The neuroendocrine approach to psychiatric disorders: a critical appraisal

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Summary. Tremendous efforts have been made to exploit the strategy of measuring the secretion of hormones into the plasma by the pituitary as a “window to the brain” and therefore as an insight into potential neurotransmitter receptor lesions in patients with psychiatric disorders. This contribution focuses upon the advantages and drawbacks of the neuroendocrine approach, caution and objectiveness necessary for the critical evaluation and interpretations of the data. Factors related to the neurobiology of the medial basal hypothalamus and its peculiar features, the information that can be derived from the administration of a specific neuroregulatory hormone or a neuroactive compound and evaluation of the evoked hormone release, the multiple constraints related to the drug itself and/or the physiology or coexisting pathology of the psychiatric patient under examination, are thoroughly discussed.

Keywords: Brain neurotransmitters, effects on anterior pituitary hormones, brain neuropeptides, effects on anterior pituitary hormones, neuroendocrine markers, neuroactive drugs, psychiatric disorders.

Introduction

Progress in endocrinology and, more precisely, in neuroendocrinology in the last 15 years has definitely had a more profound influence on biological psychiatry than other disciplines. Awareness that the brain has a fundamental role in the regulation of the endocrine system stems from the discovery, first in the hypothalamus and then extra-hypothalamically of specific neuroregulatory hormones (RHs) able to control anterior pituitary (AP) function and also with neurotransmitter-like activity (neuromodulatory function), followed by the identification and topographical characterization of an increasing number of neurotransmitters responsible for inter-neuronal communication. It is now clear that hypothalamic hypophysiotropic neuropeptides, functionally regulated by
brain neurotransmitters, make the brain the principal endocrine gland (Müller and Nisticò, 1989).

This information enables us to understand how neuroendocrine function and psychiatric disorders are closely linked. It is evident that the same neurotransmitters that regulate the activity of hypophysiotropic peptides are those whose dysfunction is involved in the etiopathogenesis and/or psychopathology of psychiatric disorders, such as primary affective disorders (PAD), anorexia nervosa (AN), schizophrenia and, probably other illnesses (Rose and Sachar, 1980; Brown et al., 1984).