Secretory pattern of GH, TSH, thyroid hormones, ACTH, cortisol, FSH, and LH in patients with fibromyalgia syndrome following systemic injection of the relevant hypothalamic-releasing hormones

Z Rheumatol. 1998;57 Suppl 2:81-7.

Riedel W, Layka H, Neeck G.

To study the hormonal perturbations in FMS patients we injected sixteen FMS patients and seventeen controls a cocktail of the hypothalamic releasing hormones: Corticotropin-releasing hormone (CRH), Thyrotropin-releasing hormone (TRH), Growth hormone-releasing hormone (GHRH), and Luteinizing hormone-releasing hormone (LHRH) and observed the hormonal secretion pattern of the pituitary together with the hormones of the peripheral endocrine glands.

We found in FMS patients elevated basal values of ACTH and cortisol, lowered basal values of insulin-like growth factor I(IGF-I) and of triiodothyronine (T3), elevated basal values of follicle-stimulating hormone (FSH) and lowered basal values of estrogen. Following injection of the four releasing-hormones, we found in FMS patients an augmented response of ACTH, a blunted response of TSH, while the prolactin response was exaggerated. The effects of LHRH stimulation were investigated in six FMS patients and six controls and disclosed a significantly blunted response of LH in FMS.

We explain the deviations of hormonal secretion in FMS patients as being caused by chronic stress, which, after being perceived and processed by the central nervous system (CNS), activates hypothalamic CRH neurons. CRH, on the one hand, activates the pituitary-adrenal axis, but also stimulates at the hypothalamic level somatostatin secretion which, in turn, causes inhibition of GH and TSH at the pituitary level. The suppression of gonadal function may also be attributed to elevated CRH by its ability to inhibit hypothalamic LHRH release, although it could act also directly on the ovary by inhibiting FSH-stimulated estrogen production.

We conclude that the observed pattern of hormonal deviations in FMS patients is a CNS adjustment to chronic pain and stress, constitutes a specific entity of FMS, and is primarily evoked by activated CRH neurons.