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Interaction between atrial natriuretic peptide $(\alpha$ -hANP) and hypothalamic-pituitary function in normal man

G Müller-Esch, W Klingler, J Alt, R Gerzer, R Lawrenz, and PC Scriba. Depts. Medicine and Biochem. Endocrinology, Medical Univ., Lübeck, and Dept. Medicine, Univ. München, FRG

The relation between ANP and the anterior pituitary is poorly understood. We therefore studied 1. the influence of releasing hormone-induced pituitary stimulation on endogenous ANP secretion and 2. the effects of exogenous α -hANP-administration on releasing hormone-induced pituitary secretion.

10 healthy volunteers (5 female, 5 male) were studied twice by means of a combined pituitary function test (Combibiss* Bissendorf, FRG). After an overnight fast and bed rest, 200 μ g TRH, 100 μ g hCRF, 50 μ g GRH and 100 μ g GnRH were either injected at once (protocol 1) or after an α -hANP bolus of 100 μ g followed by an infusion of 0.1 μ g/kg/min over 30 min (protocol 2).

Hormone responses for ACTH, cortisol, GH, LH, FSH and prolactin did not differ for both protocols. α -hANP diminished the TRH-induced TSH-increase (maximum 6.4 \pm 3.0 vs. 11.5 \pm 5.4 μ U/ml (\bar{x} \pm SD, p < 0.001). Serum levels for ANP and cGMP remained constant during protocol 1, whereas cGMP increased from 3.96 \pm 1,34 to 44.53 \pm 10,52 nmol/l in protocol 2.

Conclusions: 1. In normal man, stimulation of the anterior pituitary induced by releasing hormone administration does not influence endogenous ANP-secretion. 2. α -hANP, when given *before* releasing hormone injection, attenuates TRH-induced TSH secretion; all other pituitary hormone responses remain unaltered. 3. cGMP may serve as a marker for α -hANP-actions.

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