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Oral Presentation

Modeling of Mesenchymal Stem Cell-Derived Magnetite Nanoparticles for The Rehabilitation of Immune System Function and Reducing Inflammation and Promoting Myelination in the Treatment of MS Disease

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Abstract

By Using the modeling of the mesenchymal (bone marrow) stem cell nanoparticles, the reinstatement of the immune system leads to the treatment of MS, result in the formation of a new immune system for the body by stem cell. The presence of stem cells promotes and strengthens myelination, and that, using simulation and 3D modeling, stem cells can be transmitted correctly to the target and place of injury and the location of inflammation. Using mathematical modeling and magnetic resonance images and 3D simulation of magnetite nanoparticles that carry stem cells and direct its guidance and modeling the new immune system to improve the function of immune cells and protect myelin in nerve cells and reduce inflammation from the modeling model provides a predetermined data that makes the pathway that the stem cell passes through in a patient that results in higher accuracy and ease of work. Modeling shows that stem cell infiltration can be better controlled by nanoparticles, and the presence of mesenchymal stem cells (BMSCs) plays a major role in rebuilding the immune system and reducing inflammation, and the presence of stem cells to generate signals with surrounding cells Being nervous and restoring the immune system reduces inflammation and thus restores myelin in the central nervous system and the spinal cord. Modeling the pathway in which the nano-particle carrying a s tem cell that needs to travel to the site of a damaged lesion in the brain and spinal cord has a pre-designed and planned map that provides better controlled transmission in inflammation. It reduces inflammation and rebuilds the myelin, and its pathway can be seen in MRI images and can be captured at a molecular cellsurface.

Keywords: Magnetite Nanoparticles, Mesenchymal Stem Cells, MS, Modeling

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