

제 목 Effects of Ginseng preparation on the central dopaminergic nervous systems in AF64A-induced amnesic rats.

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The effects of ginseng preparation, Adaptagen^R (AD), on the central dopaminergic nervous system in the learning-impaired rats were studied. The learning impaired rats were rendered by the intracerebroventricular infusion of ethylcholine aziridium (AF64A), 3 nmol/each side. Three days after the infusion of AF64A, AD were orally intubated daily for five days, 200 mg/kg. The control groups were intubated with distilled water. Twenty four hours after the last intubation, The changes in the specific bindings of dopamine receptors, the concentrations of dopamine (DA) and metabolites, The activities of tyrosine hydroxylase (TH) and monoamine oxidase (MAO) were analyzed using receptor radiography, HPLC-ECD and the methods in enzyme-assays, respectively.

After the infusion of AF64A, the specific bindings of D-1 and D-2 in frontal cortex were significantly increased, while those of D-1 in striata were decreased. After the intubation with AD in the AF64A treated rats, the increased specific bindings of D-1 and D-2 in frontal cortex were returned to the control levels, but not in striatum. The concentrations of DA were increased in hippocampus and decreased in frontal cortex after the infusion of AF64A. However the levels of DA were returned to the control levels after the intubation of AD. The ratios of DOPAC/DA were decreased in striatum and hippocampus in the AF64A treated rats, but after AD treatment, those were returned to the control levels only in hippocampus. The activities of TH in frontal cortex and MAO-B in striatum were decreased and increased after the AF64A-treated groups, respectively, while those were recovered by the intubation with AD. These results indicate that ginseng preparations affect the AF64A-induced changes in the central dopaminergic nervous systems. Also these results indicate that ginseng preparations contain the effective components against the learning impairments.