PRELIMINARY COMMUNICATION

SEARCH FOR THE PRESENCE OF GLUCOCORTICOID RECEPTORS IN DOPAMINERGIC NEURONS OF RAT VENTRAL TEGMENAL AREA AND SUBSTANTIA NIGRA

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Using non-fluorescent immunocytochemical double-labelling procedure and specific antibodies visualizing GR (glucocorticoid receptors) and TH (tyrosine hydroxylase) we have been looking for the co-localization of both antigens in neurons of the rat ventral tegmental area and adjacent substantia nigra. This experimental direction has been inspired by the available data showing that alterations in the level of circulating glucocorticosteroids have distinct effects on the intensity of dopaminergic neurotransmission. Thus, it was of interest to find the anatomical background for the above interaction. It has been found that the rat ventral tegmental area and substantia nigra possess a relatively moderate number of cells with active GR, i.e. receptors which are condensed in the nuclei. Further, we found that dopaminergic neurons (TH-positive) of the ventral tegmental area and substantia nigra were not immunopositive for GR. This observation was in the sharp contrast to the results from the locus coeruleus, where the co-localization of GR with TH was a general rule. Above anatomical data indicate that glucocorticoid receptors influence the dopaminergic neurotransmission by an indirect mechanism, which possibly involves intermittent neurotransmitter.

Key words: double-labelling, glucocorticoid receptors, locus coeruleus, substantia nigra, tyrosine hydroxylase, ventral tegmental area

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