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Nitric oxide modulation mediates the protective effect of trazodone in a mouse model of chronic fatigue syndrome

Anil Kumar, Ruchika Garg, Puneet Kumar

Pharmacology Division, University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh, 160014, India

Correspondence: Anil Kumar, e-mail: kumaruips@yahoo.com

Abstract:
The present study was conducted with the aim of elucidating the possible role of nitric oxide (NO) in the neuroprotective effects of trazodone used to treat chronic fatigue syndrome (CFS) in mice. Male albino mice were forced to swim for a six minute session each day for 7 days and the immobility period was recorded every other day. Trazodone (5 mg/kg and 10 mg/kg) was administered each day 30 min before the forced swim test. In addition, L-arginine (100 mg/kg) and L-NAME (5 mg/kg) were administered 15 min before administration of trazodone (5 mg/kg). Various behavioral tests, including locomotor (actophotometer) and anxiety (mirror chamber and plus maze) tests, as well as biochemical parameters (lipid peroxidation, reduced glutathione, catalase, and nitrites) were evaluated on the 8th day. Forced swimming for 7 days caused a chronic fatigue-like condition, anxiety-like behavior, impairments in locomotor activity, and oxidative damage (increased lipid peroxidation and nitrite levels, and depletions in the reduced forms of glutathione and catalase activity) in animals. Pretreatment with L-NAME (5 mg/kg) potentiated the antioxidant effect of trazodone (5 mg/kg). However, L-arginine (100 mg/kg) pretreatment reversed the protective effect of trazodone (5 mg/kg) ($p < 0.05$). The present study suggests the possible involvement of NO signaling in the protective effect of trazodone.

Key words:
anxiety, locomotor activity, oxidative stress, chronic fatigue syndrome, trazodone, L-NAME, L-arginine