Objective Study of the immune-endocrine-metabolic disorders in girls with obesity and oligomenorrhea. Materials and methods Group I - 92 patients with oligomenorrhea and obesity. The control - 25 healthy girls with the normal BMI. The groups were completely comparable in age. The content of gonadotropins, ACTH, sex steroids, cortisol, 17-OHP, leptin, IL-1β, TNF-?, MCP-1 was determined in both groups by the ELISA.

Results In group I we determined the hyperandrogenic ovaries dysfunction, insulin resistance and leptin level increase as well as apparent changes of immunity factors in the form of statistically significant increase of IL-1β, TNF-?, MCP-1 production as compared to the control.

Conclusion TNF-? and IL-1β stimulate leptin secretion and are the key molecules in metabolic disturbances related to obesity. Leptin takes part in hormone and immunological homeostasis regulation. 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, which can change the metabolic and secretory activity of adipocytes; 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.