**HYDROCORTISONE CAN IMPROVE THE HISTOMORPHOLOGY OF TRANSPLATED RAT OVARIES THROUGH REDUCING OVARIAN NECROSIS AND INFLAMMATION**

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**ABSTRACT**

**Introduction and Aim:** Inflammation, oxidative stress, and apoptosis are commonly acknowledged as the combined mechanisms that promote ischemic reperfusion sensitivity in transplanted ovaries, leading to organ damage. Therefore, we hypothesized that, HC injection before grafting could improve ovarian tissue from necrosis and inflammation. Therefore, the objective of the present study was to assess prevention of ovarian tissue from necrosis and inflammation after fresh ovary transplantation and evaluate the effectiveness of HC.

**Materials and Methods**: 15 adult female Wistar-Albino rats, which were found to be in the estrus phase by vaginal cytology follow-up, were divided into 3 groups. Group1: (n=5): Abdomen was opened, observed and closed. Group2: (n=5): Left oophorectomy was performed after abdomen was opened. Group3: (n=5): 50 mg/kg/i.p. HC (Group 3, n=5) was applied, before abdomen was opened and left oophorectomy was performed. In histopathological examinations; tissue necrosis and inflammation were evaluated in the preparations. Ordinal scale was created for the histopathological examinations (none=0 points, slightly present=1 point, present= 2 points, markedly present=3 points). Kruskal Wallis variance analysis was employed in the comparison including all groups.

**Results:** The ovarian inflammation and necrosis were found to be highest in transplantation group (p<0.05). The comparison including all groups revealed that tissue necrosis and inflammation were unfavorably affected in HC-treated group.

**Discussion and Conclusion:** The current study has demonstrated that short-term pre-treatment of rats with HC before transplantation could preserve the ovarian function in terms of ovarian tissue histological evaluations. In conclusion, application of HC before fresh whole ovary transplantation was found to be effective in controlling the formation of necrosis and inflammation in ovarian tissue in rats.

**Key Words:** Ovary Transplantation; Hydrocortisone; Inflammation; Necrosis; Histopathology