

Acute HIV infection in a Thai cohort: A longitudinal proton MRS study

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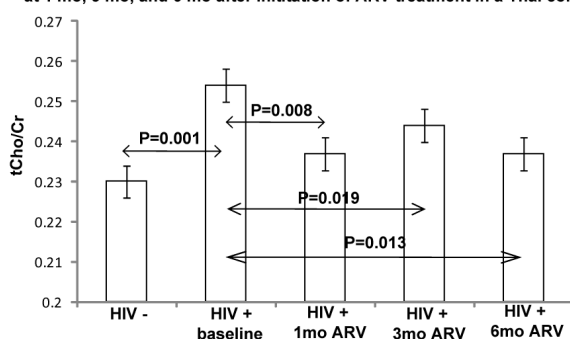
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Background: HIV enters central nervous system (CNS) in the earliest stage of infection causing inflammation. Proton MRS has been used successfully to measure changes in neuronal markers of neuronal and glia dysfunctions. Little is known about brain dysfunction in acute HIV infection that occur over time after initiation of combination antiretroviral therapy (cART). This abstract represents results from a longitudinal study of well characterized acute HIV individuals in Thailand who are in the earliest stage of HIV infection (RV254/SEARCH010 protocol) and 1, 3 and 6 months later.

Methods: Single voxel proton MRS (probe-p, TE/TR=35/1500ms) were performed on thirty neurocognitively normal HIV patients with average infection duration of 13 days (range 1-32 days) and 1,3 and 6 months after initiation of cART. Ten healthy subjects were also examined. Four MRS voxels were placed in the basal ganglia (BG), frontal grey matter (FGM), frontal white matter (FWM), and occipital grey matter (OGM) to measure myoinositol (MI), choline (tCho), N-acetyl aspartate (NAA), and glutamate/glutamine (Glx). LCModel was used for metabolite quantification.

Results: Follow-up MRS scans were performed on 19 patients at 1 month, 21 at 3 months and 22 at 6 months after initiation of treatment. Results from repeated measure ANOVA analysis showed, at baseline tCho/Cr was significantly increased in the basal ganglia and increased in the occipital gray matter in the acute patients compared to healthy subjects.

tCho/Cr in basal ganglia in HIV- and Acute HIV+ at baseline, Acute HIV+ at 1 mo, 3 mo, and 6 mo after initiation of ARV treatment in a Thai cohort



In the basal ganglia, after 1 month of cART, tCho/Cr was significantly decreased (-6.6%) compared to baseline (Figure). At 6 month of treatment tCho/Cr was only 3% higher than HIV-. There were no significant differences in FGM, FWM and OGM regions and with treatment.

Conclusions: Increased Cho level suggests active cell membrane turn over and ongoing HIV virus infiltrating macrophages, microglia, and lymphocytes. However, such processes were significantly reduced over six months of follow up in association with cART treatment.

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