INDIVIDUAL AND COMBINED EFFECTS OF N⁶-CYCLOPENTYLADENOSINE, FLUNARIZINE AND DIAZEPAM ON AMINOPHYLLINE-INDUCED RECURRENT GENERALIZED SEIZURES IN MICE

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Protective effects of antiepileptic agents, N⁶-cyclopentyladenosine (CPA) and flunarizine (FLN) against aminophylline (AMPH) (280 mg/kg)-induced convulsions were tested in different groups of mice. All drugs were administered by intraperitoneal route. CPA (2 mg/kg and 4 mg/kg) delayed the time to onset of clonic convulsions (p < 0.05). The standard drug diazepam (DZP, 2.5 mg/kg) increased the time to onset of clonic and tonic convulsions to a statistically significant extent (p < 0.05 and p < 0.01, respectively). The AMPH-induced mortality (90.9%) was significantly reduced (p < 0.02) following the test antiepileptic – CPA (2 mg/kg and 4 mg/kg), FLN (10 mg/kg) and the combination of CPA with FLN (though not to a significant extent), indicating partial involvement of adenosinergic and calcium related mechanisms, while DZP afforded maximum protection. However, none prevented the mortality in mice over 24 h. The results show the lethal effects of AMPH-induced seizures and involvement of multiple and complex neurotransmitter systems in this process which requires further investigation.

Key words: aminophylline, N⁶-cyclopentyladenosine, flunarizine, diazepam, recurrent generalized seizures, mice