

# Echocardiographic assessment of left cardiac structure and function in ART-naïve people living with HIV/AIDS

Xing Hu<sup>1</sup>, Yuan Zhang<sup>1</sup>, Tong Zhang<sup>2</sup>, Weihua Li<sup>1</sup>, Jing Han<sup>1</sup>, Xuhui Zhang<sup>1</sup>, and Fankun Meng<sup>1</sup>

<sup>1</sup>Beijing Youan Hospital, Capital Medical University

<sup>2</sup>Capital Medical University, Beijing

January 30, 2024

## Abstract

**Background:** Patients with human immunodeficiency virus (HIV) are at a significantly higher risk of cardiovascular disease (CVD) compared to HIV-negative people. Left heart dysfunction is the most common cardiac complication in people living with HIV/AIDS (PLWHA), and diastolic dysfunction is an important predictor of cardiovascular events. The aims of this study were 1) to detect changes in left cardiac structure and function in antiretroviral therapy (ART)-naïve PLWHA using echocardiography; and 2) to investigate the risk factors for the development of left ventricular diastolic dysfunction (LVDD) in ART-naïve PLWHA. **Methods:** We retrospectively included 105 ART-naïve PLWHA and included 90 healthy subjects as controls to compare the differences in left heart structure and function between the two groups. Univariate and multifactorial logistic regression were employed to explore the risk factors of the development of LVDD in ART-naïve PLWHA. **Results:** The left ventricular end-diastolic internal diameter (LVEDD), left ventricular mass index (LVMI), and left atrial volume index (LAVI) were significantly greater in PLWHA than in controls ( $p < 0.05$ ). The E/A ratio, lateral e' velocity, and mitral deceleration time (DT) were significantly lower in PLWHA than in controls ( $p < 0.05$ ). Average E/e' ratio was significantly higher in PLWHA than in controls ( $p < 0.05$ ). Left ventricular ejection fraction (LVEF) and left ventricular fractional shortening (LVFS) were not significantly different between PLWHA and controls ( $p > 0.05$ ). Multifactorial logistic regression analysis showed that age, body mass index (BMI), and CD4+ count  $< 200$  cells/ $\mu$ L were independent influencing factors for LVDD in ART-naïve PLWHA (OR=1.781, 1.228, 3.683,  $p < 0.05$ ). **Conclusions:** Left ventricular systolic function did not differ between PLWHA and controls, and left ventricular diastolic function was lower in PLWHA than in controls. Age, BMI, and CD4+ count were independent factors affecting LVDD in ART-naïve PLWHA.

## Hosted file

Manuscript.doc available at <https://authorea.com/users/723133/articles/707979-echocardiographic-assessment-of-left-cardiac-structure-and-function-in-art-na%C3%AFve-people-living-with-hiv-aids>



