



7th International Workshop on Adverse Drug Reactions and Lipodystrophy in HIV

13–16 November 2005, Dublin, Ireland

Diastolic function is associated with whole-body palmitate oxidation and serum high density lipoprotein in HIV+ subjects taking ART

WT Cade¹, DN Reeds¹, V Davila-Roman¹, A Waggoner¹, S Klein¹, WG Powderly² and KE Yarasheski¹

¹Washington University School of Medicine, St. Louis, MO, USA; ²University College Dublin, Dublin, Ireland.

Antiviral Therapy 2005; 10:L15 (abstract no. 22)

OBJECTIVES: HIV and protease inhibitor (PI)-based antiretroviral treatment (ART) are associated with abnormal lipid metabolism and diastolic dysfunction. We used submaximal exercise to stimulate whole-body lipolysis and free fatty acid (FFA) oxidation and examined relationships among FFA kinetics, resting cardiac function and PI use in HIV+ taking PI (ritonavir)-based ART (HIV+PI), HIV+ taking NRTI-based ART (HIVnoPI) and HIV-negative controls (Ctrl). We hypothesized that HIV+PI would have higher lipolytic rates and lower FFA oxidation rates during rest and exercise than HIVnoPI and Ctrl and that FFA kinetics would be associated with abnormalities in cardiac function.

METHODS: 1-13C palmitate was infused during rest and 70 min of submaximal exercise (50% peakVO₂) to quantify basal and exercise-stimulated lipolytic rate (PalmRa) and palmitate oxidation rate (PalmOx) in three groups: HIV+PI (n=10), HIVnoPI (n=9) and Ctrl (n=5). Resting 2D and Doppler echocardiography was used to quantify cardiac contractile and anatomic parameters.

RESULTS: In contrast to our hypothesis, PalmRa was similar among the three groups during rest and exercise. Resting PalmOx was higher in HIV+PI (1.0±0.5, *P*<0.05) than Ctrl (0.4±0.1), but was not different between Ctrl and HIVnoPI (0.8±0.4 mmol/kgFFM/min). When HIV+ groups were combined, PalmOx during rest (0.9±0.4 vs 0.4±0.1) and during exercise (2.0±0.9 vs 0.8±0.4 mmol/kgFFM/min, *P*<0.03) were higher than Ctrl. HIV+ subjects exhibited lower early diastolic velocity (global em: 12.0±4.0 vs 16.4±3.8 m/s, *P*<0.02) and peak early (E) to peak late (A) diastolic flow velocity ratio

(E/A ratio: 1.4 ± 0.4 vs 2.1 ± 0.5 , $P < 0.001$) while left ventricular mass index (LVMI) tended to be greater (97.1 ± 14.4 vs $86.1 \pm 6.2 \text{g/m}^2$, $P < 0.09$) than Ctrl. PalmOx during exercise was related to LVMI ($r = 0.46$, $P < 0.05$). Serum high-density lipoprotein (HDL) levels were positively related to global em ($r = 0.58$, $P < 0.003$), ejection fraction ($r = 0.37$, $P < 0.08$), flow propagation ($r = 0.56$, $P < 0.006$), E ($r = 0.44$, $P < 0.03$), E/A ($r = 0.55$, $P < 0.006$) and negatively related to mean arterial pressure ($r = -0.49$, $P < 0.02$) and diastolic BP ($r = -0.49$, $P < 0.02$).

CONCLUSIONS: HIV infection, regardless of PI use, was associated with increased whole-body FFA oxidation rates during rest and exercise. Increased FFA oxidation and lower serum HDL levels were predictive of depressed cardiac, specifically diastolic, function.

Acknowledgements: Supported by NIH.



[Download PDF of this abstract.](#)

051113
22

Copyright © 2005 - [International Medical Press Ltd.](#) Reproduction of this abstract (other than one copy for personal reference) must be cleared through the International Medical Press Ltd. 2-4 Idol Lane, London EC3R 5DD UK.