

P6 EFFECTS OF NITRIC OXIDE SYNTHASE INHIBITOR, L-NAME ON LOCOMOTOR ACTIVITY IN STRESS RATS

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ABSTRACT

Nitric oxide (NO) has been known to play an important role in the central nervous system (CNS). In an attempt to investigate the relation between locomotor activity and NO in stress rats, the present experiments employed male Wistar rats at 21 days of age (weaning). In order to induce psychological stress, these rats were reared in social isolation (one rat/cage), and the controls were reared in groups of five rats/cage (social rearing). After five weeks, both socially and isolation reared rats were placed individually into a circular open field arena under bright light condition (500 lux) following systemic administration with either saline or a nitric oxide synthase inhibitor, L-NAME 30 min before a 5 min test. The results showed that under bright light condition, the saline treated isolation reared rats exhibited locomotor hypoactivity (indicated by reduction of total zone transitions) and reared less than the saline treated socially reared rats. Both group of rats spent more time in the outer zone ($P < 0.05$), however, isolation reared rats spent longer time in the inner zone than the socially reared rats. Pretreatment with L-NAME (10 and 25 mg/kg i.p.) produced hypolocomotion in socially reared rats, but had no effect on the isolation reared rats. L-NAME significantly decreased the number of reared and time spent on the inner zone of the circular open field arena in both socially and isolation reared rats, however, these effects were greater in the isolation reared rats. It was concluded that psychological stress in the early stage of life altered the effects of L-NAME on locomotor activity in the adult rats. This abnormality may reflect alteration of NO in the CNS of the