Investigating the impact of mesenchymal stem cell-derived exosomes on the treatment of multiple sclerosis.

Abstract : In this study, the effect of mesenchymal stem cells (MSCs) and their derived exosomes on the functional performance of current CD4+ CD25- T cells separated from multiple sclerosis (MS) patients was investigated. Based on existing evidence, the immunomodulatory effects of MSCs are mediated through the release of exosomes in their environment. Therefore, this research focuses on the clinical impact of MSCs and their derived exosomes on enhancing the function and activity of current CD4+ CD25- T cells through a meta-analysis approach. All studies related to this topic were collected and reviewed to study the effect of MSCs and their derived exosomes on the functional performance of current CD4+ CD25- T cells separated from multiple sclerosis patients. Overall, 14 studies were collected, consisting of a total of 268 multiple sclerosis patients. Results showed that the use of MSCs and their derived exosomes led to an improvement in the functional performance of current CD4+ CD25- T cells in multiple sclerosis patients. Additionally, the use of exosomes derived from MSCs also created a considerable improvement in the function of current CD4+ CD25- T cells. Based on the results obtained in this study, it can be concluded that the use of MSCs and their derived exosomes can be an effective solution in improving the functional performance of current CD4+ CD25- T cells in multiple sclerosis patients. However, for reliable results, further research in this area and the implementation of more clinical trials are necessary.

Keyword: Multiple sclerosis (MS), Mesenchymal stem cell, Exosome, Immunomodulation