P.015: ARE NITRIC OXIDE SYNTHASE AND CYCLOOXYGENASE PRODUCTS INVOLVED IN ACETYLCHOLINE VASODILATING EFFECTS “IN VIVO”?

L.B.M. Resstel, F.M.A. Corrêa*

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Purpose: To determine the presence of vascular markers of premature atherosclerosis and metabolic correlates in a prospectively followed cohort of antiretroviral treated HIV-infected children.

Methods: Vascular assessment included: carotid intima-media thickness and brachial artery reactivity using vascular ultrasound; peripheral pulse wave velocity (PWV) using photoplethysmography; central PWV, arterial stiffness and impedance indices using an Echo-Doppler method; and only at follow-up, augmentation index and PWV by applanation tonometry. Disease markers, oral glucose tolerance, fasting lipid profiles and abdominal fat (single slice CT scan) were also determined.

Results: Twenty children were assessed at baseline (median age 12.6 [range 8.3-18.5] years; 50% female) and follow-up 21-25 months later. All were on combination antiretroviral therapy at baseline, but 5 were off therapy at follow-up with fewer receiving protease inhibitors. Resting systolic blood pressure and pulse pressure increased significantly over the study period (both p < 0.0001), as did elastic modulus, stiffness index and input impedance (p = 0.0016, p = 0.0004, p = 0.0082, respectively). PWV measures by the different methods were not shown to correlate significantly. Dyslipidemia and abnormal glucose metabolism were present in 14 and 2 at baseline, and in 7 and 0 at follow-up, respectively. Visceral, subcutaneous and total abdominal fat content increased over time, but not significantly so.

Conclusions: An increase in measures of large arterial wall stiffness was observed over time. The reduction in dyslipidemia at follow-up may be related to fewer children receiving protease inhibitors. The potential risk of premature atherosclerosis in HIV-infected children on antiretroviral therapy warrants long-term monitoring of metabolic profiles and vascular function.