Editorial

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Long term inflammation in rat due to mesenchymal cell

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The variety of chronic diseases caused by chronic inflammation is an unresolved problem in developed countries. In this regard, in modern medicine, there are no adequate, pathogenetic mechanisms of treatment or improving the life quality for people with the so-called "diseases of civilization." This study aimed to investigate the anti-inflammatory and immunomodulatory capacity of mesenchymal stem cells (MSCs) in a rat model of secondary chronic inflammation of λ-carrageenan.

The study was carried out on 132 male Wistar rats weighing 180-200 g, divided into 12 groups. The inflammation model was a chronic aseptic inflammation caused by an intramuscular injection of 10 mg λ-carrageenan (Sigma-Aldrich GmbH)into the right thigh

Our study was carried out following the national "General Ethical Principles for Research on Animals" (Ukraine, 2001), which comply with the provisions of the "European Convention for the Protection of Vertebrate Animals used in Experimental and Other Scientific Purposes." (Strasbourg, 18.03.1986). Also, the Declaration of Helsinki was adopted by the General Assembly of the World Medical Association (1964-2000), the charter of the Ukrainian Association of Bioethics and GLP (1992). We used the minimum acceptable for statistical processing and obtaining reliable results, the conditional number of animals (6 in a group), and the minimum number of experimental groups sufficient for achieving the goal of the study. Animals were sacrificed with inhalation of high concentrations of carbon dioxide (CO2), followed by decapitation. The material for the study was edematous tissue, femoral bone marrow, and peripheral blood.

Levels of α-TNF, IL-6, and CRP in rats were studied

Our study confirmed the effectiveness of MSCs, showing a significant reduction in inflammatory cytokines in the plasma of the studied animals.

Lymphocyte to Monocyte Ratio (LMR)

LMR is an important prognostic marker of endothelial dysfunction and inflammation

Low LMR correlates with worsening recovery and is probably a prognostic criterion for developing diseases associated with chronic inflammation

The higher the LMR, the better the prognosis of survival and recovery in many diseases - cancer, stroke, etc.

LMR in rats was calculated in the same way as in humans. We took the absolute number of lymphocytes and divided them by the total number of monocytes. As a result, we found a positive trend towards longer workouts. On day 21, LMR was significantly higher in the group of animals with chronic inflammation and MSCs.