Microbiology Editorial
International Journal of Clinical And Diagnostic Research ISSN 2395-3403
Volume 4, Issue 4, July-Aug 2016.

HIV-1 INFECTION AND ITS INFLUENCE ON LIPID METABOLISM AND CARDIOVASCULAR DISEASE

Venkataramana Kandi

***Corresponding Author:**
Venkataramana Kandi (K V Ramana)PhD, FAGE
A/Prof of Microbiology
Member Asian Council for Science Editors (ASCE)
Prathima Institute of Medical Sciences
Karimnagar-505417
Telangana
India
email: ramana_20021@rediffmail.com
Alternate emails: ramana20021@gmail.com
Mobile: 9440704234

It is important to recognize the fact that human immunodeficiency virus (HIV-1) infection by itself can have its effect on lipid metabolism irrespective of initiation of highly active antiretroviral therapy (HAART). For example, it has long been recognized that triglyceride level increases markedly with HIV-1 disease progression, likely reflecting persistence of an inflammatory state as well as wasting. A previous research has showed an increase in mean triglyceride value from 91 mg/dL in HIV-1 negative individuals to 166 mg/dL among HIV-1 infected group and 231 mg/dL in people living with AIDS. These results indicate an increase in triglyceride level

occurring in half of the HIV-1-infected patients. Total cholesterol value was noted to decrease from 190 mg/dL in non HIV-1 infected population to 157 mg/dL among patients with AIDS. Data from a Multicenter AIDS Cohort Study (MACS) cohort indicate that low-density lipoprotein cholesterol (LDL-C), total cholesterol, and HDL-C levels decrease with HIV-1 infection. Initiation of antiretroviral therapy is associated with increases in LDL-C and total cholesterol values and persistence of reduced HDL-C level. Antiretroviral agents can affect triglyceride and other lipid levels. In a study assessing changes in lipid levels in non-HIV-1 infected subjects, 5 days of administration of ritonavir-boosted lopinavir increased triglyceride value significantly (177 mg/dL) compared with atazanavir (131 mg/dL) or placebo (124 mg/dL), with no significant differences in total cholesterol, LDL-C, or HDL-C being observed. Another research study observed a group of patients that included HIV-1 infected patients who were receiving a combination containing stavudine/ lamivudine with either nelfinavir or atazanavir. This study has noted that among those patients receiving nelfinavir there was increased activities of total cholesterol, LDL-C, and triglyceride values as compared to baseline levels. Study had also observed returning of activities of these parameters to near baseline values after patients were switched to open-label atazanavir at 72 weeks. In another experience, 162 patients with hyperlipidemia on other antiretroviral therapy regimens (34% receiving lopinavir/ritonavir) were crossed to ritonavir- boosted atazanavir as part of an early access program. After 6 months, total cholesterol activities were reduced by 12%, LDL-C by 10%, and triglyceride by 18%, and HDL-C was increased by 3% (all statistically significant changes). Almost one-third of patients who were receiving lipid-lowering therapy were able to discontinue such therapy

after the switch to ritonavir boosted atazanavir. Many HIV-1-infected patients have dyslipidemia and other cardiovascular risk factors prior to acquiring infection. Both HIV-1 infection by itself and initiation of antiretroviral therapy can cause or worsen lipid abnormalities. Management of dyslipidemia in the HIV-1-infected population requires awareness of the effects of antiretroviral agents on lipid profiles, including potential of sex, race and individual related effects, and interactions between lipid-modifying agents and antiretroviral agents. [1-13]

References:

1. Aberg JA. Management of dyslipidemia and other cardiovascular risk factors in HIV-infected patients: case-based review. Top HIV Med. 2006;14(4):134-9
2. Ramana KV, Ratna Rao, Sabitha, Venugopal B, Rafi MD, et al. (2012) Biochemical Parameters in Human Immunodeficiency Virus Disease Progression. J Medical Microbiol Diagnosis 1:103. doi:10.4172/2161-0703.1000103.
3. K V Ramana, Effect of Highly Active Antiretroviral Therapy (HAART) on Human Immunodeficiency Virus Disease Pathogenesis and Progression. American Journal of Public Health Research. 2014; 2 (3): 68-74.
4. Ramana, K V. "Markers of HIV-1 Disease Progression and Treatment Response in Highly Active Antiretroviral Therapy (HAART) Era: A Review". American Journal of Infectious Diseases and Microbiology. 2013; 1.5: 96-100.
5. Ramana K V, Rao R. Noninfectious complications in HIV disease: Need for rational changes in HIV disease management in the highly active antiretroviral therapy era. Ann Trop Med Public Health. 2013; 6:383-5
6. Ramana K V, Rao R, Kandi S, Singh PA, Kumar VP. Elevated activities of serum lactate dehydrogenase in human immunodeficiency virus sero-positive patients in highly active antiretroviral therapy era. J Dr NTR Univ Health Sci . 2013;2:162-6
7. K V Ramana and Ratna rao. Human Immunodeficiency Virus disease

management in Highly Active Anti-Retroviral Therapy era: a comprehensive review Ann of Trop Med Public Health. 2013; 6(1): 5-9

8. K V Ramana, V Sabitha, Ratna Rao. A Study of Alternate Biomarkers in HIV Disease and Evaluating their Efficacy in Predicting T CD4+ cell counts and Disease Progression in resource poor settings in Highly Active Antiretroviral Therapy (HAART) Era. Journal of Clinical and Diagnostic Research [serial online] 2013; 7:1332-5
9. K V Ramana. Are we close enough to get rid of AIDS: Insights in to impact of Human Immunodeficiency virus (HIV) infection post Highly Active Antiretroviral therapy (HAART) Era. International Journal of Molecular Medical Science. 2013; 3(5): 25-9
10. Kandi Venkataramana. A Study of Biological Markers in HIV Disease Progression and Management in the Highly Active Antiretroviral Therapy (HAART) Era, American Journal of Bioscience and Bioengineering. 2013; 1(2): 24-37
11. Ramana KV, Ratna Rao, Sabitha. Abnormal Levels of γ-Glutamyl Transpeptidase (GGTP), ALT, AST in Human Immunodeficiency Virus-1(HIV-1) Infection. Biochem Physiol. 2012; 1:101.
12. Ramana K V . HIV Disease Management in the Highly Active Antiretroviral Therapy (HAART) Era. J Medical Microbiol Diagnosis. 2012; 1:e101.
13. Ramana K V, Jagadeeswhwara chary, Sabitha V, S K Mohanty, Ratna Rao. Role of Hematological and Alternate Markers in Human Immunodeficiency Virus Disease Progression. American Medical Journal. 2010; 1 (2): 84-7.