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Poster Presentation

Bone Marrow-Derived Mesenchymal Stem Cells Reduces Neuroinflammation and Splenic Cytolytic CD8+ T Cells in Mice with Experimental Autoimmune Encephalomyelitis

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Abstract

Introduction: Multiple sclerosis (MS) has been recognized as a common neurodegenerative disease that occurs after an Auto reactive T cells against myelin antigens. Demyelination and inflammation are the main features of this disease. The anti-inflammatory and neuroprotective roles of bone marrow-derived mesenchymal stem cells (BM-MSCs) have been considered as a suitable treatment against autoimmune diseases. Previous studies have shown that treatment with BM-MSCs may regulate immune responses and improve the symptoms in experimental autoimmune encephalomyelitis (EAE) mice, an animal model of multiple sclerosis. Therefore, the present study was designed to evaluate immunomodulatory effects of BM-MSCs in the treatment of myelin oligodendrocyte glycoprotein (MOG) 35-55-induced EAE in C57BL/6 mice. **Materials and Methods:** MSCs were obtained from the bone marrow of C57BL mice, cultured with DMEM/F12, and characterized with flow cytometer for the presence of cell-surface markers for BM-MSCs. Following three passages, BM-MSCs were injected intraperitoneally into EAE mice. Immunological responses of the transplantation were evaluated. **Results**: The results demonstrated that BM-MSCs transplantation in EAE mice significantly reduced inflammation infiltration and demyelination, enhanced the immunomodulatory functions, and inhibited progress of neurological impairments compared to control groups. **Conclusion**: This study suggests the potential of BM-MSCs to induce immunomodulatory and anti-inflammatory roles in the treatment of neuroinflammatory disorders.

Keywords: Multiple sclerosis, Stem cells, Neuroinflammation, Cytokine, Neuroprotection

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