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SUB-SAHARAN AFRICA: THE ISSUES OF NOTE**

## ECHOCARDIOGRAPHIC ABNORMALITIES IN HIV INFECTED CHILDREN IN SUB-SAHARAN AFRICA: THE ISSUES OF NOTE

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**The prevalence of human immunodeficiency virus (HIV) remains unacceptably high, especially in sub-Saharan Africa (SSA).** Close to 90% of children infected with HIV live in SSA.<sup>1,2</sup> Majority are believed to have acquired the infection via mother-to-child transmission.

Mortality has considerably decreased as a result of improved antiretroviral (ARV) medication and increased access to highly active antiretroviral therapy (HAART), and more children with HIV are now surviving into adolescence and beyond.<sup>3-5</sup> Children with long-term HIV infection and/or its treatment may develop non-infectious consequences, such as heart disease, which may have deleterious effects on the children's long-term health.<sup>6,7</sup>

The main cardiac targets in HIV-infected persons include the pericardium, myocardium, coronary arteries, and pulmonary arteries. Pericardial TB and cardiomyopathy are the two most common types of HIV-associated cardiac disease in SSA, where tuberculosis is still widespread and HAART treatment is still not widely available. However, coronary artery disease remains the leading cause of mortality and disability in people with HIV in industrialized nations where TB is uncommon and HAART is readily accessible. By promoting immunological function, HAART lowers the prevalence of myopericardial disease and pulmonary hypertension.<sup>8</sup>

Cardiac abnormalities are frequent in HIV-infected children, though most are asymptomatic.<sup>9,10</sup> Cardiac abnormalities including subclinical manifestations often herald advanced disease associated with increased mortality and this can be detected by echocardiography. These changes constitute

independent risk factors of early mortality. Its early detection will aid the identification of affected children and allow early intervention.<sup>2</sup> Among the frequently described abnormalities are left ventricular (LV) diastolic dysfunction, dilated cardiomyopathy, LV hypertrophy, LV systolic dysfunction, pulmonary hypertension, and pericardial effusion.<sup>2,9</sup> These cardiac manifestations are not exclusively caused by the direct toxicity of HIV on cardiac cells, other factors such as immune reactions, nutritional deficiencies, opportunistic infections, and ARV treatments are known to play a contributory role.<sup>9</sup> The availability and use of HAART have turned HIV into a chronic disease, allowing patients to live much longer.<sup>10</sup>

Studies have shown that there is a high prevalence of echocardiographic abnormalities in HIV-infected children in sub-Saharan Africa, with some estimates suggesting that up to 70% of affected children may have cardiac abnormalities.<sup>11-13</sup> These abnormalities can include left ventricular dysfunction, diastolic dysfunction, and pulmonary hypertension, among others. Studies from sub-Saharan Africa have reported significant incidences of cardiac involvement in HIV-infected children in both the pre-HAART and HAART eras.<sup>14-16</sup> The reported effect of HAART on the incidence of cardiovascular abnormalities in HIV patients is mixed. Some studies have reported that HAART is cardioprotective, and in some cases, the resolution of conditions such as dilated cardiomyopathy has been reported. But on the other hand, exposure to HAART is one of the mechanisms of involvement of the heart in HIV-infected patients.<sup>17</sup> Some studies have shown that HAART converted symptomatic cardiac disease to mild or asymptomatic disease, significantly improving patient survival and quality of life.<sup>6,16</sup>



Risk factors for the development of cardiac abnormalities in HIV-infected children include advanced HIV disease, low CD4 cell counts, high viral loads, and the use of certain antiretroviral medications. These risk factors can lead to inflammation and damage to the heart and blood vessels, which can result in the development of cardiac abnormalities. The presence of cardiac abnormalities in HIV-infected children can have significant implications for their long-term health. Left untreated, these abnormalities can lead to heart failure, stroke, and other cardiovascular complications, which can adversely impact the children's quality of life and life expectancy.

There are several challenges associated with diagnosing and treating cardiac abnormalities in HIV-infected children in sub-Saharan Africa.<sup>18,19</sup> These include limited access to echocardiography and other diagnostic tools, a lack of trained personnel to perform and interpret echocardiograms, and limited availability of medications to treat cardiac abnormalities.

The usefulness of echocardiography to identify the subclinical disease and prevent cardiovascular disease in young to middle age is therefore very essential. To optimize this, therefore, there is need to embark on regular echocardiographic screening of young HIV children to identify and institute appropriate treatment that can reduce the associated morbidity and mortality due to cardiovascular disease in HIV/ AIDS.

Early detection and treatment of cardiac abnormalities in HIV-infected children are crucial for improving their long-term health outcomes. This requires a coordinated effort between healthcare providers, public health officials, and community organizations to increase awareness of the issue, improve access to diagnostic tools and treatments, and develop effective strategies for prevention and management.

**In conclusion,** echocardiographic abnormalities in HIV-infected children in sub-Saharan Africa are a significant health concern that requires increased attention and resources to improve detection, treatment, and long-term outcomes.

**Keywords:** Cardiac, Children, Dysfunction, HIV, Systolic, Ventricular

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