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Immunosuppressive effects of mesenchymal stem cells versus corticosteroid in experimental model of arthritis

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Abstract

The objective of this study was to compare between the efficacy of mesenchymal stem cell (MSC) and betamethasone in the treatment of rheumatoid arthritis. 90 male albino mice were divided equally into 2 models as follows: MSC model, group 1: saline control group, group 2: Acetic acid, group 3: CIA, group 4: induced arthritis mice that received intravenous injection of MSCs. Betamethasone model, group 1: phosphate buffer saline, group 2: Acetic acid, group 3: betamethasone control, group 4: CIA, group 5: induced arthritis mice that received intraperitoneal injection of betamethasone. Mice arthritis models were assessed by clinical paw edema and x-rays, at the proper time of sacrefaction, tissues were collected and examined using real-time PCR (RT-PCR), synovial tissue was examined for (IL-10) interleukin-10 (TNFα), tumor necrosis factorα, (COMP)- Cartilage oligomeric matrix protein, (MMP-3) Matrix metalloproteinase3. While (MDA), (LDH), (GSH), (CAT) and (MPO) were determined using colorimetric kits. In addition detection of serum level of (IgG), (RF), (CRP), (ANA) by enzyme-linked immunosorbent assay (ELISA).Also detection of blood (ESR).

Histopathological, paw edema and PCR results showed improvement of the group that received MSC compared to the diseased group and group received betamethasone.

MSC significantly enhance the efficacy of collagen-induced arthritis treatment, which is superior to betamethasone treatment. likely through the modulation of the expression of various cytokines.

Biography

Marwa Elhussiny Younis has completed her BSc. in pharmacy and Pharmaceutical Chemistry, Faculty of Pharmacy, MUST University Grade: Very good with honor MS.C. and Doctor of Philosophy PHD in Pharmaceutical Sciences (Pharmacology and Toxicology) Faculty of Pharmacy, Cairo University, at the age of 33 years from Faculty of Pharmacy, Cairo university. I have published 2 papers in reputed journals and shared in 2nd conference in Faculty of Pharmacy, Cairo University. and looking forward to take my post doctoral studies in stem cells in connection with drugs in many treatments to minimize their adverse effects and increase their benefits as my PhD in immunology and stem cells. And I have ICDL UNESCO tests.