

ABSTRACT

THE EFFECT OF VITAMIN E ON SPERM COUNT OF CIGARETTE SMOKE-INDUCED MALE MICE (*Mus musculus* L)

By

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Background: The use of cigarettes as daily consumption is increasing. The number of cigarette consumers in Indonesia rank third in the world after China and India. Global Adult Tobacco Survey Results Survey (GATS) in 2010 showed the prevalence of active male smokers in Indonesia is 67.4%, far greater than women who only 2.7%. The danger of smoking is antique and classic, cigarette smoke causes of various diseases so it is very dangerous for both active and passive smokers. The influence of cigarette smoke may reduce the quality (number, motility and morphology) epididymal spermatozoa and damaging cells of the testes. Production of ROS (Reactive Oxygen Species) will increase with the influence of environmental and lifestyle factors such as smoking. While vitamin E acts as an antioxidant and can protect biological membrane damage caused by free radicals. Vitamin E can neutralize hydroxyl, superoxide, and hydrogen radicals peroxide. The research aims to see whether vitamin E affect sperm count male mice exposed by cigarette smoke.

Methods: The design in this experiment is randomly. The sample of 25 male mice were divided randomly into 5 groups. The first group was fed a standard, group II were given smoke exposure 2 cigarettes/day, whereas group III, IV, and V were given inhaled smoke 2 cigarettes/day and vitamin E with successive doses of 0,4; 0,8 and 1,2 mg /day orally for 35 days.

Results: The mean total number of spermatozoa in group I, II, III, IV and V are respectively 1,42; 2,99; 1,93; 2,32; 2,71 million/ml. Analysis by one-way ANOVA showed a significant difference ($p = 0.000$). The mean percentage of live spermatozoa are respectively 37.1; 94.30; 59.74; 69.90; 83.62 (%) and the mean percentage of dead sperm count is 62.90; 8.56; 40.26; 30.10; 16.38 (%). Analysis Mann Whitney test found a significant difference ($p = 0.008$).

Conclusion: Vitamin E 0,4; 0,8 and 1,2 mg/day body weight can increase the number of spermatozoa of male mice (*Mus musculus* L) were exposed to cigarette smoke.

Key words : smoke exposure, mice, spermatozoa, vitamin E.