

ANP presence in the hypothalamic suprachiasmatic nucleus of developing rat

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SUMMARY

In previous research, we studied both the oxytocin and vasopressin ontogeny in the hypothalamic supraoptic and paraventricular nuclei, and the ANP-ontogeny in the hypothalamic supraoptic nucleus.

In this paper we evaluate the ANP-ontogeny in the rat hypothalamic suprachiasmatic nucleus; infact the suprachiasmatic nucleus it is known to synthesize vasopressin, a peptidic hormone involved in the homeostasis of the body fluids by an antagonistic role to ANP.

Immunohistochemical techniques show that ANP is present in the hypothalamic suprachiasmatic nucleus of the rat at 18° day of i.u. life and at 0° to 3° day of postnatal life. PCR analysis confirms the ANP-mRNA expression. Thus, it is possible to adfirm that the suprachiasmatic nucleus is a synthesis site of ANP, and ANP appears in both the supraoptic and suprachiasmatic nuclei at the same developmental stage.

Moreover, ANP and vasopressin appear at the same developmental stage since both the peptides are involved in the homeostasis of body fluids.

INTRODUCTION

ANP, BNP and CNP are a family of peptides which play a natriuretic, diuretic and vasodilatative action. ANP was previously found in the rat heart and, in a second time, it was noticed in the heart of different animal species. It was also noticed in other organs such as lung, kidney, adrenal gland etc. Furthermore it was demonstrated that BNP is secreted only by the heart, while ANP and CNP are synthesized by heart, but are present also in some brain areas. Kawata et al. (1985a; 1985b) evidenced ANP presence in rat brain and, particularly, in hypothalamic area and septum. Chriguer et al. (2001) evidenced ANP and CNP presence