Objectives. To elaborate a method of differential diagnostics of Anorexia Nervosa (AN) with diseases associated with underweight and secondary amenorrhea in adolescent girls.

Subject. This study examined the plasma levels of leptin, hypothalamic neuropeptide Y (NPY), with an ELISA in three subject groups of adolescent girls: I - 59 AN diagnosed patients with amenorrhea and body mass index (BMI) = 15,34+1,04; II - 53 patients with amenorrhea and BMI = 15.7+0.6 without AN; control - 20 healthy girls with BMI = 20.3+1.4 (kg/m2). The groups were comparable with respect to age.

Results and discussion. Experimental investigation that leptin, plays a role of the metabolic signal, which regulates hypothalamic - pituitary - ovarian function. NPY is the antagonist of leptin. We observed that patients with AN had 4.3-fold decrease of leptin levels and 1.2-fold decrease of NPY levels as compared to the values in the II group (p<0.05). Hypoleptinaemia in AN patients was accompanied by rather low level NPY that testified to formation of resistance to a low leptin level. NPY level in II group exceeded controls parameters, that alongside with lower leptin values corresponded to normal physiological mechanisms of the control of weight.

Difficulties with AN diagnostics, connected with patients dissimulation, have defined a necessity of an objective estimation of the informative indicators, the change of which in the patients with underweight and amenorrhea is mainly connected with AN. We have suggested a method of differential diagnostics of AN based on the usage of the ROC-analysis. We have determined a \( \text{cutoff} \) of leptin = 5.6 ng/ml, ratio leptin/BMI = 0.38 and Leptin/NPY = 154.2. With values of investigated indicators lower than \( \text{cutoff} \) - the diagnosis proves to be true with high reliability, while on the other hand with values above \( \text{cutoff} \) - the diagnosis AN is rather doubtful.