



## Cardiac Risk Assessment among Patients with HIV Disease

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## **EDITORIAL**

Cardiovascular risk factors are prevalent in HIV-positive patients which places them at increased risk for Cardiovascular Disease (CVD). CVD is a group of disorders of the heart and blood vessels which can manifest as coronary heart disease, peripheral arterial disease, cerebrovascular disease, rheumatic heart disease, deep vein thrombosis, congenital heart disease and pulmonary embolism.

Despite advancements in the treatment of human immunodeficiency virus (HIV) with combination Anti-Retroviral Therapy (ART), non-infectious causes of morbidity and mortality have had an increasingly negative impact on morbidity and mortality in affected patients. CVD appears to significantly impact this morbidity as evidenced by a rise in CVD hospitalization rates among HIV-infected patients.

HIV patients are exposed to a higher risk of adverse cardiovascular events, due to complex interactions between traditional risk factors and HIV infection itself in terms of ongoing endothelial dysfunctional immune inflammation and increased risk of thrombosis. Long-span antiretroviral therapy administration still raises questions on its long-term safety in which life expectancy is becoming longer while treatment of non-HIV-related serious events is increasingly raising concern.

The increased incidence of CVD in HIV patients may relate to an interplay of traditional CVD risk factors manifesting in an aging population, higher incidence of related co-morbidities such as Hepatitis C (HCV), toxicities including dyslipidemia and lipodystrophy related to ART, higher incidence of traditional risk factors such as smoking and the inherent inflammatory response and immune activation related to the virus.

Human Immunodeficiency Virus (HIV)-infected individuals are living longer in the era of antiretroviral therapy. As a result, they are increasingly prone to the development of concomitant chronic disease. Coronary Heart Disease (CHD) is the leading cause of death in the United States and Europe. Similar to risk factors in the general population, CVD in the HIV-infected population can be caused by non-modifiable risk factors including older age and family history of CVD, and modifiable risk factors such as medical conditions diabetes, hypertension, dyslipidaemia and behavioural factors smoking and diet. The increased risk of CVD might also be attributable to risk factors specific to the HIV-positive population, such as compromised immune activation, immunity, HIV associated inflammation and receiving Anti-Retroviral Therapy (ART).

Since HIV populations are at increased CVD risk, screening approaches designed for the general population may underestimate individual CVD risk. It is recommended that clinicians consider using HIV specific risk scoring systems or take into account that HIV infection is an additional risk factor and provide CVD preventive measures.

Combination Anti-Retroviral Therapy (cART) has dramatically improved the survival of people living with HIV infection. As a result, the increased life expectancy has led to an epidemiological shift of the comorbidities from Acquired Immunodeficiency Syndrome (AIDS)-related opportunistic illnesses to non-AIDS-related diseases such as dyslipidemia, chronic kidney disease, reduced bone mineral density, hypertension, Diabetes Mellitus (DM), Cardiovascular Disease (CVD).

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