

Objective:

To assess practices patterns of physicians treating mRNA COVID -19 vaccination associated myocarditis in children and adolescents (12 through 18 years of age).

Myopericarditis secondary to mRNA Covid -19 Vaccination in Paediatric Population

Thank you for agreeing to participate in this multicentre survey aimed at capturing the protocolized evaluation and management of myopericarditis post mRNA COVID-19 vaccination. In the absence of published guidelines, many centres have created individual protocols to direct treatment of this condition. The goal of this survey is to better understand how centres are constructing their protocol and the therapy that is being administered to these patients. Our hope is to improve the care of these patients by sharing the information obtained about evaluation, management, and follow-up of these patients.

I voluntarily agree to participate, and I understand that I can stop participating at any time.

For any questions or concerns related to this survey, please contact

1. First Name

__Utkarsh_____

2. Last Name

__Kohli_____

Email: uk10004@hsc.wvu.edu



3. Role of person completing this form. Check all that apply.

- Cardiologist
- Intensive Care physician
- Infectious Disease physician
- General Paediatrician
- Administrator
- Fellow
- Resident
- Other (please specify)

4. Please specify your role.

5. Email

6. Direct Phone Number

7. May we contact you if we have questions about your responses?

- Yes
- No

8. What is the name of your centre?

9. What is your best estimate of the total Myopericarditis patients that your centre has managed?

- 0
- 1-5 patients
- 6-10 patients
- 11 -25 patients
- >25 patients Not sure

10. How many paediatric beds does your hospital have?

11. Where is your centre located?

12. Has your centre developed guidelines for evaluation and treatment of patients with mRNA COVID-19 vaccine associated myopericarditis?

- Yes
- No
- Not sure

13. If the answer to question number 12 is no, please skip to management section.

14. Date of initial protocol

15. Has the protocol changed since it was initially created?

- Yes
- No
- Not sure

16. What changes were made to the protocol and why?

17. Date of most recent protocol

18. Is it possible to receive a copy of your current protocol?

- Yes
- No
- Not sure

19. If yes, please attach a copy of your current protocol.

20. Can we publish this protocol as part of a supplement to a manuscript?

- Yes
- No
- Not sure

21. We plan to invite one person from each centre that provides a copy of their protocol to be published to be included as a co-author in any manuscript that arises from this survey. Would you be interested in being considered?

- Yes
- No

Please answer the remainder of the survey according to your centre's protocol.

1. Definition of Myopericarditis and Inclusions Criteria for diagnosis

2. Symptoms included in your inclusion Criteria

- Chest pain
- Shortness of Breath
- Chest Tightness
- Arthralgia
- Myalgia
- Palpitations
- Fever
- Other _____

3. Does the inclusion criteria specify age?

- Yes
- No

4. Please specify the upper age range (in years).

5. Please specify the lower age range (in years).

6. What are the minimum number of days of required symptoms before diagnosing myopericarditis?

- 1
- 2
- 3
- 4
- 5
- 6
- 7

7. What laboratory tests are included in initial evaluation?

- Cardiac Enzymes
 - Troponin I
 - Troponin T
 - CPK-MB
- Covid Antibody testing IgG or IgM
- C-Reactive Protein
- ESR
- CBC
- BNP
- CMP
- Covid-19 PCR
- D- dimer
- Respiratory Viral Panel
- Myopericarditis viral panel
- COVID-19 anti spike antibody
- COVID-19 anti nucleocapsid antibody
- Other _____

8. What imaging is included in the initial evaluation?

- Chest Radiograph
- Electrocardiogram
- Echocardiogram
- Cardiac MRI
- Other _____

9. Please specify other lab criteria included:

10. Please specify other imaging criteria included:

11. Is positive SARS-CoV-2 antibody test required for inclusion?

- Yes
- No

12. Is SARS-CoV-2 PCR negative test required for inclusion?

- Yes
- No

13. Which abnormal labs/imaging are included as potentially meeting criteria at your centre? Check all that apply.

- Elevated CRP
- Elevated ESR
- Elevated BNP or pro-BNP
- Elevated Troponin I
- Elevated Troponin T
- Elevated D-dimer
- Abnormal Echocardiogram
- Abnormal EKG
- Abnormal Cardiac MRI
- Positive Spike Covid Antibody
- Negative Nucleocapsid Antibody
- Other _____

14. EKG abnormalities potentially meeting criteria? Check all that apply

- Diffuse S-T Segment Elevation
- T wave inversion
- T wave abnormalities, please specify _____
- Other _____

15. Echocardiogram findings potentially meeting criteria

16. Cardiac MRI findings meeting criteria

- Late Gadolinium enhancement
- Edema
- Pericardial effusion

18. What consulting services are typically involved in treatment of patients with concern for Myopericarditis?

- Cardiology
- Infectious Disease
- Rheumatology
- Cardiac Surgery
- Critical Care
- Other _____

19. After which dose of mRNA COVID-19 vaccine have majority of patients presented with symptoms of myopericarditis at your centre?

- a. First
- b. Second

Comments regarding evaluation of patients with suspected or confirmed Myopericarditis secondary to Covid-19 vaccination?

