

## **The effect of saffron on serum levels of IL-6, TNF- $\alpha$ , insulin and fat profile in patients with polycystic ovary syndrome**

### **Abstract**

**Background:** Polycystic ovary syndrome (PCOS) is a complex endocrine and metabolic disorder that affects 5 to 10% of women of childbearing age. Several studies on modern therapies to reduce the inflammatory field of the disease using antioxidant treatments and non-pharmacological supplements have been performed.

**Aim:** The aim of this study was to determine the effect of saffron on serum levels of IL-6, TNF- $\alpha$ , insulin and fat profile in patients with polycystic ovary syndrome.

**Materials and Methods:** This interventional study was performed on 50 patients with PCOS referred to the gynecological clinic of Alavi Hospital in Ardabil who met the criteria of polycystic ovary syndrome. Before starting the study and after obtaining the informed consent of all participants, a questionnaire form for patients including name, age, height, weight, and blood sugar was collected for patients and then 5 cc of venous blood samples were taken for IL-6, TNF- $\alpha$ , lipid profile, glucose and insulin analyses. The patients were randomly divided into two groups of 25 in the case group and 25 in the control group. Then the case group was given saffron capsule with a dose of 30 mg daily for 12 weeks and the control group was given a placebo with the same color and time. After 12 weeks, clinical measurements were repeated and the results were statistically analyzed.

**Results:** Based on the results of this study, at the end of the intervention, a significant decrease in BMI and IL6 was observed in the intervention group. Serum HDL levels increased significantly in the saffron intervention group. Serum levels of cholesterol, FBS and insulin did not change significantly. Unlike the saffron group, serum triglyceride and LDL levels were significantly increased in the control group. There wasn't significant changes in the TNF- $\alpha$  between the study groups, but the percentage of changes was significant.

**Conclusion:** Based on the results of this study, saffron consumption in patients with polycystic ovary syndrome can have a positive effect on inflammatory mediators and lipid profile.

**Keywords:** Saffron, IL-6, TNF- $\alpha$ , insulin, lipid profile, polycystic ovary syndrome