
Myocarditis

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Family Medicine PGY-1

A 7 year old girl presents to the ER with 3 days of fever ,cough, and rhinorrhea. However, prior to arrival to ER she endorses mild chest discomfort. Immunizations are up to date. She has not recently traveled. Temperature 101.5 F, BP 95/65, pulse 120/min, and respirations 24/min. What is the best next step in management of this patient ?

- A. Chest x-ray
 - B. EKG
 - C. Cardiac enzymes
 - D. Echocardiogram
 - E. Inflammatory markers (ESR and CRP)
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Myocarditis

Defined as the inflammation of the myocardial tissue

Caused by infectious, toxic, and autoimmune etiologies

Common viral causes include: enterovirus (coxsackie group B), adenovirus, parvovirus B19, Epstein-Barr virus, cytomegalovirus, and human herpes 6 (HHV-6)

The incidence of myocarditis in children is controversial

Clinical features of myocarditis

Excessive fatigue or exercise intolerance
Chest pain
Unexplained sinus tachycardia
S3, S4, or summation gallop
Abnormal electrocardiogram
Abnormal echocardiogram
New cardiomegaly on chest radiograph
Atrial or ventricular arrhythmia
Partial or complete heart block, new-onset bundle branch block
New-onset or worsening heart failure
Acute pericarditis
Cardiogenic shock
Sudden cardiac death
Respiratory distress/tachypnea
Hepatomegaly

Initial Testing

EKG : usually abnormal. Most common rhythm is sinus tachycardia

Chest X-ray: nonspecific findings such as cardiomegaly, pulmonary vascular congestion

Cardio biomarkers: elevation in troponins and BNP cannot help establish diagnosis of myocarditis

Echocardiogram: typically shows left ventricular dysfunction.

Diagnosis

- Endomyocardial biopsy: considered the gold standard for the diagnosis of myocarditis.
 - Cardiac MRI: locates the extent of the inflammation
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Acute Management

Supportive care to maintain hemodynamic stability

Use of medical therapy such as diuretics or ACEi in patients with ventricular impairment

Antiviral therapies are not indicated because of lack of benefit

References

- Freedman SB, Haladyn JK, Floh A, et al. Pediatric myocarditis: emergency department clinical findings and diagnostic evaluation. *Pediatrics* 2007; 120:1278.
 - Allan, CK & Fulton DK. (2015). Clinical Manifestations and diagnosis of myocarditis in children. *Uptodate*. Retrieved May 16, 2017, from https://www.uptodate.com/contents/clinical-manifestations-and-diagnosis-of-myocarditis-in-children?source=see_link.
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