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Treatment methods for endometriomas and their effect on ovarian reserve

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Introduction. Endometriosis is a dyshormonal gynecological disease characterized by the presence of epithelial and stromal tissues of the uterus outside the uterine cavity [1]. The most common localization for endometriosis are the ovaries [2]. 17-44% of endometriosis occurs as endometriotic cysts or endometriomas [3]. Long-term ovarian endometriosis leads to persistent inflammation that leads to fibrosis of the ovarian cortex and loss of follicles [4]. This suggests that the detrimental effect of endometriosis on the ovarian tissue, and thereby on the ovarian reserve, lasts the same amount of time, which jeopardizes the reproductive plans of women of fertile age with reproductive plans. Today, surgical treatment of endometriomas, in particular, laparoscopic excision of these cysts is the main method of treatment [5,6,]. However, excision of the endometrial cyst capsule with the use of electrosurgical hemostasis leads to a decrease in the laboratory indicator of the ovarian reserve [7,8,9].

The aim of our work was to compare efficacy and safety of treatment of endometriotic ovarian cysts using conventional laparoscopy with electrosurgery, sclerotherapy under ultrasound control and our proposed method of sclerotherapy with PRP (platelet-rich-plasma).

Materials and methods: We examined and treated 50 patients of fertile age (33.57 ± 0.72 years) with endometriotic ovarian cysts and infertility as part of a prospective comparative study. 33 (66%) of them had primary, 17 (34%) secondary infertility. The other causes of infertility were exclusion criteria in the study. Before the operation and 3, 6 months after the operation, the state of the ovarian reserve (OR) was assessed with antimullerian hormone (AMH) on the 3rd day of the menstrual cycle and the number of antral follicles (AFC) using sonography.

Also, all patients before intervention were examined for specific biochemical tumor markers (CA-125, HE4) and sonography using the IOTA algorithm.

Patients were randomised into 3 groups according to the treatment method: I - conventional laparoscopy with stripping and minimal use of bipolar coagulation, n = 20 (40%); II - transvaginal sclerotherapy under ultrasound control, n = 15 (30%); III - transvaginal sclerotherapy under the control of ultrasound and using PRP-therapy, n = 15 (30%). Special vacuum tubes A-PLASMA ™ were used for PRP-therapy (according to manufacturer instructions). Statistical analysis was carried out using Microsoft Excel. In all statistical analysis procedures, the critical significance level was $p \leq 0.05$.

Results. Ovarian reserve indicators before surgery in groups: AFC (I - 10.2 ± 1.1; II - 9.9 ± 1.4, III - 9.8 ± 1.45), AMH (I - 3.1 ± 0.82; II - 3.4 ± 0.54, III - 3.9 ± 0.57 ng / ml). 3 months after treatment, AFC (I - 5.9 ± 0.9; II - 7.9 ± 1.2, III - 9.9 ± 1.3), AMH (I - 1.5 ± 0.82 ; II - 3.1 ± 0.42, III - 3.9 ± 0.51 ng / ml). After 6 months, AFC (I - 7.1 ± 0.8; II - 8.8 ± 1.1, III - 11.8 ± 0.6), AMH (I - 1.7 ± 0.82; II - 3.1 ± 0.54, III - 3.9 ± 0.57 ng / ml). The worst indicators of OR were in the group in which laparoscopy was used with stripping of the ovarian endometrioma and coagulation of the ovarian tissue. OR indicators in sclerotherapy have changed less. The best result, even an improvement in AFC, was in the group where sclerotherapy with PRP therapy was used.

Conclusions

The use of sclerotherapy for endometriotic cysts in infertile women provides more opportunities to maintain an ovarian reserve, in comparison with the classical laparoscopic stripping of endometrioma. Additional use PRP-therapy improves the ovarian reserve and makes it possible to maintain greater fertility in women with ovarian endometrioma. Further studies are needed to obtain stronger evidence.

Sclerotherapy under the control of sonography: 1) before sclerotherapy, 2) during sclerotherapy, 3) after sclerotherapy

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