Management

1. Are all patients with presumed mRNA COVID-19 vaccine associated myocarditis hospitalized?
 - a. Yes
 - b. No

2. What are the criteria for hospitalization?

3. Which unit are they admitted to?
 - a. Cardiac ICU
 - b. Paediatric ICU
 - c. Paediatric floor

4. What laboratory tests are included in initial evaluation?
 - o Cardiac Enzymes
 - o Troponin I
 - o Troponin T
 - o CPK-MB
 - o Covid Antibody testing IgG or IgM
 - o C-Reactive Protein
 - o ESR
 - o CBC
 - o BNP
 - o CMP
 - o Covid-19 PCR
 - o D- dimer
 - o Respiratory Viral Panel
 - o Myopericarditis viral panel
 - o COVID-19 anti spike antibody
 - o COVID-19 anti nucleocapsid antibody
 - o Other _____

5. What imaging is included in the initial evaluation?
 - o Chest Radiograph
 - o Electrocardiogram
 - o Echocardiogram
 - o Cardiac MRI
 - o Other _____

6. What consulting services are typically involved in treatment of patients with concern for Myopericarditis?
 - o Cardiology
 - o Infectious Disease
 - o Rheumatology
 - o Cardiac Surgery
 - o Critical Care
 - o Other _____

7. After which dose of mRNA COVID-19 vaccine have majority of patients presented with symptoms of myopericarditis at your centre?
- First
 - Second
8. Which of the following treatments are initially administered to inpatients?
- Non-steroidal Anti-inflammatory Drugs
 - Aspirin (high dose)
 - IVIG
 - Methyl prednisone
 - Prednisone
 - Diuretics
 - Colchicine
 - Enalapril
 - Spironolactone
 - Other _____
9. How is the response to therapy assessed?
- Clinically
 - Cardiac biomarkers
 - Echocardiography
 - Cardiac MRI
10. In case of inadequate response to initial therapy, what is the second line therapy?
- Non-steroidal Anti-inflammatory Drugs
 - Aspirin (high dose)
 - IVIG
 - Methyl prednisone
 - Prednisone
 - Diuretics
 - Colchicine
 - Enalapril
 - Spironolactone
 - Other _____
11. In case of inadequate response to second line therapy, what is the third line therapy?
- Non-steroidal Anti-inflammatory Drugs
 - Aspirin (high dose)
 - IVIG
 - Methyl prednisone
 - Prednisone
 - Diuretics
 - Colchicine
 - Enalapril
 - Spironolactone
 - Other _____
12. For those who received IVIG, if patient did not improve with first dose of IVIG, is a 2nd dose recommended?
- Yes
 - No
13. Does your centre use a maximum dose for IVIG?
- Yes
 - No
 - What is the maximum dose? _____

14. Please specify the upper limit of total number of days of illness that these patients have been hospitalized for: _____
15. Please specify the lower limit of total number of days of illness that these patients have been hospitalized for: _____
16. Which of the following additional interventions were required during management of myopericarditis :
- o Continuous Telemetry
 - o Repeat EKG, if yes specify frequency : _____
 - o Repeat Echo, if yes specify frequency: _____
 - o ECMO
 - o Respiratory support with
 - i. Oxygen using nasal cannula
 - ii. High flow support
 - iii. CPAP
 - iv. NIPPV
 - v. Ventilatory support
17. Have any of these patients had heart rhythm abnormalities?
- a. Yes
 - b. No
18. If yes, please provide specifics of the rhythm abnormalities and their treatment
19. Have any of these patients had cardiopulmonary arrest requiring CPR?
- a. Yes
 - b. No
20. Have any of these patients required ECMO/Impella/Ventricular assist device support?
- a. Yes
 - b. No
21. If yes, please provide details of mechanical support
- a. Type of support
 - b. Number of days required
 - c. Outcome
22. Have any of these patients died?
- a. Yes
 - b. No
23. Have any of these patients primarily been managed as outpatients?
- a. Yes
 - b. No
24. If yes, what treatment was administered to these patients?
- a. Non-steroidal Anti-inflammatory Drugs
 - b. Aspirin (high dose)
 - c. IVIG
 - d. Methyl prednisone
 - e. Prednisone

- f. Diuretics
- g. Colchicine
- h. Enalapril
- i. Spironolactone
- j. Other _____

25. For inpatients, patient are discharged on which of the following medications and specify the duration:

- NSAID
- Aspirin (high dose)
- Aspirin (low dose)
- Oral Corticosteroids
- Other _____

Comments regarding management of patients with suspected or confirmed myopericarditis secondary to Covid-19 vaccination?

Follow up

1. Follow up appointments set up with :
 - Cardiology
 - Infectious Disease
 - Primary Care Physician
 - Rheumatology
 - All of the above
 - Other _____
2. Follow up time period
 - Up to one week
 - 1-2 weeks
 - 2-4 weeks
 - More than 4 weeks
3. EKG at outpatient follow up back to baseline/normal?
 - Yes
 - No
4. Long-term follow up required every:
 - 1-3 months
 - 3-6 months
 - 6-9 months
 - 9-12 months
 - Yearly

5. When is outpatient repeat Cardiac MRI recommended?
 - o Within 1 week
 - o Within 2 weeks
 - o Within 1 month
 - o Within 3 months
 - o None

6. For patients with initial abnormal echocardiogram, when is outpatient echocardiogram recommended?
 - o Within 1 week
 - o Within 2 weeks
 - o Within 1 month
 - o Within 3 months
 - o None

7. When are these patients being allowed to return to intense or competitive sport?
 - a. Please mention timing in weeks after discharge.....

8. Is exercise stress test obtained before return to intense or competitive sport?
 - a. Yes
 - b. No

9. Are you obtaining Holter monitors on these patients for rhythm monitoring?
 - a. Yes
 - b. No

10. If yes, have any of them have had rhythm abnormalities?
 - a. Yes
 - b. No

11. If yes, please give details of rhythm abnormalities.

Any comments regarding the survey ?