ORIGINAL ARTICLE

**Quercetin and polycystic ovary syndrome; inflammation, hormonal parameters and pregnancy outcome: A randomized clinical trial**

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**Abstract**

**Problem**

Women with PCOS have a reduced total antioxidant level in addition to higher oxidative stress. Quercetin is a flavonol-type antioxidant that may be found in many foods. Does quercetin affect inflammatory and hormonal factors and clinical outcomes in PCOS patients?

**Method of Study**

Seventy-two women with PCOS were randomly allocated to one of two intervention groups, and each received a daily dosage of 500 mg of Quercetin for the intervention group or a placebo for the control group for a period of 40 days from the start of the menstrual cycle until the day of ovulation. Serum levels of IL-6, TNF-alpha, LH, FSH, and AMH were measured using ELISA. In addition, oocyte and embryo grade before IVF and pregnancy rate have been examined.

**Results**

LH levels reduce significantly in the quercetin group (4.351.62 at baseline to 3.061.43 after 3 months) (*p* = .029). The results indicated that Quercetin significantly decreased TNF alpha levels in comparison to the pretest (*p* = .008). Following capsule administration, IL-6 levels significantly decreased in the quercetin group (*p* = .001). Except for Δ LH, ΔIL6, and ΔFSH, there was no significant difference in any of the hormones and inflammations parameter changes.

**Conclusion**

Quercetin consumption causes improvement in oocyte and embryo grade and the pregnancy rate in PCOS patients. As a result, regular consumption of Quercetin has been shown to decrease inflammatory and LH parameters, making it beneficial for the management of PCOS and related diseases.