**NACC Project #2002-01**  
**Statin Effects on Platelet APP Ratios and AD Dementia**

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**Project description**

Previous work has shown that the ratio of two amyloid precursor protein (APP) isoforms is significantly and specifically reduced in AD patients, and that further individual reductions correlated with reduced MMSE scores (R=0.69, p < 0.05). Thus, platelet APP ratios may serve as a sensitive and more precise AD severity index correlating with decreased cognitive loss rates in new clinical trials.

At present, the efficacy of AD clinical trials is determined with various psychometric tests, the variability of which necessitate large patient numbers. AD prevalence is reduced 30-70% in patients taking cholesterol lowering drugs (statins) and brain amyloid burden is reduced in animals fed statins.

In collaboration with an NIH-funded 12-month double-blinded Alzheimer Disease Cooperative Study lovastatin trial, this study compares changes in platelet APP ratios in 80 AD patients given lovastatin to those of 80 controls at baseline and after 3 and 12 months of lovastatin use. The study also correlates platelet APP changes after 6 and 12 months of lovastatin use with any diminished cognitive losses seen in statin treated patients with ADAScog and other psychometric cognitive data.

A pilot study has been completed in which 25 of 32 AD patients taking statins for 8 weeks revealed a statistically significant normalization as compared with baseline platelet APP ratios [t (31) = -3.783, p < 0.001], with this increase correlating with reduced serum cholesterol [r (30) = -0.484, p = .005].

This study is now determining whether AD platelet APP ratios continue to increase to normal values in a longer trial and whether this biological marker correlates with, or predicts, reduced cognitive loss with less variation than psychometric testing now used to measure clinical efficacy in AD drug trials.

**Contact information**

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