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

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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 (0-18 y) seen between 1991 and 2015 were reviewed. Echocardiographic data included the presence of right and/or left ventricle dilation (diastolic diameter z-score > +2), septicum 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 467 (31.1%) patients showed cardiac abnormalities: median of 1 (1-11) exams/patient. Only 6 (1.2%) patients 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 detected in 28/148 (18.9%) patients and was transient in 15/28 (53.5%). LV dilation was detected in 32/148 (21.6%) patients and was transient in 14/32 (43.7%). Septal hypertrophy was present in 18/148 (12.2%) patients and was transient in 15/5 (18.3%).

LV posterior wall hypertrophy was detected in 9/148 (6%) patients and was transient in 9/9 (100%). LV systolic dysfunction was detected in 12/148 (8%) patients and was transient in 9/12 (75%). Pulmonary hypertension was detected in 13/148 (8.7%) patients, and was transient in 6/13 (46%). The absence of protease inhibitors in therapeutic regimen was associated to LV dilation, RV dilation, LV wall hypertrophy and LV systolic dysfunction. Associations between demographic, clinical and laboratory variables and echocardiographic parameters are shown in Table 1.

Table 1. Comparison between clinical and laboratory variables at the time of echocardiograms.

<table>
<thead>
<tr>
<th>Clinical Parameters</th>
<th>Echocardiographic Parameters</th>
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<tbody>
<tr>
<td>RV diastolic diameter</td>
<td>LV diastolic diameter</td>
</tr>
<tr>
<td>Interventricular Septum</td>
<td>LV posterior wall</td>
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<tr>
<td>Left Ventricle ejection fraction</td>
<td>Pulmonary Hypertension</td>
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CONCLUSION

Echocardiogram detected subclinical cardiac abnormalities in one third of the study group, that were transient in the majority of patients. Data suggests that immunologic and nutritional status, as well as therapeutic strategies, can influence cardiac disease burden of perinatally HIV-infected children and adolescents.

Special consideration should be made to the use of protease inhibitors, since its inclusion in the therapeutic regimen was clearly associated to better echocardiographic profile.

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