THE STUDY OF ADIPOSE TISSUE MARKERS IN ADOLESCENT GIRLS WITH OLIGOMENORRHEA AND OBESITY

V. Andreeva, M. Levkovich, A. Mashtalova, V. Linde

Introduction. The objective of our research is the study of the functional state of central and peripheral links of the menstrual cycle regulation, some indices of the lipostate system in girls with obesity and oligomenorrhea.

Materials and methods. We examined the plasma levels of leptin, LH, FSH, ACTH, sex steroids, cortisol, 17OHP, leptin, IL-1ß, TNF-?, monocyte chemoattractant protein-1(MCP-1) with an ELISA in 2 groups of adolescent girls: I - 32 patients with oligomenorrhea and obesity; control - 25 healthy girls with normal weight and regular menstrual cycle. The groups were comparable in age.

Results In group I we determined the increase of Ts - by 1.94 times, ACTH - by 2.4 times, cortisol - by 1.7 times, 17OHP - by 3.8 times and LH/FSH ratio by 2.8 times as compared to the control group, which indicates a hyperandrogenic ovaries dysfunction. It was established that the group I had insulin resistance and statistically significant increase of leptin, IL-1ß, TNF-?, MCP-1 production as compared to the control group.

Conclusion TNF-? and IL-1ß stimulate leptin secretion and are the key molecules in metabolic disturbances related to obesity. The increase of MCP-1 level as a strong chemoattractant for monocytes and activated ?:lymphocytes maintains the process of adipose tissue inflammation. Consequently, in case of obesity products of adipocytes increase the secretion of proinflammatory cytokines and chemokines; it results in the further growth of the inflammatory reaction, development of the insulin resistance and ovarian dysfunction. Thus, a pathologic combination of insulin resistance, hyperandrogenism, leptin resistance and increase of the proinflammatory cytokines in patients with obesity and oligomenorrhea indicates a formation of a «vicious circle» which involves new components with the growth of disease duration.