

A new index for the differential diagnosis of various forms of functional hypothalamic amenorrhea

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Context

Functional hypothalamic amenorrhea (FHA) is amenorrhea, which occurs as a result of eating disorders and energy deficit, excessive physical exercise or psychological stress. However, the identification of the main cause of FHA presents great difficulties.

Objective:

to determine the most useful diagnostic criterion of FHA associated with energy deficiency or disadaptation to stress.

Patient(s): 120 patients with FHA (aged 25,754,16 years, BMI 19,832,41 kg/m²).

Intervention(s):

anthropometric, hormonal (gonadotropins, leptin, prolactin, androgens, estrogens, cortisol, thyroid hormones), psychometric tests. Patients were evaluated using a test for eating disorders and a psychodynamic interview. Fat mass was determined with dual energy X-ray absorptiometry. The study applied a differential index (DI) developed by the authors for all patients.

DI

Results: based on the psychometric investigation, the patients were divided into 2 groups: 56 patients with FHA associated with known stressful events (group 1) and 64 patients with FHA associated with eating disorders (group 2). There were no differences in age, duration of amenorrhea, levels of gonadotropins, estradiol, cortisol, and thyroid hormones ($p > 0.05$). Patients of the Group 2 had higher weight loss, lower BMI, total body fat, lumbar mineral density and less leptin level ($p < 0.05$). The DI was 56.3632.05 in patients of Group 1, and 15.039.66 in patients of Group 2 ($p = 0.0002$). ROC analysis showed that the following parameters were significant for diagnosis of various forms of FHA had a BMI (AUC=0.78 sensitivity=79.66% specificity=64.71%), leptin (AUC=0.85 sensitivity=77.08% specificity=88.67%), total body fat (AUC=0.84 sensitivity=67.27% specificity=93.33%). DI was the most significant test compared to the others (AUC=0.907 sensitivity=85,0% specificity=89.1%). Decrease of the DI below the threshold value (24.18) indicated the presence of FHA associated with energy deficiency, while increase – a stress form of FHA.

Conclusion:

The suggested DI can be considered as a new informative index in the differential diagnosis of various forms of FHA. The authors are going to continue further research to validate the method.

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