

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

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Objective: The aim of the present experiments was to compare the effect of midazolam with a nitric oxide synthase inhibitor, L-NAME on the elevated plus-maze behaviors in social isolation stress rats.

Methods: Male Wistar rats were reared from weaning (21 days of age) either alone (isolation rearing) or in groups of five rats/cage (social rearing). After five weeks, each rat was placed individually onto the elevated plus-maze following intraperitonean injection with saline, midazolam or L-NAME 30 min before a 5 min test.

Results: Midazolam (0.5, 1 and 2 mg/kg, i.p.) dose-dependently produced anxiolytic effect on the rat elevated plus maze as indicated by increasing the percentage of open:total arm entries and time spent, in both socially and isolation reared rats. These anxiolytic profiles were greater in isolation than socially reared rats. Pretreatment with L-NAME (5, 10 and 50 mg/kg i.p.) in isolation reared rats also produced a dose-related anxiolytic profiles (increase in the percentage of open arm entries and time spent) on the elevated plus-maze. However, the anxiolytic-like properties of L-NAME were not observed in socially reared rats.

Conclusion: The present results demonstrate that nitric oxide synthase inhibitor, L-NAME possesses weaker anxiolytic effect than midazolam, and social isolation stress rats were more sensitive to the anxiolytic effect of both midazolam and L-NAME.

Keywords: Midazolam, L-NAME, elevated plus-maze, stress rats