

Background: Covid-19 has affected patients across all age groups with varying severity of illness. Severe multisystem inflammatory syndrome in children (MIS-C) with active or recent Covid-19 infection has been increasingly reported.

Objective: Review of literature and summary of current understanding of cardiovascular involvement in children with COVID-19 or MIS-C and identifying role of pediatric cardiologist in caring of these patients.

Design: Review Article

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



ROLE OF A PEDIATRIC CARDIOLOGIST IN THE COVID -19 PANDEMIC

When to give a Pediatric cardiology referral? Pediatric Cardiology referral may be consulted for patients with COVID-19 with suspected cardiac involvement or those with suspected or proven MIS-C. Presence of palpitations, persistent tachycardia, tachypnea, or new murmurs should prompt cardiac evaluation by laboratory testing, electrocardiogram (ECG) & echocardiogram (ECHO). Laboratory evaluation to include cardiac biomarkers such as troponin or BNP/NT-pro-BNP. An ECG should be considered in patients with suspected or proven MIS-C or in patients with concerning cardiac symptoms. Those with elevated troponin and BNP/NT-pro-BNP may also benefit from an echocardiogram. Patients with cardiogenic and/or distributive shock in the intensive care should prompt a pediatric cardiology consultation with ECG, cardiac markers & ECHO.

Possible ECG findings in children with COVID-19 or MIS-C are varied & many. In patients with myocardial dysfunction, diffuse ST segment changes, T wave inversions in lateral leads, low-voltage QRS, atrioventricular conduction block and sinus node dysfunction has been noted. Patients with MIS-C may present with ECG abnormalities similar to those expressed in Kawasaki disease. QT prolongation can be seen in critically ill patients with systemic inflammation, fever, electrolyte abnormalities or hypoxia. In addition pharmacotherapies for COVID-19 such as hydroxychloroquine and azithromycin may cause fatal arrhythmias due to QT prolongation. It is important to obtain a baseline ECG in patients with COVID-19 & MIS-C.

Echocardiography : For pediatric patients presenting with concern for MIS-C, hemodynamic shock and/or features of classic or atypical Kawasaki disease, a careful echocardiographic assessment of left and right ventricular function, the pericardium, coronary arteries, and cardiac valves should be performed on admission to establish a baseline, as well as to guide initial vasoactive management for patients presenting with features of shock. Primarily, a change in clinical status should guide the echocardiographic evaluation in individual cases. For PICU patients on vasoactive agents, daily echocardiograms may be warranted. **Serial echocardiographic assessment of the coronary arteries for evolving dilation or development of coronary aneurysms is important** as well, as this will impact decisions regarding immunomodulatory therapies and anti-thrombotic regimens.

Previously published guidelines for optimal coronary artery imaging like in Kawasaki Disease can be utilized, for follow up in these patients too.

EXPERT COMMENT



“Active screening for cardiovascular involvement should be encouraged in children satisfying criterion for MIS-C by ECG, Cardiac markers & ECHO. Post discharge cardiology follow up is essential like in Kawasaki disease”

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Reference

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