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Determination of Histamine in the Rat Brain Using a Fluorophotometric Method

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AIM

The objective of the present study was the application of a reliable methodology for the quantitative determination of histamine (1-2), mainly in the hypothalamus, as well as in other parts of the rat brain. The realization of this study was based on the currently limited information regarding the interaction between mast cell-derived and neuronal histamine (3-4) in the brain.

MATERIALS AND METHODS

Male Wistar rats were used throughout the experimental procedures. Immediately after the sacrifice of the animals, various parts of the brain were removed and their histamine content was measured fluorophotometrically, following the extraction of the amine (1-2).

RESULTS

The histamine levels in the rat hypothalamus were found to be 0.4±0.05 ng/mg wet weight (n=12), whilst they were lower in the cortex, the hippocampus and the striatum and much lower in the cerebellum. The histamine levels in the hypothalamus were in good agreement with previously reported data (5). The lower amine levels observed in the rest parts of the brain correlated well with the lower density of histaminergic nerve endings and mast cells in these regions compared to the hypothalamus (3-4).

CONCLUSIONS

In conclusion, the fluorophotometric determination of histamine in the rat brain appeared to be a reliable methodology that could be applied for the quantitative separation of mast cell- *versus* neuron-derived histamine and subsequently for the differentiation between the central and the immunopharmacological role of histamine in the central nervous system.

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