

VIRAL MYOCARDITIS

Introduction

Defined as inflammation of the myocardium with myocellular necrosis. Viruses are found to be most important cause of acute myocarditis. Other causes include *Mycoplasma*, typhoid fever, diphtheria toxins etc.

Clinical presentation

Vary from asymptomatic ECG abnormalities to acute cardiovascular collapse, even sudden death. There may be prodromal symptoms of viremia, including fever, myalgia, coryzal symptoms or gastroenteritis.

The diagnosis is made clinically, with a high index of suspicion, with the following presentation that cannot be explained in a healthy child:

- tachycardia
- respiratory distress
- other signs of heart failure
- arrhythmia

Management

Depends on the severity of the illness. patients with heart failure require intensive monitoring and haemodynamic support. treatment of heart failure (refer Heart Failure chapter) consider early respiratory support with mechanical ventilation in severe cases

Specific treatment

Treatment with IV immunoglobulins and immunosuppressive drugs have been studied but the effectiveness remains controversial and routine treatment with these agents cannot be recommended at this moment

Prognosis

One third of patients recover. One third improve clinically with residual myocardial dysfunction. The other third does poorly and develops chronic heart failure, which may cause mortality or require heart transplantation

Table 1. Useful investigations for myocarditis

electrocardiogram (ECG)

- sinus tachycardia
- non-specific ST segment, T wave abnormalities
- pathological Q wave
- T wave inversion
- low QRS voltages (<5mm in any precordial lead)
- arrhythmia - heart block, ventricular ectopics

chest x-ray

- cardiomegaly
(normal heart size doesn't exclude myocarditis)
- pleural effusion

echocardiography

- findings often varied and non-specific, although rarely entirely normal*
- global left ventricular dilatation and hypocontractility
 - pericardial effusion
 - functional mitral regurgitation
 - other structural abnormalities especially coronary artery anomalies need to be excluded

cardiac biomarkers

- Troponin T, Troponin I
- creatinine kinase (CK) and CK-MB

microbiological studies, including polymerase chain reaction (PCR)

- enterovirus 71, coxsackie B virus, adenovirus
- parvovirus B19, cytomegalovirus, echovirus
- Mycoplasma, Salmonella typhi*

contrast enhanced MRI

- myocardial oedema, focal myocardial enhancement, regional wall motion abnormalities.