

P-1

Vitamin E supplementation affects immunocompetence in mouse

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Many studies suggested that vitamin E as an antioxidant affected the immunity. This study investigated the effect of optimal and overdose of vitamin E administration on splenocyte proliferation in male ICR mouse. Six to seven weeks old animals were divided into three groups and fed on chow diet ad libitum : saline injection for control group and 20 IU vitamin E / kg b.w. and 80 IU vitamin E / kg b.w. for optimal and overdose supplementation group respectively. Vitamin E dissolved in 30% PEG(polyethylene glycol) was intraperitoneally injected daily for 4 weeks everyday.

Mouse splenocyte proliferation against the mitogen stimulation such as Con A, LPS, or PWM of each group was assessed as an index of immunocompetence. Body weight gain, mouse organ weights and spleen weight index were also evaluated. After 4 wks administration of vitamin E, the animals of the optimal supplementation groups showed significantly higher splenocyte proliferation than that in control or overdose supplementation in all of mitogen stimulation such as Con A, LPS or PWM. On the other hand, the overdose supplementation of vitamin E represented lower proliferation response than those of control groups. Difference of body weight gain and mouse organ weights and spleen weight index were not significantly different among groups.

In conclusion, the optimal supplementation of vitamin E may regulate the immunocompetence by enhancing the splenocyte proliferation, whereas overdose of vitamin E administration may impair the splenocyte proliferation.