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Disturbances In Gonadal Axis In Women With Anorexia Nervosa

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Objective: There is no uniform opinion about the nature of the hormonal disturbances in patients with anorexia nervosa and their relationship with clinical presentation. The objective of the study was to characterize the disturbances in the gonadal axis and their relationship with the body weight, duration of the disease and amenorrhoea in patients with anorexia nervosa.

Design: Prospective study

Materials and Methods: We have assessed serum levels of luteinizing hormone (LH), follicle-stimulating hormone (FSH), sex hormones and sex hormone binding globulin (SHBG) in 40 women with anorexia nervosa, aged 19.1 ± 5.1 years with body mass index (BMI) 15.14 ± 1.80 kg/m² and average degree of weight loss 28.67 ± 8.74%. The duration of the disease was 3-120 months. The basal levels of gonadotropins and their responses to 100 µg gonadotropin-releasing hormone (GnRH) i.v. and 100 mg clomiphene citrate per oral for 5 days were studied. Fifteen healthy age-matched women with normal weight and regular menstrual cycles served as controls.

Results: Statistically significant lower basal gonadotropin levels were found in the patients than the controls (LH: 3.22 ± 0.54 vs. 7.19 ± 0.6, P <0.001; FSH: 3.58 ± 0.4 vs. 4.96 ± 0.34, P <0.05). The responses of LH to GnRH were diminished, but those of FSH were exaggerated. The area under the curve (AUC) of FSH in the anorexics (11.13 ± 7.42 IU/L/min) was higher than in the controls (6.98 ± 1.94 IU/L/min, P <0.05). AUC of LH was lower, but not significant. However, after clomiphene citrate, LH increased 5.4 times in comparison with the basal levels, whereas FSH increased only 1.7 times. The basal concentration of SHBG in the patients (165.27 ± 63.5 nmol/L) was significantly lower than in the controls (96.21 ± 38.04 nmol/L, P <0.01). We observed a significant correlation between the basal levels of LH and the body weight (r = 0.291, P <0.05), BMI (r = 0.377, P <0.02) and percentage of the weight loss (r = -0.288, P <0.05). Similarly, a significant correlation between the basal levels of SHBG and the body weight (r = -0.761, P <0.01), BMI (r = -0.513, P <0.05) and percentage of the weight loss (r = 0.654, P <0.05) were noted. The alterations of FSH were related to the duration of the disease (r =...
0.448, \( P < 0.001 \)) and the amenorrhoea \((r = 0.450, \ P < 0.001)\). 
Conclusion: The results of this study demonstrate dissociation in the gonadotrophic secretion after stimulation with some hypothalamic stimuli in women with anorexia nervosa. It show that the disturbances in the patients gonadal axis correlate directly with the changes in the body weight and with the duration of the disease.
Support: None

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