

**SRI LANKA MEDICAL ASSOCIATION OF NORTH AMERICA
EASTERN REGION INC.
PRESENTS**

**SLMANA EAST
CHARITY BALL
ANNUAL GENERAL MEETING
&
SCIENTIFIC SESSIONS
ON
NOVEMBER 12TH, 2011**



**NEW YORK HILTON AND TOWERS
1335 Avenue of The Americas New York, NY**

**“Metabolic and cardiac
consequences of HIV and
HIV treatment”**

Vel Sivapalan, MD FACP

Traditional risk factors such as age, smoking, DM and hypertension, increase the risk of CVD in individuals with or without HIV infection.

There is evidence of an increased rate of cardiovascular events in HIV-infected patients compared with HIV-negative patients and there is also evidence to suggest that HIV virus may confer its own increase in CVD risk.

J Clin Endocrinol Metab. 2007.

CVD risk in HIV infection is likely a product of host, virus and antiretroviral therapy.

Host Factors

Patients with HIV infection are at increased risk of developing metabolic syndrome.

Metabolic syndrome involves a constellation of symptoms, often related to obesity, that increase the risk for diabetes and heart disease.

A diagnosis of metabolic syndrome is made when a patient has at least three of the following symptoms:

- 1. Abdominal obesity**
- 2. High triglyceride levels, low HDL cholesterol,**
- 3. Hyperglycemia/insulin resistance**
- 4. Hypertension.**

Composition of the components making up the metabolic syndrome differs in HIV-infected individuals compared with the general population.

Hyper triglyceridemia and low HDL cholesterol are the predominant features in HIV associated metabolic syndrome.

HIV metabolic syndrome has several features in common with the lipodystrophy syndrome observed in HIV-infected individuals, such as insulin resistance, dyslipidemia and fat redistribution.

HIV-Infected men appear to be at increased risk for Diabetes.

Brown TT, et al. Lipodystrophy Workshop 2003. Abstract 43.

Patients living longer with HIV increases the traditional risk factors such as age, HTN, DM

Smoking incidence is increased in HIV-infected patients vs general population.

Savès M, et al. Clin Infect Dis. 2003

HIV Viral Factors

HIV infection itself has profound effects on lipids

Macrophages, which play a pivotal role in atherosclerosis, are also hosts for HIV.

Endothelial dysfunction - HIV infection may increase endothelial dysfunction.

Torriani F, et al. EACS

2005. Abstract PS5-3.

HIV has been reported to infect smooth muscle cells in vitro and in vivo and increase secretion of a monocyte chemo attractant which facilitates development of foam cells and initiate plaque formation in vessel walls

Mujawar et al, PLoS Biol, 2006

Eugenin et al, Am J Pathol, 2008

Bukrinsky et al, CROI, 2009

Anti retro viral therapy

There is evidence of an association between prolonged ART use and an increase in the absolute risk of CVD related to elevation in lipids, although study results are presently inconsistent.

Eng. J Med. 2003

Friss-Moller N et al. N.

Chai H, et al. J Acquir Immune Defic Syndr 2005

Some studies have linked this to Protease Inhibitor therapy.

Dube MP, et al. Clin Infect Dis. 2003

Some studies have not shown increased incidence as clearly.

Others have shown link to HIV disease and not to treatment.

Anti retro viral therapy

- In all studies, most incidents of cardiovascular disease occurred in persons with known traditional risk factors.

Treatment of HIV infection reverses (at least partially) HIV effect but introduces the complexity of drug effects on lipids.

Overall impact of ART on lipids in an individual patient also reflects host considerations including lifestyle and diet, genetic predisposition and comorbidities (eg: insulin resistance and diabetes)

Management

CVD risk should be considered in the overall care of patients with HIV infection.

Traditional factors are the biggest contributor to CVD in HIV population

Management

- **Assess cardiovascular risk**
- **Address lifestyle issues**
- **Diet**
- **Exercise**
- **Smoking**
- **Treat hypertension**
- **Treat dyslipidemia**
- **Treat diabetes mellitus**

Management

- In HIV-positive patients, as in the general population, lifestyle modification should be the first approach: smoking cessation, diet modification, increase exercise
- Use of lipid-lowering therapy or ART switching should be individualized
- Switching ART in patients with undetectable viral load may result in improvements in lipid parameters
- Impact of smoking cessation is greater than the impact of any other intervention

Q & A

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