THE RELATIONSHIP BETWEEN MISSED ABORTION AND ENDOMETRITIS AND THE EFFECTIVENESS OF PREGRAVID PREPARATION

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Background. Missed abortion remains one of the leading causes of early reproductive loss and continues to be an important medical and social problem in modern obstetric and gynecological practice. According to the World Health Organization, a significant proportion of spontaneous pregnancy losses in early gestation is associated with impaired implantation and early embryogenesis. In recent years, chronic endometritis has attracted considerable attention as one of the major pathogenetic factors contributing to missed abortion. Persistent inflammatory changes in the endometrium are accompanied by impaired endometrial receptivity, microcirculatory disorders, cytokine imbalance, hormonal dysregulation, and disturbances in the microbiological status of the reproductive tract. Chronic inflammation negatively affects trophoblast invasion, chorionic development, and proper implantation of the fertilized ovum, significantly increasing the risk of recurrent reproductive failure. Therefore, the development of effective pregravid rehabilitation methods aimed at restoring the functional state of the endometrium is of great clinical importance.

Objective. To investigate the relationship between missed abortion and chronic endometritis and to evaluate the effectiveness of vaginal ozone therapy as part of комплексной pregravid rehabilitation in women with a history of reproductive loss.

Materials and methods. The study was conducted at the Khorezm branch of the republican specialized scientific and practical medical center for mother and child during 2025–2026. A total of 96 women of reproductive age with a history of missed abortion were included in the study. Depending on the treatment modality, the patients were divided into three clinical groups. The first group consisted of 32 women with chronic endometritis after missed abortion who received standard anti-inflammatory and hormonal therapy. The second group included 34 patients with similar pathology who, in addition to standard treatment, underwent comprehensive pregravid rehabilitation with vaginal ozone therapy. The third group consisted of 30 practically healthy women with physiological pregnancies who served as the comparison group. All participants underwent comprehensive clinical and anamnestic evaluation, pelvic ultrasonography with assessment of endometrial thickness, and hormonal profiling including prolactin, progesterone, estrogens, thyroid-stimulating hormone, and anti-Müllerian hormone levels. Immunological evaluation included determination of IL-6 and anti-hCG antibody levels. Vaginal and cervical microbiota were assessed using Femaflor analysis, bacteriological culture, and PCR diagnostics.

Results. The study demonstrated that the majority of women with missed abortion had pronounced manifestations of chronic endometritis associated with complex hormonal, immunological, and microbiological disturbances. Women in the first and second groups showed significantly decreased progesterone levels, altered estrogen-prolactin balance, and elevated IL-6 concentrations, indicating

persistent inflammatory activity in the endometrium. Increased anti-hCG antibody activity was also detected, confirming the involvement of autoimmune mechanisms in implantation failure. Microbiological examination most frequently identified Gardnerella vaginalis, Ureaplasma spp., Mycoplasma hominis, and Candida spp., which were associated with chronic endometrial inflammation and reduced endometrial receptivity. Following treatment, positive clinical and laboratory dynamics were observed in both groups; however, the most pronounced improvement was noted in patients receiving vaginal ozone therapy. Women in the second group demonstrated faster restoration of endometrial structure, normalization of hormonal parameters, and reduction of IL-6 levels. Normalization of vaginal and cervical microbiota was achieved in 88.2% of patients receiving ozone therapy, compared to 58.1% in the standard treatment group. During the 6-month follow-up period, repeated pregnancy occurred in 79.4% of women treated with ozone therapy, whereas in the control group this rate was 55.6%.

Conclusions. Chronic endometritis is one of the major factors contributing to the development of missed abortion and is associated with significant hormonal, immunological, and microbiological disturbances. The inclusion of vaginal ozone therapy in комплекс pregravid rehabilitation promotes restoration of endometrial functional activity, normalization of the reproductive tract microbiota, and improvement of reproductive outcomes. The obtained results confirm the high clinical effectiveness of comprehensive rehabilitation in women with a history of missed abortion.