

Outcome of parvovirus B19 myocarditis in children

*Vigneswaran T.V, Burch M.
Great Ormond Street Hospital, London, UK*

Background: The advent of polymerase chain reaction (PCR) testing for the presence of viral genomes has led to identification of parvovirus B19 (PVB19) as a cause of viral myocarditis. This is the first reported series of parvovirus myocarditis in children in the United Kingdom.

Objective: To report the presentation, clinical course and outcome of PVB19 myocarditis in children.

Methods: Data was collected through a retrospective review. Patients were referred with overt clinical signs of cardiac failure. Echocardiography confirmed impaired systolic left ventricular function.

Together with patient history and clinical phenotype of a viral infection myocarditis was diagnosed.

PVB19 viral genome was detected by PCR from serum prior to administration of intravenous immunoglobulin. Endo-myocardial biopsy was only performed in patients who required extra-corporeal membrane oxygenation (ECMO) or at the time of post-mortem. Samples were tested for PVB19 viral genome and assessed histologically to identify lymphocytic infiltration. Primary end point was death or transplantation.

Results: 17 (4 females, 7 males) patients presented at median age of 1.3 years (0.4-15.4 years) in cardiac failure with fractional shortening $15\% \pm 3\%$. Eleven patients required mechanical ventilation and intravenous inotropes. Intravenous immunoglobulin was administered in 9 patients. Seven required extra-corporeal mechanical oxygenation. All patients (n=3) with one days' prodrome died. All patients (n=4) with ST segment elevation died. Event free survival occurred in 65%. Five (29%) patients died, 1 underwent heart transplantation. Four patients died within 6 days of admission. There was a late, sudden death at 8 weeks in a patient with resistant ventricular tachycardia with persistence of PVB19 genome in serum.

Complete recovery of cardiac function occurred within median of 12 months (range: 1 - 48) in 45% patients (5/11). 6/11 patients were asymptomatic at follow-up. Five patients had echocardiographic normalisation of cardiac function on angiotensin-converting enzyme inhibitor and/or carvedilol and 1 patient had mild impairment of function on medications at 7 years.

Conclusion: PVB19 can cause a devastating viral myocarditis in children. If they can be fully supported through the illness, recovery of the myocardium can occur without the need for cardiac transplantation, even those who develop overwhelming circulatory failure.