9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Oral Presentations

O-4

The effect of platelet lysate on mouse ovarian tissue following auto- transplantation: A biochemical analysis

Sanamiri K[1], Soleimani Mehranjani M[1], Shahhoseini M[2], Shariatzadeh S[1].

1.Department of Biology, Faculty of Science, Arak University, Arak, Iran.

2.Department of Genetics, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran.

Email: m-Soleimani@araku.ac.ir

Background: Platelet lysate (PL) has an increasing role in tissue engineering and regenerative medicine. During the early stages of ovarian transplantation, free radical production and inflammation can cause the loss of large numbers of immature follicles. PL as a condensed collection of platelet growth factors and cytokines, is obtained by lysing the platelet through temperature-shock and contains antioxidant and anti-inflammatory factors that are useful for improving ovarian graft survival.

Objective: We investigated the effect of intraperitoneal injection of PL on the transplanted mouse ovarian tissue.

Materials and Methods: 18 Naval Medical Research Institute (NMRI) mice (4-5 wk old) were divided into 3 groups (n = 6): Control, autograft and autograft + PL (5 ml/kg daily intrapritoneal injections). After 7 days, serum concentrations of total antioxidant capacity, malondialdehyde (MDA), tumor necrosis factor alpha (TNF-α), IL-6, and IL-10 were evaluated. Data were analyzed using one-way analysis of variance (ANOVA) and Tukey's test, differences were considered significant at $p < 0.05$.

Results: The serum concentrations of IL-6, TNF-α and MDA increased significantly in the autograft group compared to the control group whereas these parameters reduced significantly in the autograft + PL group. Total antioxidant capacity and the serum level of IL-10 also reduced significantly in the autograft group when compared to the control while it significantly increased in the autograft + PL group.

Conclusion: Our study provides the first evidence that treatment with PL induces protective responses through reducing oxidative stress and inflammation after transplantation of mouse ovarian tissue.

Key words: *Platelet lysate, Ovarian tissue, Transplantation, Oxidative stress, Inflammation.*