

Original Paper

Effect of dietary wild pistachio oil on serum thyroid hormones, lipids and leptin concentration in experimental hyperthyroidism in male Rat

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Abstract

Background and Objective: Unsaturated fatty acids such as turpentine oil can decrease serum leptin level. In regard to this effect and the key role of thyroid hormones and leptin in metabolism. This study was designed to investigate the impact of dietary wild pistachio oil on serum leptin concentration and its relationship with thyroid hormones in experimental hyperthyroidism in male rat.

Materials and Methods: In this experimental study thirty white Sprague Dawely adult male rats were divided randomly into the five groups with six rats in each. The first group as a natural control I received only ordinary diet and water during the study period. The second group as a control II received ordinary diet in addition to administration of 12mg Sigma levothyroxine in one liter of water daily for one month. Third, fourth and fifth groups with administration of considered dosage of levothyroxine were received respectively 5%, 10% and 20% concentrations of wild pistachio oil for one month. Blood samples were obtained at 10-day intervals. T₄, T₃, fT₄, fT₃ and leptin were measured by RIA and ELISA methods. Serum lipid profiles were measured by enzymatic method.

Results: Thyroidal hormones, lipids and leptin level did not show any statistically significant differences between experimental days in the rats of control group I. The serum concentrations of T₄, T₃, fT₄, fT₃ in third, T₄ in fourth and fifth groups showed significant differences (P<0.05). The serum leptin concentration decreased significantly during the experiment in the third, fourth and fifth groups (P<0.05), but serum lipids did not show any significant differences between various days of experiment.

Conclusion: This study showed that the level of T₄, T₃, fT₄, fT₃ and HDLc / LDLc ratio at 30th day of study in case groups comparing to controls were decreased and increased, respectively.

Keywords: Wild pistachio oil, Leptin, Hyperthyroidism, Thyroid hormones, Serum lipids, Rat

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