In the present studies, catecholamines and indoleamines concentrations were determined simultaneously for a better understanding of the synthesis and degradation of these amines in brain in relation to ovariectomy and steroid hormone treatments.

In the cerebral hemispheres of ovariectomized female rats, oestradiol decreased the tyrosine concentration but progesterone increased the same. DopE, dopamine and norepinephrine were increased by both the steroid hormones. Monoamines acid were not influenced by oestradiol whereas progesterone increased it. Oestradiol and progesterone effects were similar in markedly depleting the 5-HIAA without interfering with the synthesis of ascorbic acid.

In the diencephalon, oestradiol and progesterone stimulated tyrosine conversion and ascorbic acid synthesis and metabolism.

In the cerebellar region the precursors like tyrosine and dopa were increased by oestradiol and progesterone whereas, norepinephrine was not significantly altered by these steroid hormones. Ascorbic acid synthesis was increased but not its metabolism to 5-HIAA, by both the steroids.
In the medial habenula plus zona, octreotide and pregsetonone stimulated the levels of tyrosine, whereas they inhibited its metabolism. Somatostatin synthesis was decreased by these steroid hormones but its degradation was stimulated.

Irrespective of the treatments, the catecholamine synthesis as well as metabolism were inhibited in the hypothalamus and pituitary. Octreotide and pregsetonone inhibited the degradation of somatostatin in the hypothalamus and pituitary. Only octreotide stimulated the synthesis of somatostatin in the hypothalamus, but not pregsetonone.

The compensatory aspect of alterations in biogenic amines due to steroid hormones, in discrete regions of the brain, have been discussed in the light of differences in their functional and reproductive basis.