Echocardiographic follow up of perinatally HIV-infected children and adolescents: results from a single center retrospective cohort study in Brazil


Infectious Diseases Department, Instituto da Criança do Hospital das Clínicas da Universidade de São Paulo (1), Brazil;
Neonatal and Pediatric Echocardiography Department, Instituto da Criança do Hospital das Clínicas da Universidade de São Paulo (2), Brazil

Introduction: The effects of HIV and antiretroviral therapy on the cardiovascular system of perinatally infected children and adolescents are not fully understood. Most echocardiographic studies are based on a single evaluation of each patient, which precludes the precise analysis of what happens throughout their development. Objective: to determine the prevalence of cardiac abnormalities in a retrospective cohort of perinatally HIV-infected patients and to investigate associations between echocardiographic and clinical data during their long-term follow up.

Methods: Medical records from 148 perinatally HIV-infected patients (0-18y) seen between 1991 and 2015 were reviewed. Echocardiographic data included the presence of right and/or left ventricle dilation (diastolic diameter z-score > +2), septum and/or LV wall hypertrophy (z-score > +2), LV systolic dysfunction (EF < 55%) and pulmonary hypertension (PASP >35 mmHg).

Results: 480 echocardiograms were analyzed and 46 (31.1%) patients showed cardiac abnormalities. Only 6 (1.2%) echocardiograms were accompanied by heart failure symptoms. Nadir CD4 count was lower in patients with abnormal echocardiogram: 202 (5-1746) vs. 263 (4-1485) cells/μl, p = 0.02. RV dilation was present in 28/148 (18.9%) patients, transient in 15/28 (53.5%) and associated to CDC category C (66% vs. 44.2%; p = 0.002). LV dilation was present in 32/148 (21.6%) and was transient in 14/32 (43.7%). It was associated to lower absolute CD4 count [ 536 (10-1390) vs. 590 (5-5962) cells/μl; p = 0.048] and lower duration of HAART [1.5 (0-16) vs. 4.7 (0-16) years; p = 0.0001]. Pulmonary hypertension was detected in 13/148 (8.7%) patients, transient in 6/13 (46%), associated to viral load log > 5 (26.3% vs. 8.3%; p = 0.021) and to opportunistic infections (31.6% vs. 4.5%; p = 0.0001). The absence of protease inhibitors in therapeutic regimen was associated to LV dilation (69.5% vs. 43.3%; p = 0.0001), RV dilation (63.3% vs. 45.6%; p = 0.01), LV wall hypertrophy (83.3% vs.46.9%; p = 0.013) and LV systolic disfunction (88% vs. 45.6%; p = 0.0001).

Conclusions: Echocardiogram detected subclinical cardiac abnormalities, that were transient in almost half of patients. Data suggests that immunologic status and therapeutic strategies can influence cardiac disease burden of perinatally HIV-infected children and adolescents.