Annotation

The ratio of regulatory T (Treg) and Th17 cells in peripheral blood is one of the determinants of human immune status. Treg cells are an immunosuppressive subpopulation of helper T lymphocytes. Their main function is to suppress the cells of the immune system, protecting the body from the development of autoimmune diseases. Their main markers are CD3, CD4, CD25, and the transcription factor Foxp3. As for Th17 cells, they are pro-inflammatory cells and also represent a subpopulation of helper T cells. Their main marker is the secretion of interleukin 17. Treg and Th17 cells exhibit opposing actions, and their ratio is disturbed in autoimmune diseases and tumors.

An ovarian cyst is an asymptomatic fluid-filled sac, that is usually discovered during gynecological ultrasound. As ovarian cysts are mostly asymptomatic, the immune status of the body in patients with this pathology has not yet been fully understood. The main goal of this research was to determine the ratio of Treg and Th17 cells in the blood of patients with ovarian cysts. Initially, we submitted all the necessary documentation to the Bioethics Council to ensure compliance with the bioethics norms of the planned research and received a positive conclusion.

The research method employed was immunophenotyping of lymphocytes isolated from peripheral blood by flow cytometry. Three groups of people were included in the study: the first group consisted of patients with ovarian cysts, the second group consisted of patients with ovarian cancer, and the third group consisted of healthy volunteers.

According to our results, the percentage of CD4+CD25+Foxp3+ cells in the blood of women with ovarian cysts, in the pool of CD4+ T lymphocytes, is significantly increased (14.7%±0.4243%, $p<0.0001$) compared to the control group of healthy volunteers (4.72%±0.917). In contrast, the number of these cells in the blood of patients with ovarian cancer is similar to that in the control group. Conversely, when evaluating the number of Th17 cells, we observed no significant difference between the population of peripheral blood CD4+ T lymphocytes in women with ovarian cysts and the control group (1.32±0.2639 and 1.45±354, respectively). However, the number of these cells is reduced in patients with ovarian cancer (0.265±0.31, $P=0.0004$). Consequently, the Treg/Th17 ratio is increased in both studied pathologies compared to the control group. This increase is due to an elevated number of regulatory T cells in individuals with ovarian cysts and a decreased number of Th17 cells in those with ovarian cancer.

In conclusion, the results of our research clearly highlight the need for further investigations in this direction. The Treg/Th17 index may acquire prognostic value in various ovarian diseases.