

Abstract

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Effects of oral, vaginal, and transdermal hormonal contraception on serum levels of coenzyme q(10), vitamin e, and total antioxidant activity.

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OBJECTIVE: The use of the transdermal contraceptive patch is associated with greater bioavailability of ethinyl estradiol (EE) compared with contraceptive vaginal ring or oral contraceptives (OC). We compared the influences of three contraceptive methods (OC, vaginal ring, and transdermal patch) on serum levels of coenzyme Q(10), alpha-tocopherol, gamma-tocopherol and total antioxidant capacity in premenopausal women.

METHODS: Blood samples from 30 premenopausal women who used hormonal contraception for at least 4 months were collected. Forty subjects who did not use any contraception were studied as control. Serum levels of coenzyme Q(10), alpha-tocopherol and gamma-tocopherol were measured by high-pressure liquid chromatography. Serum samples were also assayed for total antioxidant capacity (TAOC).

RESULTS: Serum levels of coenzyme Q(10) and alpha-tocopherol were found to be significantly lower ($P < .05$) in all three contraceptive users compared with controls. Contraceptive patch users had the lowest levels of coenzyme Q(10) levels compared with normal subjects. Serum TAOC levels were significantly lower ($P < .05$) among the contraceptive user groups.

CONCLUSIONS: Alterations in coenzyme Q(10) and alpha-tocopherol induced by hormonal contraception and the potential effect(s) of exogenous ovarian hormones should be taken into consideration in future antioxidant research.

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