STATE AND PERSPECTIVES FOR THE AROMATASE INHIBITORS USE IN THE METABOLIC SYNDROME THERAPY

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Introduction. Metabolic syndrome (MS) is a set of metabolic-modifying factors that include obesity and increase the risk of type 2 diabetes and cardiovascular pathology development. The risk of cardiovascular disease increases more than two-fold with MS. According to the WHO data, mortal rates from cardiovascular diseases in Ukraine reach 68%. The insulin resistance and obesity development are also observed in MS. In accordance with WHO data for 2014, about 11% of adult men and 15% of adult women were afflicted by MS and abdominal obesity.

Aim. One of the secondary components of MS is an imbalance of sex hormones and their transporter protein, that take part in regulation of glucose and lipids metabolism, control body weight and lipogenesis. Also there is substantial data on the role of abnormal mesenteric aromatase activity in MS and obesity. Consequently, the testing of aromatase inhibitors as a new medicines for the therapy of metabolic syndrome became a focal point of our research.

Materials and methods. The study was carried out on 60 Syrian hamsters at the age of 8 weeks, which were divided in 3 groups by 10 animals of each sex (n=20). MS in animals was recreated using classic for hamsters model based on fructose-enriched (≥60%) diet for 2 weeks. The treatment of animals was carried out by oral administration of anastrozole (Anastrozole-Sandoz, pills, 1 mg) in the dose 0.13 mg/kg for 14 days. Assessment methods: physiological, biochemical, immuno-enzymatic, mathematical statistics.

Results and discussion. Anastrozole administration reduced obese hamster`s total body weight by 7%, visceral fat mass – by 17% in male and female animals. It decreased serum estradiol level by 15% in males, and by 10% in females; increased serum total testosterone level by 18% in males, and by 7% in females. In kinetic studies of mesenteric fat tissue *in vitro* anastrozole decreased aromatase activity in fat homogenate by 26% in animals of both sexes.

Conclusions. The results of our study confirme the advisability of using aromatase inhibitors, particularly Anastrozole, in the therapy of metabolic syndrome. Further study of this therapeutic group drugs and search for relevant doses for efficacy and safety will expand the list of the aromatase inhibitors indication with the treatment of metabolic syndrome and obesity.