Gubina-Vakyulyk G.I., Sorokina I.V., Denisenko S.A.

MICROSCOPIC FEATURES OF THYMUS IN WISTAR RATS AFTER THE LONG-TERM INTAKE OF COLOR ADDITIVE TARTRAZINE (E102)

Kharkiv National Medical University, Kharkiv, Ukraine
svetlanadeni@gmail.com

Food dye tartrazine (E102) is widely used in the food and pharmaceutical industries. Researches have demonstrated the development of metabolic disorders [B. Saxena, 2015] and nephropathies with elements of immune inflammation [G. Gubina-Vakyulyk et al 2017] due to its consumption. The study of immune shifts under the chronic oral administration of tartrazine is of particular interest.

The aim of our research was to study microscopic features of thymus in rats after the long-term tartrazine administration.

Materials and methods. Two-month-old Wistar rats (n=12) received 1 ml of 0.1% tartrazine solution per 100 mg of animal weight firstly daily intragastrically (using a probe) for 6 months and later as a component of diet. Thus, the intake was 7.5 mg / kg of body weight per day [A. Buldakov, 1996]. Rats from the control group (n=10) were kept under the same conditions and received physiological solution instead of tartrazine solution.

Animals were killed by decapitation. Their thymus was used for morphological investigation. Tissue was stained with hematoxylin-eosin and Einarson gallocyanin-chrome alum. Lymphocyte and macrophage morphometry and typing were performed. The "Graph Pad Prism 5" application was used for the statistical analysis.

Results and discussion. Hyperproliferation of the lymphoid component of the thymus with the formation of the so-called follicular hyperplasia was observed in the animals from the experimental group. The epithelial component of the thymus is characterized by a higher morphofunctional activity. The "starry sky" appearance in the cortex, as well as the presence of plasmocytes and plasmablasts in the follicles and perivascular spaces of the medullary area, was found.

The population of immature forms - pre-T-lymphocytes (Thy-1), B-lymphocytes (CD45RA) and macrophages (ED1) significantly increased among the thymocytes against the background of the decreased population of mature CD4 T-helpers and the trend to an increase in the number of CD8-T suppressors.