PW01-166 - **AGMATINE ENHANCES THE ANTICONVULSANT EFFECT OF LITHIUM CHLORIDE ON PTZ-INDUCED SEIZURE IN MICE: INVOLVEMENT OF L-ARG-NITRIC OXIDE PATHWAY**

A. Bahremand, **P. Ziai**, T. Kabiri, B. Payandemehr, A.R. Dehpour

Pharmacology, Tehran University of Medical Scince, School of Medicine, Tehran, Iran

For more than 50 years lithium is the vital part in the treatment of mood disorders. In addition to its anti manic and anti depressive effects, lithium also shows some anticonvulsant properties. On the other hand Agmatine has been shown to potentiate the anticonvulsive effect of different antiepileptic agents. While the underlying mechanisms of actions of lithium are not yet exactly understood, using a model of clonic seizure induced by pentylenetetrazole (PTZ) in male NMRI mice, we investigated whether Agmatine can also enhance the anticonvulsant effect of lithium. Acute administration of a single effective dose of lithium chloride (30mg/kg, i.p.) significantly increased the seizure threshold ($p< 0.01$). Moreover, the anticonvulsant effect of a sub effective dose of lithium (10 mg/kg) was significantly potentiated by pre treatment with low and per se non effective dose of Agmatine (3 mg/kg). L-NAME [non-specific NOS inhibitor] (1 and 5 mg/kg), 7-NI [specific nNOS inhibitor] (15 and 30 mg/kg) augmented the anticonvulsant effect of sub effective dose of lithium (10mg/kg i.p.) and Agmatine (1mg/kg) together; Whereas several doses of aminoguanidine [inducible NOS inhibitor] (20 and 40 mg/kg) failed to alter the seizure threshold of the same combination of lithium and Agmatine. On the other hand, pre-treatment with the per se non-effective dose of L-ARG [substrate for nitric oxide synthase] (30 and 60 mg/kg) inhibited the potentiating effect of Agmatine (3mg/kg) on lithium (10 mg/kg). Our findings demonstrated that Agmatine and lithium chloride show synergistic anticonvulsant properties which may be mediated through L-ARG-nitric oxide pathway.

https://doi.org/10.1016/S0924-9338(10)71565-0 Published online by Cambridge University Press