

**Effect of supplementation of vitamin E & vitamin C on neurotransmitter levels in rats with dementia induced by scopolamine treatment**

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In the present study, the effects of the antioxidant vitamins E and C on the levels of neurotransmitters, acetylcholinesterase activity, and antioxidant enzyme activity in tissues of rats with scopolamine-induced dementia were examined. Forty male Sprague-Dawley rats at age 5 weeks, were divided into five groups after 1 week of adaptation and fed five different diets for 6 weeks: a no-scopolamine group(N-Sc), which was a scopolamine untreated group fed a basal diet only, a scopolamine treated group fed a basal diet (Sc); vitamin E supplemented, scopolamine treated group (VE-Sc); vitamin C supplemented, scopolamine treated group (VC-Sc); and a vitamin E and C supplemented, scopolamine treated group (VCE-Sc). Scopolamine was administered by peritoneal injection(300mg/kg b.w.) three days before sacrifice and again 20 min. prior to sacrifice. Acetylcholinesterase activity was markedly reduced by scopolamine injection. However, supplementation of vitamin E and C in the diet significantly increased acetylcholinesterase activity level up to the level of no scopolamine group. There were no significant differences among the groups for dopamine and norepinephrine in the brain. Vitamin supplemented groups showed the lower TBARS levels than vitamin unsupplemented groups regardless of scopolamine treatment. The activities of SOD, GSH-Px, and GR were higher in the Sc group only than in the N-Sc group. Among the scopolamine treated groups, the antioxidant enzyme activities of the vitamin supplemented groups were significantly lower than in the Sc groups, and reached the levels of the N-Sc group. In conclusion, supplementation with vitamin E and/or C might be useful in keeping the levels of neurotransmitter, peroxides, and antioxidant enzyme activities at normal levels by preventing and delaying peroxidation reactions under the dementic conditions.