was demonstrated in 1/5 patients (figure). There was corresponding myocardial edema in 5/5 patients.
- All 6 had PCR testing for acute COVID-19 infection during hospitalization, which was negative.
- Assessment of COVID-19 serology was obtained for 3/6 patients, with 1/6 showing the presence of spike protein IgG antibodies.
- Treatment comprised of anti-inflammatory medications.
- Hospital length of stay was 3.5 days (range 2-5) and all patients' symptoms improved by hospital discharge.
- 3/6 patients had a 30-day follow-up, and they reported a significant reduction in chest pain severity and insignificant echocardiogram.



Conclusion

- Our institution's patient cohort with COVID-19 mRNA vaccine-related myocarditis corroborates with those published in the literature.
- Our findings further confirm the possibility of an association between mRNA COVID-19 vaccination and acute myocarditis.