

Tissue and molecular effects of the cavitated solution in the endometrial receptivity rehabilitation of patients with the uterine infertility

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aim. Evaluate the efficiency of granulocyte colony-stimulating factor (G-CSF) cavitated low-frequency sonication in restoring endometrial receptivity in patients with uterine infertility. **Material and methods.** 92 women with uterine infertility due to endometrial hypoplasia were examined in the dynamics of therapy including irrigation of the uterine cavity with cavitated low-frequency ultrasound drug solutions. The control group consisted of 28 healthy fertile women. A histological and immunohistochemical study of the endometrium was performed on the LH+7, before the start of therapy and in the next cycle after the end of treatment.

Results: After treatment, 62 (67.39%) women with infertility in the endometrial specimens had adequate vascularization of the stroma (before treatment, 36.95%, $p=0.017$, in control 78.57%), in 68 (73.91%) women - a decrease in the density of the stromal matrix, in 64 (69.56%) - mature pinopodia were determined (initially 28.26%, $p=0.0015$). After therapy, the ratio of ER α /PR expression in the stroma of the implantation endometrium was normalized, which was characterized by the prevalence of the PR pool (1.01 ± 0.34 before treatment, 0.36 ± 0.03 after therapy, $p=0.040$, in control 0.34 ± 0.06 , $p>0.05$). The parameters of stromal expression of natural uterine killers against the background of treatment in patients with infertility come in accordance with the indices of healthy fertile women (from 35.21 ± 2.14 to 45.75 ± 3.18 cells l/s; in the control 47.8 ± 2.13 cells in l/s; $p>0.05$). The expression level of CD34 in the endometrial stroma after the treatment was significantly increased (20.88 ± 0.77 versus 33.83 ± 3.63 cells in l/s, $p=0.035$).

Conclusion. The use of G-CSF cavitation solutions for irrigation of the uterine cavity appears to be effective in restoring endometrial receptivity in patients with uterine infertility due to endometrial hypoplasia.

Key words: uterine infertility, endometrial hypoplasia, cavitation irrigation of uterine cavity, granulocyte colony-stimulating factor

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