

Original Paper

## Effect of methylphenidate hydrochloride on ovarian and pituitary gonadotropin hormone in peripubertal mice

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### Abstract

**Background and Objective:** Attention deficit hyperactivity disorder (ADHD) is the most common in psychology and Methylphenidate hydrochloride (MPH) is one of the most frequently prescribed pediatric medicine. This study was done to determine the effect of Methylphenidate hydrochloride on ovarian and pituitary gonadotropin hormone in peripubertal mice

**Materials and Methods:** This experimental study was done on 40 prepubertal female mice (BALB/c) with three weeks age and approximate 12-15 gram. The mice were allocated randomly in one control and three experimental groups, designated as I, II and III. Animals in group I, II and III were received by gavage Methylphenidate hydrochloride with 2, 5 and 10 mg/kg body weight for six days, respectively. At the end of experiment body weight, serum estrogen, progesterone and pituitary gonadotropins were measured. Morphometric and histopathological evaluation of ovary were examined. Data were analyzed using SPSS-17, ANOVA and Tukey tests.

**Results:** The body weight and ovary dimensions of animals in experimental groups were reduced significantly in comparison with control ( $P<0.05$ ). Abnormal cells, structural alternations of granules cells and follicular growth abnormality were observed in experimental groups I and III in compare to control group. A significant reduction of estrogen, in group I, progesterone levels in group I and III were observed in comparison with the controls ( $P<0.05$ ).

**Conclusion:** This study showed that the Methylphenidate hydrochloride administration induces the reduction of body weight, ovary dimensions and hormones.

**Keywords:** Methylphenidate hydrochloride, Ovary, Progesterone, Gonadotropins, Mouse

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