Subclinical atherosclerosis in HIV-infected patients on highly active antiretroviral treatment (HAART)

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Background: Cardiovascular disease (CVD) has become more prevalent among the HIV-infected patients. Whether or not highly active antiretroviral treatment (HAART) alone directly contributes to subclinical atherosclerosis in HIV-infected patients is controversial. We aim to determine the association between HAART and subclinical atherosclerosis.

Methods: All patients attending the HIV clinic in University of Malaya Medical Centre from July 2011 until January 2012 were included. Patients with symptomatic HIV, established coronary heart disease, hypertension, dyslipidaemia and diabetes mellitus were excluded from the study. Patients were examined for blood pressure and anthropometric measurements. History of tobacco consumption and family history of coronary artery disease were obtained. Biochemical analysis comprises oral glucose tolerance test, full lipid profiles (after a 10-hour fasting), CD4 cell counts and HIV RNA viral load. Analysis of carotid intima-media wall thickness (CIMT) was carried out by a single trained ultrasonographer throughout the study period using the high-resolution B-mode ultrasonography. Subclinical atherosclerosis was defined as the presence of plaque (focal echogenic structure with CIMT > 1.2 mm), or CIMT > 0.8 mm.

Results: 109 HIV-infected patients were enrolled in this study. 93 (85.3%) were on HAART and 16 (14.7%) were HAART-naive. A total of 45 (41.3%) patients had subclinical atherosclerosis and out of that 41 (91%) were on HAART. Subclinical atherosclerosis was significantly associated with age, waist circumference, total cholesterol, duration of HIV infection and duration of exposure to HAART (p < 0.05). Other significant factors associated with subclinical atherosclerosis were hypertension (OR = 2.4; 95% CI 1.1-5.4), high triglyceride (OR = 2.9; 95% CI 1.3-6.7) and exposure to Zidovudine (OR = 2.5; 95% CI 1.1-6.0). However, there were no significant association between family history of CVD, smoking and diabetes to subclinical atherosclerosis.

Conclusion: Both duration of HIV-infection and exposure to HAART were associated with subclinical atherosclerosis in HIV-infected patients. When individual HAART were analyzed, Zidovudine has significant association to subclinical atherosclerosis.