

Counteraction Effect of Endogenous Serotonin and Cyclic Guanosine Mono Phosphate on the Anxiety Level in Mice

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Abstract

Background and Objectives: Selective serotonin reuptake inhibitors are widely used as anti-depressant but some adverse effects such as anxiety and sexual dysfunction have been reported. On the other hand, the effect of sildenafil, a phosphodiesterase inhibitor, which increase nitric oxide on the anxiety is controversial and there is an interaction between serotonergic systems with NO-cGMP pathway. The aim of this study was to evaluate the synergic effects of co-administration of fluoxetine and sildenafil on anxiety.

Materials and Methods: In this experimental study, investigated on male mice (20-35 g) into control and experimental groups. The experimental groups received fluoxetine (20, 10 and 5 mg/kg), or a combination of fluoxetine (20, 10 and 5 mg/kg) sildenafil (10, 2 and 1 mg/kg) control group saline was injected intraperitoneally (i.p.) fifteen minutes prior placing in the Elevated plus-maze. The time spent in the open arms, number of entries in the open arms and number of total entries into the arms was measured.

Results: Administration of fluoxetine decreased the time spent and number of entries into the open arms. There is no significant difference in those measurable variables in co-administration of fluoxetine and sildenafil compared with control group.

Conclusion: Co-administration of fluoxetine and sildenafil has no therapeutic effect on anxiety. It seems that co-administration of sildenafil decreases the anxiogenic effect of fluoxetine.

Keywords: Serotonin, Nitric oxide, Mice, Anxiety

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