Mesenchymal stem cell-neural progenitors beneficial for multiple sclerosis, study shows

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Select patients with progressive multiple sclerosis (MS) may benefit from mesenchymal stem cell-neural progenitors (MSC-NPs), according to a study published May 23 in *Stem Cell Research & Therapy*.

Violaine K. Harris, Ph.D., from the Tisch Multiple Sclerosis Research Center of New York in New York City, and colleagues conducted a randomized, double-blind trial with a compassionate crossover design at a single site. Participants were stratified according to the baseline Expanded Disability Status Scale (EDSS, 3.0 to 6.5) and disease subtype (secondary or primary progressive MS) and were randomly allocated to treatment (six intrathecal [IT] injections of autologous MSC-NPs) or placebo (saline) every two months (27 in each group).

The researchers found no differences between the MSC-NP and saline groups in the EDSS Plus, defined by improvement in EDSS, timed 25-foot walk (T25FW), or nine-hole peg test (33 and 37%, respectively). A significantly higher percentage of improvement in the T25FW and six-minute walk test was seen in the MSC-NP group than the saline group in an exploratory subgroup analysis involving participants who required assistance for ambulation (EDSS, 6.0 to 6.5).

Improved bladder function and reduced rate of gray matter atrophy on brain magnetic resonance imaging was also seen with IT MSC-NP treatment. Following treatment, there were increased MMP9 and decreased CCL2 levels in the cerebrospinal fluid.

"Our study provides multiple lines of clinical and laboratory evidence that demonstrate efficacy of IT MSC-NP therapy in progressive MS," the authors write. "Future studies employing ambulatory measures as primary end points and investigating optimal dosing of MSC-NPs are needed."

More information: Violaine K. Harris et al, Efficacy of intrathecal mesenchymal stem cell-neural progenitor therapy in progressive MS: results from a phase II, randomized, placebo-controlled clinical trial, *Stem Cell Research & Therapy* (2024). DOI: 10.1186/s13287-024-03765-6