

ALDRIN-INDUCED LOCOMOTOR ACTIVITY: POSSIBLE INVOLVEMENT OF THE CENTRAL GABAERGIC-CHOLINERGIC-DOPAMINERGIC INTERACTION

Sk. Jamaluddin, Mrinal K. Poddar[#]

Department of Biochemistry, University of Calcutta, 35, Ballygunge Circular Road, Calcutta-700019, India

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Aldrin (5 mg/kg/day, *po*) under nontolerant condition, administered either for a single day or for 12 consecutive days, enhanced locomotor activity (LA) of rats. The increase in LA was greater in rats treated with aldrin for 12 consecutive days than that observed with a single dose. The aim of the present study is to evaluate the involvement of possible interactions of central GABAergic, cholinergic and dopaminergic systems using their agonist(s) and antagonist(s) in the regulation of LA in aldrin nontolerant rats. Administration of either L-DOPA along with carbidopa or bicuculline potentiated aldrin-induced increase in LA under nontolerant condition as well as LA of the control rats. Treatment with muscimol, haloperidol, atropine or physostigmine all decreased the LA of both aldrin nontolerant and control rats. Further, the application of (a) haloperidol along with bicuculline, atropine or physostigmine and (b) physostigmine along with bicuculline or L-DOPA + carbidopa significantly reduced LA but L-DOPA + carbidopa along with atropine or bicuculline increased LA of the control rats. These agonist(s)/antagonist(s)-induced decrease or increase in LA of the control rats were attenuated or potentiated, respectively, when those agonist(s)/antagonist(s) under abovementioned condition were administered to aldrin nontolerant rats. The attenuating or potentiating effects of aldrin on agonist(s)/antagonist(s) (either individually or in different combinations)-induced change in LA were greater in rats treated with aldrin for 12 consecutive days than that observed with a single-dose aldrin treatment. These results suggest that aldrin, under nontolerant condition, reduces central GABAergic activity and increases LA by activating dopaminergic system *via* inhibition of cholinergic activity. The treatment with aldrin for 12 consecutive days produces greater effect than that caused by a single-day treatment.

Key words: *aldrin, locomotor activity, nontolerant, GABA, choline, dopamine*

[#] *correspondence*; e mail: jamal@cucc.ernet.in