

Adenosinergic nature of antidepressant-induced antinociception in mice

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The antinociceptive activity of the antidepressant agents imipramine, maprotiline and amitriptyline and their interactions with morphine and aminophylline were evaluated using the acetic acid writhing test of mouse. All the antidepressants induced a dose-dependent antinociceptive activity with a rank of potency was amitriptyline > maprotiline > imipramine. Antinociception was blocked by the pretreatment with 10 mg/kg of aminophylline, suggesting an interaction of these agents with adenosine receptors, which may cause the release of adenosine at neuronal level and depression of neuronal activity by inhibition of neurotransmitter release. Isobolographic analysis demonstrated that the simultaneous administration of imipramine or maprotiline plus morphine (10:1 and 4.5:1 respectively) produced a supra-additive interaction, but the combination of amitriptyline and morphine (1:1) resulted in simple additivity. These effects were not antagonized by 1 or 10 mg/kg of aminophylline. The interacti