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P160. Melatonin antiproliferative effects in rats frozen-thawed ovarian autografts: preliminary findings in a scaffold-based delivery

L L DAMOUS (BR) [1], N M BOTELHO (BR) [2], M E SHIROMA (BR) [3], A T SATURI DE CARVALHO (BR) [4], R P MARKUS (BR) [5], J M SOARES-JR (BR) [6], E C BARACAT (BR) [7]

CONTEXT: Ovarian transplantation has been shown to be a promising method of restoring fertility in oncologic patients. Many substances have been used to improve the quality and function of the grafted organ, but melatonin seems to reduce the apoptosis in transplanted ovarian tissue due its properties of action.
OBJECTIVE: To evaluate the effect of melatonin in a gelatin-based GelfoamTm on the frozen-thawed ovarian autograft in rats.
METHODS: The animals were randomized distributed into three study groups (n=10 in each): G1) Control (C), G2) Gelfoam (GF), and G3) Gelfoam+Melatonin (GF+Mel). PARTICIPANTS: Thirty adult females Wistar rats.
INTERVENTIONS: Intact whole frozen-thawed ovaries were implanted in the retroperitoneum, without vascular anastomosis, each on one side of the psoas muscle. Immediately after the transplant, grafts were treated with Vehicle, Gelfoam only or Gelfoam with Melatonin (10-7M in 15?l of vehicle). The grafts were recovered in the 30th post-operative day.
MAIN OUTCOME MEASURES: Histological analyses (follicle and corpora lutea density), fibrosis evaluation (Collagen types I and III) and immunohistochemical staining for endothelial cells (von Willebrand factor), apoptosis (TUNEL) and cellular proliferation (Ki67).
RESULTS: The viable ovarian follicles in several stages of development and intact and apparently functioning copora lutea in all groups. The melatonin promoted an increase in endothelial cells ($p<0.05$, G3 vs. G1 and G2) and reduction of cell proliferation by ki67 in the ovarian follicles ($p<0.05$, G1 vs. G3). The G2 and G3 increased the number of leukocytes in the graft and reduced apoptosis in the corpora lutea ($p<0.05$, G1 vs. G2 and G3). The animals of G2 presented an enhancement in cell proliferation in corpora lutea, this effect was attenuated by melatonin ($p<0.05$, G2 vs. G1 and G3). There were no differences between groups in the quantification of collagens I and III, counts of copora lutea, viable and atresic ovarian follicles, and apoptosis in ovarian follicles between groups.
CONCLUSIONS: The melatonin application in GelfoamTm may ameliorate the viability of frozen-thawed ovarian autograft in rats through increasing the stromal endothelial cells and decreasing the excess of cell proliferation in the ovarian follicles.

[1] FACULDADE DE MEDICINA DA UNIVERSIDADE DE São Paulo, Sao Paulo, [2] FACULDADE DE MEDICINA DA UNIVERSIDADE DE São Paulo, Sao Paulo, [3] FACULDADE DE MEDICINA DA UNIVERSIDADE DE São Paulo, Sao Paulo, [4] Instituto do coração, [5] UNIVERSIDADE DE SAO PAULO, [6] FACULDADE DE MEDICINA DA UNIVERSIDADE DE São Paulo, Sao Paulo, [7] FACULDADE DE

MEDICINA DA UNIVERSIDADE DE São Paulo, Sao Paulo