Anticonvulsive Effects of Licofelone on PTZ Induced seizure in mice: A role for NMDA receptors

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Arginine is an endogenous L-arginine metabolite with neuroprotective effects in stress-response system. It exerts anticonvulsant effects against several seizure paradigms. Swim stress induces an anticonvulsant effect by activation of endogenous anti-seizure mechanisms. In this study, we investigated the interaction of agmatine with the anticonvulsant effect of swim stress in mice on pentylentetrazole (PTZ)-induced seizure threshold. Then we studied the involvement of nitric oxide (NO) pathway and endogenous opioid system in that interaction. Swim stress induced an anticonvulsant effect on PTZ seizures which was opioid-independent in shorter than 1 min swim durations and opioid-dependent with longer swims, as were completely reversed by naltrexone (10mg/kg) pretreatment. Agmatine significantly enhanced the anticonvulsant effect of opioid-independent shorter swim stress, in which a combination of sub-threshold swim stress duration (45s) and sub-effective dose of agmatine (1 mg/kg) revealed a significantly higher seizure threshold compared to either one. This effect was significantly reversed by NO synthase inhibitor NG-nitro-L-arginine (L-NAME, 5 mg/kg), suggesting an NO-dependent mechanism, and was unaffected by naltrexone (10mg/kg), proving little role for endogenous opioids in the interaction. Our present data suggests that pretreatment of animals with agmatine acts additively with short swim stress to exert anticonvulsive responses, possibly by mediating NO pathway.

Biography

Taraneh Bahremand has completed his PharmD. at the age of 24 years from Tehran University of Medical Sciences and master of health profession education(MHPE) and public health (MPH) studies from Tehran University of Medical Sciences. She is the medical advisor of supplement drugs in OrchidPharmed Co., a pharmaceutical marketing company. She has published 4 papers in reputed journals.

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