Effect of Antidepressant Drugs on Behavior of Albino Mice in Presence of Antioxidants

Background: Antidepressant are drugs that relieve the symptoms of depression; they were first developed in the 1950s and have been used regularly since then. Antioxidants selenium, vitamin E, and vitamin C are useful in managing of depression and anxiety.

Methods: This study investigated the effects of antidepressants imipramine, fluoxetine, and maprotiline in the presence of antioxidants; selenium, vitamin E, and vitamin C. Sub acute intraperitoneal administration was adopted. The anxiolytic activity using elevated plus maze, locomotor activity using open field, and antidepressant behavior using forced swimming maze were applied.

Aim of the study: To investigate the effects of imipramine, fluoxetine and maprotiline antidepressants in presence of selenium, vitamin E and vitamin C on anxiety, spontaneous motor activity and antidepressant behavior.

Results and Conclusion: Imipramine and vitamin C produced anxiety effect in one experiment; but other antioxidants induce anxiolytic effect in all experiments; while fluoxetine and maprotiline did not induce anxiolytic effect. Imipramine abolished anxiolytic effect of vitamin C and selenium while fluoxetine and maprotiline counteracted the anxiolytic effect of selenium and vitamin E. Imipramine, fluoxetine, and all antioxidants did not induce effect on locomotor activity; while maprotiline induced sedative effect and selenium also vitamin E potentiated this effect. Imipramine, maprotiline, selenium, and vitamin C exhibited antidepressant effect with increasing in climbing action; whereas fluoxetine produced antidepressant effect without effect on climbing action; while vitamin E increased climbing action without antidepressant effect. Imipramine when given with vitamin C counteracted the climbing effect of each other, vitamin E abolished antidepressant effect of imipramine; while imipramine and fluoxetine abolished climbing action of vitamin E. Imipramine or fluoxetine combination with selenium counteracted antidepressant effect of each other. All antioxidants counteracted antidepressant effect of maprotiline; at the same time maprotiline abolished antidepressant effect of selenium and vitamin.