

ABSTRACT

Background: Cigarette smoke consist of several dangerous materials that danger body such as reproductive organ. For example tar, nicotine and carbon monoxide (CO) lead to damage cells, disturb the metabolism of estrogen. Vitamin E is one of the antioxidants that can prevent the stress oxidative, lipid peroksida, free radicals and stop the chain reaction of free radicals.

Method: Experimental design was *post-test only control group design*, conducted on female mice (*Mus musculus*) which were divided into 2 groups. Each group consists of 10 mice (the control group was exposed to smoke without vitamin E supplementation and treatment group was exposed to smoke with vitamin E supplementation). The dependent variable measured in this study was the levels of estrogen. The blood was took from intracardial and estrogen level was measured by ELISA. The data was analysed by using T test. We compared estrogen level of control group and treatment group.

Result: The result of the study showed that the average level of estrogen of the treatment group was $26,11 \pm 1.25$ pg/mL, while in the control group was $24,32 \pm 1.65$ pg/mL. T test analysis for two independent samples showed the result of differences significant ($P=0,013$) that mean there was difference between groups.

Conclusion: The vitamin E can increase estrogen hormone on subject that exposed by cigarette smoke.

Keywords: cigarette smoke, vitamin E, estrogen