

Poster presentation

## HIV infection significantly reduces lipoprotein lipase which remains low after 6 months of antiretroviral therapy

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### Purpose of the study

Fractional clearance rate of apolipoprotein B100-containing lipoproteins is reduced in HIV infection before and after antiretroviral (ARV) treatment [1]. We compared lipoprotein lipase (LPL) activity and gene expression in HIV-positive subjects before and 6 months after ARV with HIV-negative controls.

### Methods

Fasting blood post heparin total and hepatic lipase activity, adiponectin, leptin, insulin, glucose, and lipid measurements were made in 32 HIV-infected and 15 HIV-negative controls. LPL was estimated by subtracting hepatic lipase from total lipase. Adiponectin, LPL and hormone sensitive lipase (HSL) gene expression were measured from iliac crest subcutaneous fat biopsies. Patients were tested before, and 6 months after randomisation to AZT/3TC (n = 15) or TDF/FTC (n = 17) with EFV. Between-group comparison was by Mann-Whitney and paired samples by the Wilcoxon signed rank tests.

### Summary of results

There were no differences in gender, ethnicity, baseline BMI, regional fat distribution (whole body DEXA) and visceral (VAT) and subcutaneous fat (SAT) measured by abdominal CT scans between controls and patients. Trunk fat/BMI ratio, VAT and VAT:SAT ratio significantly increased after 6-month ARV therapy (p = 0.01). There were no differences between groups in serum NEFA,

HOMA and leptin levels. Selected other results are shown in Table 1.

### Conclusion

Post heparin lipoprotein lipase activity is reduced in HIV and does not return to control levels after 6 months of ARV therapy. AZT-containing regimens are associated with a greater increase in LPL, LPL gene expression and plasma adiponectin than TDF.

### References

1. Shahmanesh M, et al.: **Antiretroviral treatment reduces very-low-density lipoprotein and intermediate-density lipoprotein apolipoprotein B fractional catabolic rate in human immunodeficiency virus-infected patients with mild dyslipidemia.** *J Clin Endocrinol Metabol* 2005, **90**:755-60.

**Table 1: Measurements are mean (+/- SD). RNA expressions are in arbitrary units. \* control vs. HIV naïve, \*\* control vs. HIV 6 mth \*\*\* HIV naïve vs. HIV 6 mth.**

	Control	HIV Naive	HIV AZT 6 m	HIV TDF 6 m	p all HIV 6 m
Adiponectin ug/ml	8.2 (4.9)	10.3 (4.1)	13.3 (6.8) **p = 0.025, ***p = 0.05	9.4 (3.3)	**0.04, ***0.01
Hepatic lipase nmol/ml/h	200 (119)	126 (80)	148 (110)	137 (93)	NS
LPL nmol/ml/h	528 (151)	297 (107) *p = 0.0001	382 (212) **p = 0.05, ***p = 0.05	341 (167) **p = 0.12	**0.008
LPL mRNA	173 (106)	188 (97)	187 (68) **p = 0.05	167 (114) **NS	**0.004, ***0.007
HSL mRNA	0.38 (0.29)	0.38 (0.29)	1.2 (1.5) **p = 0.05, ***p = 0.05	1.3 (1.6) **p = 0.02, ***p = 0.015	**0.02, ***0.001
Adiponectin mRNA	30.9 (25.4)	26.1 (9.1)	39.4 (20.1) ***p = 0.09(NS)	33.2 (10.8) ***p = NS	NS

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