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LIPOPROTEIN ABNORMALITIES ASSOCIATED WITH USE OF HIV PROTEASE INHIBITORS

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OBJECTIVES: HIV protease inhibitors (HIV PIs) have been associated with hypertriglyceridemia. Because some but not all triglyceride (TG)-rich lipoproteins are atherogenic, we used nuclear magnetic resonance (NMR) spectroscopic subclass analysis to characterize the lipoprotein abnormalities associated with use of HIV PIs.

DESIGN: A cross-sectional analysis was performed on 37 HIV-infected adults on a stable antiretroviral regimen for ≥ 6 months. Twenty-two were receiving HIV PIs (PI+); 15 were not (non-PI). Serum samples were obtained after a 14-h fast and frozen at -70°C . Lipid mass concentrations of 16 lipoprotein fractions, average particle sizes and particle concentrations were quantified by NMR spectroscopic analysis.

RESULTS: Although subjects on PI+ and non-PI-containing regimens were similar in regard to age (42 ± 7 years), gender, time since diagnosis of HIV infection, and CD4 cell count (all $P \geq 0.29$), TG levels were significantly higher in PI+ subjects (298 versus 170 mg/dl, $P=0.02$). PI+ subjects had elevated very low-density lipoprotein-TG levels (VLDL-TG, 259 versus 137, $P=0.02$), with a disproportionate elevation in the large VLDL₅₋₆ fraction that includes chylomicron remnants (146 versus 58, $P=0.01$), and higher chylomicron-TG levels (chylol-TG, 3.5 versus 1.1, $P=0.07$). Furthermore, PI+ subjects had elevated levels of intermediate-density lipoprotein cholesterol (IDL-C, 7.5 versus 2.6, $P=0.02$), despite having similar total (213 versus 185, $P=0.12$), high-density lipoprotein (HDL, 38 versus 39, $P=0.39$), and low-density lipoprotein (LDL, 133 versus 118, $P=0.22$) cholesterol levels. Differences in HDL and LDL particle numbers, sizes and subclass distributions were not observed.

CONCLUSIONS: Increased levels of triglycerides and cholesterol in remnant lipoproteins and chylomicrons characterize the dyslipidemia associated with use of HIV PIs. Because this dyslipidemia may be atherogenic, screening for HIV PI-related dyslipidemia and recognizing its potential to lead to atherosclerotic vascular disease are important clinical considerations.

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