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Effect of Continous Infusion of Domoic Acid on Central Nervous System

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We performed this study to evaluate the neurobehavioral and neurochemical effect of domoic acid exposure in the concentration of maximum sub-symptomatic chronic treatment. To investigate the neurobehavioral effect of chronic domoic acid, 250~300g male Sprague-Dawley rat were exposed to 0 nmole/rat/3days, 1 nmole/rat/3days, 10 nmole/rat/3days domoic acid by intracerebroventricular(i.c.v) administration. Behavioral signs were scored as sum of incidences for convulsion, hind-limb scratching and teeth-chattering for 3 hrs in the rats intracerebroventricularly with domoic acid for 3 days. There was no difference in 1nmole domoic acid treated group and control group, but there was increase in 10nmole treated group compared with that of control. Therefore, concentration of maximum sub-smptomatic chronic treatment determined as 1 nmole/ rat/3 days. For treatment of domoic acid, mini-osmotic pump providing a continuous infusion of domoic acid implanted into the abdominal cavity of each animal. Also, to evaluate the change of glutamatergic system, we experimented on AMPA/NMDA receptor binding assay. There was no difference in 1nmole·10nmole domoic acid treated groups and control group.

Keyword : Domoic acid, AMPA receptor, NMDA receptor, convulsion