



## Article Original

## Clinical, Virological and Echocardiographic Aspects of Cardiomyopathies in People Living with HIV AIDS in the Intensive Care Unit of the Yaounde University Hospital: a Report of 40 Cases

*Aspects cliniques virologiques et échocardiographiques des cardiomyopathies chez les personnes vivant avec le VIH Sida dans l'Unité de Soins Intensifs du Centre Hospitalier et Universitaire de Yaoundé: À propos de 40 cas*

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### RÉSUMÉ

**Introduction.** L'infection à VIH est un véritable problème de santé à travers le monde. 2 à 7,5% des personnes vivant avec le VIH souffrent de maladies cardiovasculaires cliniquement significatives, les cardiomyopathies figurent parmi les plus critiques. L'objectif de cette étude est de décrire les aspects cliniques, virologiques et échocardiographiques des cardiomyopathies dans le groupe des patients infectés par le VIH. **Méthodes.** Cette étude transversale rétrospective étendue sur une période de cinq ans a concerné les patients vivant avec le VIH SIDA, porteurs de cardiomyopathie, âgés d'au moins 21 ans, sous traitement antirétroviral ou non. Toutefois, les patients dont les dossiers étaient incomplets et ceux sous inhibiteur de la protéase ont été exclus. Les données ont été recueillies sur une fiche pré-établie. L'analyse statistique des données a été effectuée à l'aide du logiciel SPSS version 20.0. **Résultats.** La taille de notre échantillon était de 40 avec un sex ratio de 1.5. L'âge moyen était de  $38.7 \pm 8.6$  ans. Les cardiomyopathies dilatées représentaient 52.5% des cas, les cardiomyopathies hypertrophiques 35.0% et les cardiomyopathies restrictives 12.5%. Le taux moyen de CD4 était de  $195 \pm 127/\text{mm}^3$  et la charge virale moyenne de  $67822 \pm 12679$  cp / ml. Le tableau clinique était dominé par les signes d'insuffisance cardiaque. **Conclusion.** Les cardiomyopathies liées au VIH sont courantes dans notre contexte. Un meilleur accès aux antirétroviraux changerait significativement le cours de la maladie.

### ABSTRACT

**Introduction.** Human immunodeficiency virus (HIV) infection is a very important public health problem worldwide. About 2 - 7.5% of people with HIV suffer from a clinically significant cardiovascular ailments; cardiomyopathies feature among the critical thereof. The purpose of this study was to describe the clinical, virological and echocardiographic aspects of cardiomyopathies in a group of HIV-infected patients. **Methods.** This cross-sectional, descriptive and retrospective study covered a period of five years. We included people living with HIV AIDS, with cardiomyopathy, who were aged 21 years or more, whatever the status of their antiretroviral treatment. However, patients taking protease inhibitors and those with incomplete medical records were excluded. The data was collected on pre-determined data sheets and the statistical analysis was done using SPSS software version 20.0. **Results.** Our population size was 40 with a sex ratio of 1.5 and an average age of  $38.7 \pm 8.6$  years. Cardiomyopathy was dilated in 52.5% of cases, hypertrophic in 35.0% of cases and restrictive in 12.5% of cases. The average CD4 count was  $195 \pm 127 / \text{mm}^3$  and the average viral load was  $67822 \pm 12679$  cp / ml. The clinical presentation was dominated by signs of heart failure. **Conclusion.** HIV-related cardiomyopathies are common in our context. Better access to ARVs would significantly change the course of the disease.

## INTRODUCTION

Infection with the human immunodeficiency virus (HIV), often described as the "pandemic of the century" remains a major public health problem worldwide. UNAIDS estimated the number of people living with HIV in the world at 36.7 million [1]. In Cameroon, about 3.8% of people between the ages of 15 and 49 were infected by HIV in 2016 with an annual incidence of 2.34 ‰ [2]. The epidemic was responsible for 1 million deaths in 2016, of which cardiovascular disease accounts for about 7% of cases [1,3,4].

The arrival of ARV treatments and the increase in life expectancy of HIV-infected patients have led to a change in the clinical profile of the disease. Previously dominated by acute conditions, chronic diseases are at the forefront today and cardiovascular damage is not the least.

HIV-related cardiomyopathy remains the leading cardiovascular disease in low and middle-income countries where less than half of patients have access to ARVs, unlike developed countries [5]. In fact, only 37% of people living with HIV AIDS in Cameroon were under ART in 2016 [2]. It is in this context that we undertook to describe the clinical, virological and echocardiographic aspects of cardiomyopathies in a group of HIV-infected patients at the Yaoundé University and Hospital Center.

