Treatment of Mesanshimal Stem Cells (MSCs) with Peptidoglycan-LPS as TLR2,4 Agonist Augments Apoptose in Activated T Cells Time Dependently

Elham Darabi*; Nowruz Delirezh; Ahmad Morshedi; Amir Tukmechi; Aram Mokarizadeh

Immunology Faculty of Veterinary Medicine, Urmia University, Urmia, Iran

Ahmad-Morshed@yahoo.comi

Background & Objectives: MSCs can interact with cells of both the innate and adaptive immune systems which leads to the modulation of several effector mechanisms based on ability to moderate T-cell proliferation and function. Other reports mainly focused on the role of TLRs in stem cell proliferation and their potential role in disrupting the differentiation capabilities of the stem cells. In the present study invested the coestimolatory effect of peptidoglycan-lipopolysacarid TLR2,4 agonist on apoptosis induction in activated T cells by mouse mesanchymal stem cell (MSCs).

Methods: MSCs were isolated from bone-marrow of mice and treated with peptidoglycan-LPS (10ng/ml) as TLR2, 4-agonist for different times (1h and 12h). Treated cells were co-cultured with PHA-activated splenic mononuclear cells (MNCs) for 72h at 37 °C in a humidified 5% CO2 . Apoptosis in activated T cells were then measured using Acridin-Orange/PI staining in flow cytometry.

Results: We found that High term exposure (12h) of MSCs to TLR2,4 agonist (peptidoglycan-LPS) con significantly increase of apoptosis in activated T cells in comparison to control group.

Conclusion: Our findings suggested that different exposure terms of MSCs to TLR2/4 agonist, differently affected apoptotic activity of MSCs against activated T cells, so, we concluded that TLR2/4 agonist treated MSCs could utilize for moderating the inflammatory reactions in autoimmune disorders.

Keywords: MSCs; TLR; Apoptosis; T Cell