MedicalXpress

Study finds nicotine patches may help improve memory loss in older adults

January 9 2012

Wearing a nicotine patch may help improve memory loss in older adults with mild cognitive impairment, according to a study published today in *Neurology*, the medical journal of the American Academy of Neurology.

The study looked at individuals with mild cognitive impairment (MCI), the stage between normal aging and dementia when others begin to notice that an individual is developing mild memory or thinking problems. Many older adults with MCI go on to develop Alzheimer's disease.

The study looked at 74 non-smokers with MCI and an average age of 76. Half of the patients were given a nicotine patch of 15 mg a day for six months and half received a placebo. The study was designed so neither the participants nor the investigators knew which group received the nicotine patch.

Paul Newhouse, M.D., professor of Psychiatry and director of the Center for Cognitive Medicine at Vanderbilt University Medical Center, who authored the study, said the results of the study should not be viewed as an endorsement of smoking or of nicotine for normal individuals. "What we and others have shown is that nicotine doesn't do much for memory and attention in the normal population, but it does do something for those whose cognitive function is already impaired."

"People with memory loss should not start smoking or using nicotine patches by themselves because there are harmful effects of smoking and

a medication such as nicotine should only be used with a doctor's supervision," Newhouse said. "But this study provides strong justification for further research into the use of nicotine for people with early signs of memory loss which may help us determine whether benefits persist over long periods of time and provide meaningful improvement."

Newhouse said nicotine is a "fascinating drug with interesting properties." The effects of nicotine are dependent on the initial state of a person's cognitive functioning, he said. "If you're already functioning fine, but slip down the hill, nicotine will push you back up toward the top. A little bit of the drug makes poor performers better. Too much, and it makes them worse again, so there's a range. The key issue is to find the sweet spot where it helps."

The study showed evidence of improvement across multiple cognitive tests for attention memory, speed of processing and consistency of processing. For example, after 6 months of treatment, the nicotine-treated group regained 46 percent of normal performance for age on long-term memory, whereas the placebo group worsened by 26 percent over the same time period. One area that didn't show significant improvement was that of "global impression," which means a health care provider didn't observe the patient was any better or any worse.

Newhouse said that future study is needed. "We need to do a much longer and larger study, to see if we can make a significant impact on the process of change. "

Nicotine stimulates receptors in the brain that are important for thinking and memory and may have neuroprotective effects. People with Alzheimer's disease lose some of those receptors.

Newhouse said the future of nicotinic treatment is to try to identify

earlier stages at which treatment can be applied, to see if it changes the trajectory of those who already have evidence of memory loss. "I don't think it's going to become a treatment for Alzheimer's disease by itself. That would be like trying to rebuild a house after a fire when the fire's still going. You need to prevent the fire. The holy grail would be changing the deterioration curve."

Those in the study group receiving the nicotine patch experienced only minor side effects like nausea and dizziness, similar to what a person would experience when smoking a cigarette for the first time, Newhouse said. Those on the nicotine patch also experienced mild weight loss, not surprising since nicotine is an appetite suppressant. There were also no withdrawal symptoms reported when the study participants stopped using the nicotine patch.

Provided by Vanderbilt University Medical Center