**Introduction**

Interest in nicotinic treatment of Alzheimer’s Disease (AD) developed following recognition of the loss of nicotinic receptors and that short-term administration of nicotine improved cognitive performance in AD.

**Mild Cognitive Impairment (MCI)** may be a better target for nicotinic treatment as patients appear to have preserved nicotinic receptors but AD patients do not. Our lab has recently shown that 6 months of double-blind treatment with transdermal nicotine improves cognitive performance and clinical ratings in patients with MCI. The current study was an open-label extension of that study, to assess tolerability and efficacy of transdermal nicotine treatment for Mild Cognitive Impairment.

**Methods**

We recruited N = 74 male and female non-smokers with a mean age of 75.9 years, all of whom met diagnostic criteria for Amnestic Mild Cognitive Impairment. Of these subjects, N = 67 entered the Open-Label Phase, and N = 60 completed the study.

After enrollment in the study, all subjects were randomized to receive either a daily transdermal nicotine patch (titrated up to 15 mg/day) or placebo patch for the first 6 months of the study, as described in Newhouse et al. 2012.

After completion of the Double-Blind phase, subjects were offered an additional 6 months of experimental treatment with the nicotine patch (Open-Label Phase), resulting in two subject groups: P-N (placebo-nicotine) and N-N, (nicotine-nicotine).

**Safety/Tolerability and Cognitive assessments were performed at Days 0, 91, 182, 273 and 364.**

**Results**

Performance on measures from the CBQ/COMI were compared to Day 0 performance. No significant difference was seen in Spatial Memory; however NYU-PR, CRT and Speed of Memory showed the P-N group performance stabilizing or improving after Day 182. Treatment also appears to maintain performance on the Delayed Word recall task in the N-N group.

**Adverse Events**

The open-label phase of the trial showed that transdermal nicotine has promise as a safe, tolerable treatment option. Cognitive improvement in the P-N group, as well as the continued stability of improvements in the N-N group, during the open-label phase of the trial supports the hypothesis that daily administration of a 15 mg dose of transdermal nicotine can be efficacious as a long-term co-cognitive agent in older adults showing characteristic symptoms of Amnestic Mild Cognitive Impairment.

**Conclusions**