

Smoking associated with more rapid progression of multiple sclerosis

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Patients with multiple sclerosis who smoke appear to experience a more rapid progression of their disease, according to a report in the July issue of *Archives of Neurology*.

Cigarette smokers are at higher risk of developing multiple sclerosis (MS), according to background information in the article. However, the effect of smoking on the progression of MS remains uncertain.

Brian C. Healy, Ph.D., of Brigham and Women's Hospital, Harvard Medical School and Massachusetts General Hospital, Boston, and colleagues studied 1,465 patients with MS who visited a referral center between February 2006 and August 2007. Participants had an average age of 42 and had MS for an average of 9.4 years. Their progression was assessed by clinical characteristics as well as by [magnetic resonance imaging](#) (MRI) over an average of 3.29 years.

A total of 780 (53.2 percent) of the patients had never smoked, 428 (29.2 percent) had smoked in the past and 257 (17.5 percent) were current smokers. During follow-up, seven never-smokers began smoking and 57 current smokers quit. Current smokers had significantly more severe disease at the beginning of the study in terms of scores on disability scales and also in the analysis of MRI factors. Current smokers were also more likely to have primary progressive MS, characterized by a steady decline, rather than relapsing-remitting MS (involving alternating periods of attacks and symptom-free periods).

A group of 891 patients was assessed over time to evaluate the rate of conversion from relapsing-remitting MS to secondary progressive MS (steady decline that develops after a period of relapsing-remitting symptoms). During an average of 3.34 years, 72 patients (20 of 154 smokers, 20 of 237 ex-smokers, and 32 of 500 never-smokers) experienced this progression. "The conversion from relapsing-remitting MS to secondary progressive MS occurred faster in current smokers compared with never-smokers but was similar in ex-smokers and never-smokers," the authors write.

An adverse effect of smoking on the progression of MS would be consistent with previous research, the authors note. Components of cigarette smoke are known to have toxic effects on brain and neural tissue; for example, cyanides, which have been associated with the destruction of nerve cells' myelin coating (a characteristic feature of MS) in animals. "Other chemicals in smoke (e.g., nicotine) can compromise the blood-brain barrier or have immunomodulatory effects," the authors write. "Cigarette smoke increases the frequency and duration of respiratory infections, which have been linked to risk of MS and to the occurrence of MS relapses."

"In conclusion, the results of this large and in part prospective investigation support the hypothesis that cigarette smoking has an adverse effect on progression of MS as measured by clinical and [MRI](#) outcomes," they conclude. "Although causality remains to be proved, these findings suggest that patients with MS who quit smoking may not only reduce their risk of smoking-related diseases but also delay the progression of MS."

More information: Arch Neurol. 2009;66[7]:858-864.

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