SHORT COMMUNICATION

EFFECT OF SILDENAFIL ON ANXIETY IN THE PLUS-MAZE TEST IN MICE

Mehmet Kurt, Sirri S. Bilge, Elif Aksoz, Osman Kukula, Suleyman Celik, Yuksel Kesim

Department of Pharmacology, University of Ondokuz Mayis, Samsun, 55139, Turkey


Several studies have shown a role of nitric oxide/cyclic guanosine monophosphate signaling pathway in the regulation of anxiety. The effects of the phosphodiesterase (PDE) 5 inhibitors on anxiety are not fully understood. The aim of present study was to investigate the possible role of sildenafil, an inhibitor of cyclic GMP-specific phosphodiesterase, on anxiety in the plus-maze test in mice. Sildenafil at a dose of 0.5 mg/kg had no significant effect on the behavior in the plus-maze test but at doses of 1 and 3 mg/kg induced an anxiogenic effect. The combination of sildenafil (1 mg/kg, ip) and methylene blue (1 mg/kg, ip) abolished the anxiogenic-like effect of sildenafil. The combination of sildenafil (1 mg/kg, ip) and L-arginine (50 mg/kg, ip) decreased the percentage of time spent in open arms compared to saline-treated group. Diazepam at a dose of 2 mg/kg significantly increased the percentage of time spent in open arms (p < 0.05). Sildenafil at a dose of 3 mg/kg and the combination of L-arginine (50 mg/kg, ip) and sildenafil (1 mg/kg, ip) significantly decreased the locomotor activity (p < 0.05). These results suggest that a nitric oxide-cGMP pathway seems to play an important role in sildenafil-induced anxiogenic-like effect.

**Key words:** sildenafil, anxiety, methylene blue, cGMP