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Effect of α-tocopherol *in ovo* supplementation on chick embryo development

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α-tocopherol (vitamin E) effects on the reproductive processes, participating in the synthesis of sex hormones. Vitamin E is not synthesised by intestinal microflora of birds and its deficiency can disturb of pre- and post- hatch chicken development. However, in the available literature there is lack of data concerning the effect of high dose of α-tocopherol on embryogenesis and endocrine glands in avian species.

In 4th day of incubation (E4) the fertilized chicken eggs were injected with 0, 0.5 and 5 mg/egg of α-tocopherol, dissolved in 50 µl peanut oil. In E14 and E20 the blood samples and gonads, heart and liver were collected from 20 embryos of each group. The organs were weighted and frozen in -80°C to further histological measures while blood samples were centrifuged and blood plasma was stored in -20°C for the determination of testosterone, progesterone and estradiol by RIA.
The results of experiment indicate that α-tocopherol *in ovo* supplementation on the E4 decreased embryo mortality between E4-E6 but increased during hatching period ($P \leq 0.05$). Moreover there was disturbed in sex ratio which ranged as 7 males to 3 females. Simultaneously, supplementation α-tocopherol at a dose of 0.5 and 5 mg per egg decreased about 30% of estradiol concentration in the blood female embryos in E20.

Concluded, *in ovo* supplementation of α-tocopherol can disturb embryogenesis of chicken embryos.