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Prevention of epilepsy by taurine treatments in mice experimental model.

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Source

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Abstract

An experimental model based on kainic acid (KA) injections replicates many phenomenological features of human temporal lobe epilepsy, the most common type of epilepsy in adults. Taurine, 2-aminoethanesulfonic acid, present in high concentrations in many invertebrate and vertebrate systems, is believed to serve several important biological functions. In addition, it is believed to have a neuroprotective role against several diseases. In the present study, an experimental mouse model based on taurine pretreatment prior to KA administration has been improved to study whether taurine has a neuroprotective effect against KA-induced behavior and cell damage. Under different treatments tested, taurine's most neuroprotective effects were observed with intraperitoneal taurine injection (150 mg/kg dosage) 12 hr before KA administration. Thus, a reduction in or total absence of seizures, together with a reduction in or even disappearance of cellular and molecular KA-derived effects, was detected in mice pretreated with taurine compared with those treated only with KA. Moreover, the use of tritiated taurine revealed taurine entry into the brain, suggesting possible changes in intracellular:extracellular taurine ratios and the triggering of pathways related to neuroprotective effects.

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