## METHODOLOGY

This was a descriptive and retrospective cross-sectional study over a 5-years period from April 30, 2010 to May 31, 2015, at the multipurpose resuscitation unit of the Yaoundé University Hospital Center (CHUY).

Hospitalized peoples infected by HIV, with cardiomyopathy were included in the study regardless of whether they were under ARVs. Patients receiving protease inhibitors and those whose medical records were unusable were excluded from this study.

The variables collected in the medical records were sociodemographic data, clinical signs of heart disease, virological parameters, and echocardiographic results.

Statistical analyzes were performed using SPSS software version 20.0. We presented the results as average  $\pm$  standard deviation for quantitative variables and as counts and percentages for qualitative variables.

The study was approved by the ethics committee of the University of Douala and a research authorization was obtained from CHUY's general management.

## RESULTS

We collected 40 patient's files for this study. There were 24 men (60%), giving a sex ratio of 1.5. The average age of our study population was  $38.7 \pm 8.6$  years.

Cardiovascular risk factors were sedentary lifestyle (92.5%), alcohol consumption (45.0%), diabetes (25.0%) and smoking (17.5%).

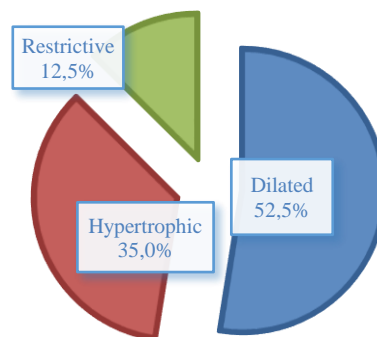
The average CD4 count was  $195 \pm 127/\text{mm}^3$  and the average viral load was  $67822 \pm 12679$  cp/ml.

The clinical picture was dominated by signs of heart failure (Table I).

**Table I: Cardiovascular clinical signs**

Clinical signs	n	%
Asthenia	39	97,5
Orthopnea	21	52,5
Edema of the lower limbs	17	42,5
Hepatomegaly	11	27,5
Distension of jugular veins	10	25,0

The type of underlying heart disease was dominated by dilated cardiomyopathy (52.5%) as shown in the figure below.



**Figure 1:** Different types of cardiomyopathy

Table II presents the various abnormalities on the echocardiography. These were dominated by the dilation of the heart chambers.

**Table II: Abnormalities found on cardiac ultrasonography**

Echocardiographic abnormalities	n	%
Dilation of ventricular cavities	26	65,0
Hypertrophy of the ventricular walls	19	47,5
Dilation of atria	16	40,0
Ventricular hypokinesia	6	15,0
Pericardial effusion	4	10,0
Valvular abnormalities	3	7,5
Intracavitary Thrombus	3	7,5

## DISCUSSION

Chronic attacks during HIV infection are not often topics for study in low and middle-income countries where opportunistic infections remain at the forefront. As a result, these disorders, particularly the cardiovascular ones, are often discovered at late and complicated stages. We have presented here the profile of some patients living with HIV with cardiomyopathy. In general, most HIV-infected patients are under the age of 45 and our group is no exception.

A sedentary lifestyle has been found in 92.5% of patients and may be the consequence of functional limitations due to the severity of cardiac involvement. The latter also explains the preponderance of signs of heart failure found.

Niakara et al in Burkina Faso also found signs of heart failure in 79% of patients in her series, 57% of whom had dilated cardiomyopathy [6]. The average level of CD4 was very low in our sample (<200/mm<sup>3</sup>). Myocarditis, occurring more frequently when the CD4 count drops below 400/mm<sup>3</sup>, would then be the main etiology [5]. Barbaro et al also found that 83% of patients with dilated cardiomyopathy had myocarditis [7]. However, micronutrient deficiencies and other probable causes such as autoimmunity, ARV toxicity and tuberculous myopericarditis are not to be overlooked [5]. Expanded cardiomyopathy was the most common and classically described form in cardiac involvement during HIV infection.

Expansion of the ventricular cavities was the most common ultrasound anomaly. Similarly, Pozzan et al, when analyzing 94 myocardial necropsies of HIV-infected

patients, found a prevalence of 74% dilation of heart chambers [8].

### CONCLUSION

HIV-related cardiomyopathy is common and severe in low and middle-income countries. It is not often researched after because of the prevalence of opportunistic infections that hold the attention of care takers. Early triple therapy with ARVs would reduce the prevalence and severity of HIV-related dilated cardiomyopathy. Consequently, advocacy for better accessibility of these drugs is a public health priority.

### Conflicts of interest

The authors hereby declare that they have no conflict of interest on this topic.

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