

58th Annual Meeting of the American Academy of Neurology

Abstract Number: 950401

Presenting Author Deborah Barnes, PhD,MPH

Department/Institution: Psychiatry, University of California, San Francisco

Address: 4150 Clement St, MC181G

City/State/Zip/Country: San Francisco, CA, 94121-1545

Phone: 1-415-221-4810 ext 4221 **Fax:** 1-415-750-6641 **E-mail:** barnes@medicine.ucsf.edu

Topic: Aging and Dementia: Clinical

Title: Computer-Based Cognitive Training for Mild Cognitive Impairment: Results from a Pilot Randomized Controlled Trial

Deborah Barnes, San Francisco, CA, Kristine Yaffe, San Francisco, CA, Nataliya Belfor, San Francisco, CA, Bruce Reed, Martinez, CA, William Jagust, Oakland, CA, Charles DeCarli, Sacramento, CA and Joel Kramer, San Francisco, CA.

Objective: To perform a pilot randomized, controlled trial (RCT) of a computer-based cognitive training program in patients with mild cognitive impairment (MCI).

Background: Cognitive stimulation may reduce the risk of cognitive decline and dementia in older adults, but few RCTs have been performed, especially in MCI patients.

Design/Methods: 45 MCI patients were randomly assigned to the intervention (N=22) or control (N=23) group. Both groups worked on the computer in their homes for 100 minutes per day, 5 days/week, for 4-7 weeks. The intervention was designed to improve brain processing of auditory and speech stimuli. The control group read on-line newspapers, listened to audio books, and played a video game. Analyses were based on t-tests of mean change scores comparing intervention and control groups on the primary outcome (Repeatable Battery for Assessment of Neuropsychological Status [RBANS] total score) and 12 secondary outcomes (5 RBANS subcomponent scores and 7 additional standard neuropsychological measures). We hypothesized that the intervention

would improve verbal learning and memory and attention.

Results: At baseline, subjects had a mean age of 75 years, 65% were men and the median (range) MMSE score was 27 (24-30). Demographic and cognitive measures did not differ at baseline. 5 intervention and 4 control subjects dropped out and were excluded. Groups did not differ in mean change \pm SD for RBANS total scores (3.1 \pm 7.1 vs. 0.3 \pm 8.3, $p=0.32$). On RBANS subcomponent scores, there was a suggestion of improved delayed memory in intervention subjects (5.8 \pm 13.8 vs. -2.3 \pm 11.1, $p=0.08$) and improved visuospatial function in control subjects (-1.0 \pm 9.5 vs. 7.6 \pm 15.2, $p=0.07$). Spatial span scores improved significantly in intervention subjects (1.6 \pm 2.9 vs. -0.9 \pm 1.6, $p=0.003$). Other measures did not differ significantly.

Conclusions/Relevance: Computer-based interventions may improve cognitive function in MCI patients. Larger trials are needed.

Study supported by (if applicable): Posit Science Corporation