EFFECT OF ANTIDEPRESSANTS ON THE PHOSPHOLIPASE A₂ ACTIVITY IN PLASMA MEMBRANES OF THE RAT BRAIN CORTEX

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The aim of the present study was to establish whether antidepressants (ADs) of potentially different chemical structure and mechanisms of action affected the phospholipase A₂ (PLA₂) activity in plasma membranes of the rat brain cortex. It was decided to evaluate the influence of imipramine (IMI), amitriptyline (AMI), fluvoxamine (FLU), mianserin (MIA) and tianeptine (TIA) on PLA₂ activity after an acute and long-term (4 weeks) drug administration. To study the time-related effects of FLU on PLA₂ activity, animals were treated for 1, 7, 14 and 28 days. The experiments were performed on male Wistar rats. The PLA₂ activity was determined by the method of Strosznajder and Strosznajder as well as Jelsema with slight modifications. It was shown that ADs significantly changed the PLA₂ activity in plasma membranes of the rat brain cortex and the effects depended on the dose, time of administration and the structure of the drug. Tricyclic ADs, both classic (IMI and AMI) as well as atypical (e.g. TIA) inhibited PLA₂ activity. It seems that FLU was the only antidepressant, which induced either inhibition or activation of PLA₂ depending on time of administration. It may be suggested that PLA₂ appears to be a common target for drugs showing quite different mechanisms of action.

Key words: phospholipase A₂, antidepressants, rats, brain cortex, plasma membranes