ALTERATION IN THE REPRODUCTIVE SYSTEM AS A RESULT OF AUTOIMMUNITY IN A MOUSE MODEL OF SYSTEMIC LUPUS ERYTHEMATOSUS

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Aim: Systemic lupus erythematous (SLE) is an example of autoimmune disease manifesting itself in immune cells activation against self-antigens. The devastating aftereffects of the disorder are especially evident among females where symptoms are frequently intensified during reproductive age. On account of this, it is urgent to address the question how SLE can influence female fertility and how hormones trigger disease manifestations. Mouse models of SLE are suitable tools for studying in details the interactions of different systems in the context of the present disease.

Materials and methods: Lupus-like symptoms were induced through intraperitoneal injection of hydrocarbon oil pristane in healthy Balb/C mice. The immune status of the experimental animals was characterized using flow cytometry, ELISpot and ELISA. The oocytes of the corresponding groups were analyzed by fluorescent microscopy based on chromatin, tubulin and actin structures using Hoechst 33258, FITC-labeled alpha-tubulin antibody and rhodamine-labeled phalloidin, respectively.

Results: A single i.p. injection of pristane led to formation of SLE-specific phenotype in mice. The total number of obtained metaphase I oocytes from lupus mice was lower compared to healthy controls. The maturation rate, i.e. the proportion of eggs reaching metaphase II, was also reduced for lupus mice compared to control animals. In addition, oocytes from lupus mice presented specific abnormalities, including long chromosomes, disorganized spindle and missing actin cap.

Conclusions: Based on the observed complications, the model will be further developed and the direct effect of female hormones on disease outcome is to be studied in details.