PROTECTIVE EFFECTS OF POLYETHYLENEGLYCOL-ADSORBED–SUPEROXIDE DISMUTASE (PEG-SOD) ON OVARIAN TISSUE TRANSPLANTATION

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Objective: Polyethyleneglycol-adsorbed–superoxide dismutase (PEG-SOD), has been proposed as an effective agent for reducing free radical-mediated injury. The objective of this study was to investigate a protective effect of PEG-SOD supplementation on ovarian tissue during transplantation.

Methods: Ovaries from F-1 mice were collected and vitrified. After warming, ovaries were autotransplanted under kidney capsule. Mice were randomly divided into four groups according to dose of PEG-SOD, (0 U/ml, 100 U/ml, 1,000 U/ml and 10,000 U/ml respectively). Grafted ovaries were retrieved 2, 7 and 21 days after transplantation. PEG-SOD was treated by intraperitoneal injection once every 48 hours for one week, and then once every 4 days. Morphology of ovaries was assessed histological analysis and ELISA for FSH was performed to evaluate restoration of ovarian function.

Results: In 2 days groups, morphologically intact follicle ratio was significantly higher in 10,000 U/ml group than other groups. In 7 days groups, morphologically intact follicle ratio increased significantly in all treatment groups. In 21 days groups, there was no significant difference in intact follicle ratio of total follicles among the groups but intact primordial, primary and secondary follicle ratios were higher in 10,000 U/ml group. Serum FSH levels were decrease as time goes on after transplantation, but there was no statistical difference among the groups.

Conclusion: The data of the present study show that PEG-SOD treatment after transplantation has a beneficial effect on preservation of morphologically intact follicle in mouse ovarian tissue graft.