CALCIUM CHANNEL ANTAGONISTS ATTENUATE CROSS-SENSITIZATION TO THE LOCOMOTOR EFFECTS OF NICOTINE AND ETHANOL IN MICE

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The present study was focused on evaluation of locomotor cross-sensitization between nicotine and ethanol in mice. First, we demonstrated that, after 5 daily injections, nicotine (0.5 mg/kg, ip) produced sensitization to its own locomotor stimulant effect. Moreover, nicotine-experienced mice manifested an enhanced response to ethanol challenge (2 g/kg, ip) indicating the development of cross-sensitization between nicotine and ethanol in mice. Additionally, the L-type voltage-dependent calcium channel antagonists: verapamil and diltiazem, but not nimodipine, at the dose of 20 mg/kg, injected before the ethanol challenge, blocked the expression of this cross-sensitization. These findings support the hypothesis that similar neural calcium-dependent mechanisms are involved in the sensitization to locomotor stimulant effects of nicotine and ethanol and point to certain differences in acute behavioral effects of various classes of calcium channel inhibitors.

Key words: nicotine, ethanol, sensitization, nimodipine, verapamil, diltiazem, mice

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