

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

Vallilo N.G.(1), Durigon G.S. (1), Lianza A.C. (2), Diniz M.F. (2), Shiraishi K.S. (2), Brito C.R. (2), Marques H.H.S. (1), Leal G.N. (2)

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/ μ l, $p = 0.02$. 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/ μ l; $p = 0.048$] 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 dysfunction (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.