Stress management training may help reduce disease activity in multiple sclerosis

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A new study shows that taking part in a stress management program may help people with multiple sclerosis (MS) prevent new disease activity. The study is published in the July 11, 2012, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

A weekly stress management program for patients with multiple sclerosis (M.S.) prevented the development of new brain lesions, a marker of the disease's activity in the brain, according to new Northwestern Medicine research. Brain lesions in M.S. often precede flare-ups of symptoms such as loss of vision or use of limbs or pain.

"This is the first time counseling or psychotherapy has been shown to affect the development of new brain lesions," said David Mohr, principal investigator of the study and professor of preventive medicine at Northwestern University Feinberg School of Medicine. "In M.S., the prevention of new brain lesions is an important marker used to judge how effective medications are."

"The new finding is an important step and the strongest evidence we have to date that stress is involved in M.S.," Mohr added.

The results indicate that stress management therapy may be a useful adjunct treatment with drug therapy for M.S., but a larger clinical trial is needed to confirm this, Mohr said.

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medical journal of the American Academy of Neurology.

Mohr's previous research showed a connection between psychological distress and the development of new brain lesions. Stress is one of many factors, he said, that influence whether the underlying M.S. disease processes escalate to the point of a new lesion or a relapse. Mohr has spent more than a decade studying the link between emotional distress, including a study on depression, and M.S.

For an event to be stressful, a person has to feel it is a threat to something important, and that he or she doesn't have any control over it.

"We taught patients strategies to evaluate how much of a threat something truly is," Mohr said. "When people overestimate the threat of an event or underestimate their ability to manage it, we teach them how to evaluate their own thinking about the stress and how to challenge and change that thinking to a more realistic and helpful appraisal of the actual threat. That often leads to improved ability to manage stressful events."

Patients also were taught how to calm their physical reactions to stress through relaxation and meditation to cope with stressful events that couldn't be avoided.

In the national clinical trial, 121 patients were randomized to receive stress management therapy for M.S. or be in a control group. Those in the therapy group received 16 sessions over a 24-week period during which they were taught coping skills to enhance their ability to prevent stressful events from occurring and to improve their capacity to manage their responses to stressful events that did arise. They also received a 24-week post-treatment follow-up. Two-thirds of the patients were women, who have a higher incidence of M.S.

MRI neuroimaging showed the stress management therapy reduced two types of new brain lesions common in multiple sclerosis.

The first type, gadolinium-enhancing brain lesions, indicates a breakdown of the blood-brain barrier, allowing the immune system access to attack and damage brain cells. Gadolinium is injected into an M.S. patient during the MRI and can be observed passing through the blood-brain barrier, if these types of lesions are present. These lesions may disappear over time or may leave more permanent damage in the brain.

The second type, a T2 brain lesion, is a more global marker of the effect of M.S. on the brain and is a more permanent lesion. These markers are commonly used in evaluating M.S. medications in Phase II trials. If the lesions are decreased, the implication is the drug is working.

Among patients who received stress management therapy, 55 percent had a new gadolinium-enhancing brain lesion during the treatment period, compared to 77 percent of those in the control group. Similarly, 43 percent receiving stress management therapy had a new T2 brain lesion during the treatment period, compared to 70 percent in the control group. The stress reduction prevented new lesions whether or not the patients were taking M.S. disease-modifying medications (e.g., beta-interferons or glatiramer acetate).

But the improvement in brain lesions didn't last after the stress management program ended.

"This suggests that we will need to develop treatments that are more sustainable over longer periods of time," Mohr said. "It's difficult for people to come in for treatment once a week over long periods of time, due both to cost and time constraints. We are looking at telemedicine programs that can be delivered via a computer or a smartphone to people

in their environment at much lower costs than traditional therapy."

The study did not show a statistical difference in the rate of clinical M.S. symptoms, but Mohr said he didn't expect one in such a small number of participants. The outcome goal of this trial was only to see if the stress reduction affected the brain lesions.

While the results are positive, Mohr said, it's premature to make recommendations for patients regarding use of stress management therapy. "I don't want to see patients decide not to take their medication and use this instead," he emphasized.

Provided by American Academy of Neurology

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