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Poster Presentations

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Effects of lorazepam on uterus and sex hormones in Balb/C adult female mouse

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Background: Lorazepam is one of the drugs used in the treatment of depression, especially use worldwide among young people. The complications of antidepressant usage such as lorazepam, which is readily available, are due to temporary or permanent infertility.

Objective: In the present study, we investigated the effect of lorazepam on the uterus and sexual hormones of Balb/C adult female mice.

Materials and Methods: Lorazepam (Abidi Company, Iran) was injected intraperitoneally with a fixed dose of 2 mg/kg/bw for Balb/C mature female mice (n = 75). Mice were divided into five groups (n = 15/ each) including control (without injection), sham (physiological serum injection), and Lorazepam injection in at three different times of 5, 10, and 15 days. Next, estradiol and progesterone hormones were measured by Enzyme Linked Fluorescence Assay after serum preparation. Then, uterine samples were prepared and stained with eosin and hematoxylin for histological evaluation. Data were analyzed by SPSS software version 22 and Duncan statistical test and ANOVA method.

Results: Animal weight, the number of primary, secondary, growing, and graph follicles, corpus luteum, the number of open secretory glands and progesterone were significantly decreased with increasing the duration of drug injection in the experimental groups compared to the control group, respectively. But, a significant increase was observed in the number of destructive follicles, folded zona pellucida, the number of close secretory glands, oviduct diameter and estradiol compared to control group ($p < 0.001$). In evaluations related to fertility reversal in experimental groups due to increasing the duration of drug injection, a significant increase in fertility time and a significant decrease in the number of embryos was observed ($p < 0.05$ and $p < 0.001$, respectively). In uterine tissue observations, an increase in uterine diameter (endometrium, myometrium and perimetrium) was evident, but this increase was not statistically significant.

Conclusion: The use of lorazepam for a long time can have damaging effects on the female reproductive system and its use should be informed under medical supervision, especially in young girls.

Key words: *Lorazepam, Uterus, Estradiol, Progesterone, Mice.*