

Evaluation of Ventricular Function in HIV-infected pediatric and adolescent patients: the use Speckle Tracking.

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BACKGROUND.

Since introduction of highly active antiretroviral treatment (HAART), HIV has become a chronic disease with decreasing mortality. Multiple studies in adults have shown an early evolution of atherosclerosis and ventricular dysfunction due to chronic inflammatory activation and to the altered lipidic status, for which the prolonged medication is partially responsible.

OBJECTIVE: To study the ventricular torsion in HIV-infected pediatric and adolescent patients with Speckle Tracking compared to a control group.

METHODS. We designed a multicentric study to evaluate ventricular torsion by echocardiography in HIV-infected pediatric and adolescent population, compared to healthy controls matched by sex, age and body mass index. A portable echo-device (Phillips CX50) with a 5Hz Speckle Tracking transducer was used. Clinical and anthropometric variables, lipid profile, exposure to antiretroviral drugs were recorded. Ventricular function was evaluated with 2D Echocardiography, Mode M, valvular Doppler, tissue Doppler and Speckle Tracking.

RESULTS. 77 cases and 68 controls were included. 59,8% females, mean age of 14.9 years. 96,6% were vertically HIV-infected. 78,2% had undetectable viral load, all but 4 patients were on HAART. The following left ventricular function parameters were obtained: E/A ratio of 1,6 in the HIV group versus 1,8 in the control group ($p=0,15$), E/E' ratio of 5,2 in the cases versus 4,9 ($p= 0,282$), shortening fraction of 36% in the HIV group versus 41,4% ($p=0,03$), and ejection fraction of 65,8% in the cases versus 72,3% ($p=0,02$).

25% of the images were analyzed by two technicians, the correlation between the main technician and the expert was good obtaining a coefficient of 0.8. The mean global torsion in the HIV-infected group was $5,4^\circ$ versus $5,1^\circ$ in the controls ($p=0,000$).

CONCLUSION. Speckle Tracking is an easily reproducible technique, which can be performed by different trained technicians without significant differences. No clinical differences were found between cases and controls. Ventricular torsion measured by Speckle Tracking was significantly different in healthy controls and HIV-infected patients.