Features and outcomes of Acute Myocarditis in children


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This study was to assess features and outcomes of children with acute myocarditis.

Methods: Patients <18y with acute myocarditis (proved by virology and/or MRI and/ or complete recovery of myocardial function) were included. Clinical data, echocardiographic parameters and outcomes were collected and cases divided in groups I (< 2y), II (2 to 10y) and III (> 10y).

Results: 72 patients were included (1983 to 2012), 30 males, aged 4.1±5.1y (med 1.5y): 43 in group I, 17 in II and 12 in III. Heart failure was present at onset in 57 cases (78%): 8 cardiogenic shock (12%), 30 severe HF (44%) were more frequent in groups I (56%) and II (46%) than in III (17%, p< 0.0001), while chest pain (15.5% of all) was more frequent in III (83%). LVSF at diagnosis was 18.4±9% (med 16%): 16% and 15% in groups I and II vs 30.5% in III (p= 0.0001). Aortic VTI was 11.4±5.8cm (med 10): 8cm and 11 in groups I and II vs 17 in group III (p< 0.05). Mitral regurgitation was present in 76.5%, pericarditis in 16.4%, thromboembolic events occurred in 5 cases (7%), arrhythmias in 7 (10%). Virus was positive in 27 cases = 37.5% (1 virus in 24, >1 virus in 3). Nine patients died (13%) within 2 months post-diagnosis (2 days to 8.6 months), 1 was transplanted (3rd month), 19 have sequelae (27.5%), 40 completely recovered (58%), at FU= 5.5±5.6y (med 4y). Inotropic support was needed in 34 cases (47%): 51%, 59% and 16% of groups I, II and III respectively (p< 0.0001). Six patients (8.3%, 1 in group III) needed mechanical circulatory support (3ECMO, 3VAD), within day-14 from onset: 1 died on support, 5 were weaned-off (duration of support: 4d to 3mos). Survival was 96%, 90%, 87.5% and 86% at 1 month, 3 months, 6 months, 2y and 10y of FU. All patients in group III survived. Ten-year survival was 81.4% in group I and 88.2% in II (p= NS). LVSF improved from 18.4±8.9% (med 16%) at onset, to 24.6±10.3% (med 23.5%) at 1st month, 26.5±8.6% (med 26.5%) at 3rd month, 30.7±8.6% (med 29.6%) at 6th month, 38±7% (med 37%) at last FU.

Conclusion: Acute myocarditis in children has favourable outcomes despite early mortality. Myocardial dysfunction and heart failure are less frequent in patients > 10 years of age. Mechanical circulatory support successfully lessens mortality. Myocardial contractility can progressively improve within the first 6 months after onset of disease.