

04 EFFECTS OF NITRIC OXIDE SYNTHASE INHIBITOR, L-NAME ON THE ELEVATED PLUS MAZE BEHAVIOR IN ISOLATION STRESS RATS

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ABSTRACT

Previous studies from our laboratory have demonstrated that social isolation is anxiogenic and may change the effects of many psychotropic drugs (1-4). These effects are generally attributed to "isolation stress". However, there is no report concerning the role of nitric oxide in isolation stress rats. Therefore, the present experiments were designed to investigate the effects of a nitric oxide synthase inhibitor, nitro-L-arginine-methyl ester (L-NAME) on the elevated plus-maze behavior in social isolation stress rats. Male Wistar rats were obtained from weaning (21 days of age) and reared in groups of five or six rats/cage (social rearing) or singly (isolation rearing). After five weeks, each rat was placed individually onto the elevated plus-maze following intraperitonean injection with either saline or L-NAME 30 min before a 5 min test. The results showed that pretreatment with L-NAME (5, 10 and 50 mg/kg i.p.) in isolation reared rats produced a dose-related anxiolytic profile (increase in the percentage of open arm entries and time spent) on the elevated plus-maze. However, the anxiolytic-like property of L-NAME was not observed in socially reared rats. The present results indicate that nitric oxide synthase inhibitor possesses anxiolytic property in social isolation stress rats, and may represent a novel class of therapeutics for anxiety disorders.

Key words: nitric oxide synthase inhibitor, L-NAME, elevated plus maze, isolation stress rats.

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