ROLE OF NEUROPEPTIDES IN ANTIDEPRESSANT AND MEMORY IMPROVING EFFECTS OF VENLAFAXINE

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The aim of this study has been to investigate the effects of vasopressin and oxytocin on antidepressive and memory improving effects of venlafaxine. Male Wistar rats weighing 180–200 g were used in the study. Venlafaxine (20 mg/kg) was administered po 30 min before the test once, and for 7 and 14 days in the chronic experiments. Oxytocin (1 µg/kg) ip and vasopressin (1 µg/kg) sc were administered only once on the test day, 60 min before the tests. The animals were subjected to Porsolt’s test for testing antidepressant activity, and their memory functions (working and spatial memory) were evaluated in the maze test and Morris Water Maze test. Antidepressant effects of venlafaxine could be observed already after single drug administration and the effect was maintained during 7 days of drug administration. Oxytocin also exhibited antidepressant activity, and concurrent administration of venlafaxine and oxytocin helped to maintain antidepressant activity of venlafaxine. Vasopressin was devoid of antidepressant action, yet concurrent administration of vasopressin and venlafaxine did not suppress antidepressant activity of the latter. In the chronic experiment, there was no shortening of passive swimming time. Venlafaxine improved memory in the labyrinth test and in the spatial memory test, whereas oxytocin did not affect memory of the tested animals. Joint administration of venlafaxine and oxytocin did not produce memory improving effect observed after administration of venlafaxine only. Vasopressin improved memory and joint administration of venlafaxine and vasopressin maintained the memory improving effect induced by vasopressin.

The regulatory role of neuropeptides and new antidepressant drugs, e.g. venlafaxine in mood status and memory functions may depend on the interactions between monoaminergic and neuropeptidergic systems.

Key words: venlafaxine, oxytocin, vasopressin, behavioral effects, rats