**Stem Cells Used to Treat Secondary Progressive Patients in Clinical Trial**

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What may work better than existing drugs to treat severe multiple sclerosis? Stem cells.

A phase 2 clinical study from an international group of research centers compared head-to-head autologous hematopoietic **stem cell transplantation** (AHSCT) and mitoxantrone in treating patients with**secondary progressive** or **relapsing-remitting multiple sclerosis**. The findings showed that MRI-detected brain lesions were reduced by 79% in patients undergoing AHSCT compared to patients treated with mitoxantrone.

“Intense immunosuppression followed by AHSCT is significantly superior to mitoxantrone in reducing MRI activity in severe cases of multiple sclerosis,” wrote the authors. “These results strongly support further phase 3 studies with primary clinical endpoints.” Results appeared in “[Autologous Hematopoietic Stem Cell Transplantation in Multiple Sclerosis](http://www.neurology.org/content/early/2015/02/11/WNL.0000000000001329),” published in the journal [*Neurology*](http://www.neurology.org/).

The trial involved 21 patients with multiple sclerosis whose symptoms were not improving despite treatment with conventional medications. Most needed a cane or crutch to walk at an average age of only 36. All patients initially received an intense round of immunosuppression, as multiple sclerosis is characterized by an immune attack on the central nervous system.

Of the 21 patients, nine had stem cells removed from their bone marrow before immunosuppression. Post-immune suppression, these cells were injected intravenously back into their donors with the hopes of repopulating the bone marrow and generating new immune cells. The other 12 patients were treated with mitoxantrone to further reduce immune system activity.

Disease activity was greatly reduced by AHSCT. “This process appears to reset the immune system,” said lead author Giovanni Mancardi, MD, in a [news release](https://www.aan.com/PressRoom/Home/PressRelease/1340) from the American Academy of Neurology. “With these results, we can speculate that stem cell treatment may profoundly affect the course of the disease.”

Patients who did not receive AHSCT saw greater disease advancement, with an average of eight new lesions compared to 2.5 new lesions, and showed gadolinium-enhancing lesions, while the AHSCT patients showed none. Side effects of AHSCT were as expected and resolved without detriment to the patient.

“More research is needed with larger numbers of patients who are randomized to receive either the stem cell transplant or an approved therapy, but it’s very exciting to see that this treatment may be so superior to a current treatment for people with severe multiple sclerosis that is not responding well to standard treatments,” [said](https://www.aan.com/PressRoom/Home/PressRelease/1340) Dr. Mancardi. Despite the small sample size, the results were significant and no less impressive, giving new hope to patients with secondary progressive multiple sclerosis.