

# **The effect of one month of Fasting on the parameters of polycystic ovary syndrome in a mouse model**

Kia M<sup>1</sup>

1. School of Biology, Damghan University, Damghan ,Iran

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder and one of the causes of infertility in reproductive age, and in most cases, it is accompanied by metabolic abnormalities, such as obesity, dyslipidemia, insulin resistance, cardiovascular diseases, and high cholesterol and blood pressure levels. In the present study, the effect of one month of fasting on the PCOS animal model has been investigated.

Female Sprague-Dawley rats were divided into three groups (6 rats per group). The control group had normal nutrition for 16 weeks. PCOS group was fed with high fat diet for 16 weeks; In addition, they received letrozole by gavage for 21 days from the twelfth week. The Fasting group had the same conditions as the PCOS group, except that in the last 4 weeks, they were treated with fasting for 12 hours during the night for 30 days. Then, histology, serology and changes in the expression of inflammatory genes were investigated. The results of this study showed that fasting for one month significantly improves the histopathology of polycystic ovaries, including the increased number of periantral, antral, atretic and cystic follicles, while there was not effective on the expression of inflammatory genes including  $Il1-\beta$  and  $Tnf-\alpha$  in the ovary. In addition, fasting improved serum levels of testosterone, FSH, LH, fasting blood sugar, HOMA-IR and oxidative stress indicators. However, it had no significant effect on some serological parameters such as estradiol, triglyceride, cholesterol and progesterone . One month of Islamic fasting along with a calorie-restricted diet can be clinically evaluated as a suitable therapeutic strategy in patients with PCOS.

**Key words:** polycystic ovary syndrome, high-fat diet, oxidative stress, Fasting