

INFLUENCE OF DIFFERENT METHODS OF OPERATIVE TREATMENT ON OVARIAN RESERVE

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ABSTRACT

This research paper presents the results of ovarian reserve estimation for 125 women with the Polycystic Ovary Syndrome (PCOS) who have undergone various methods of surgical treatment - resection of the ovaries, thermokauterisation and drilling by laser (Ho-Yag). Ovarian reserve was estimated according to the amount of antral follicles, level of follitropin and Müllerian inhibiting substance (MIS), also named anti-Müllerian hormone (AMH). Blood flow in ovarian tissue was also examined after various methods of surgical treatment. The study has shown that the gentlest method of surgical treatment is drilling by Ho-Yag laser, which is least likely to injure the tissue of ovaries, and also this method is most effective in enhancing and preserving ovarian reserve.

UDC CODE & KEYWORDS

■ UDC: 618 ■ Polycystic Ovarian Syndrome (PCOS) ■ Surgical Treatment ■ Ho -Yag Laser ■

INTRODUCTION

A lot of patients with PCOS have insufficient ovarian reserve which is necessary to be estimated before surgical treatment and realization of additional therapeutic correction before application of surgical interference (Simrok V.V. et al., 2010; Knochenhauer E.S., 1998). Such tactics further on allowed avoiding exhaustion of ovaries due to surgical trauma. The functional state of ovaries is violated depending upon the volume of surgical intervention, depth of penetration and degree of damaging factors all that influence parafunction of the endocrine system as a whole. Questions about the rational variant of ovary tissue cutting technique and using of electric energy and energy of laser radiation for operations on ovaries are still being debated (Grishenko V. I. et al., 2000; Heylen S.M. et al., 1994).

The objective of our research is estimation of ovarian reserve as an index of reproductive health in women with PCOS after application of different types of surgical interference with the use of thermal energy.

Materials and Methods: We inspected 125 patients with PCOS ageing from 21 up to 42 years. The women were divided into 3 groups: the 1st group included 45 patients who underwent wedge-shape resection of ovaries (WRO), the 2nd group included 41 women who were operated by thermal cauterization of ovaries (TCO) and the 3rd group - 39 women who were operated with Ho-Yag laser drilling of ovaries (LDO). The ovarian reserve was assessed by ultrasound scanning (ESAOTE TECHNOS with detector 5-7 MHz) before operation and after operation in 1st, 3rd, 6th and 12th months. We determined the volume of ovary, studied its echostructure, estimated curves of circulation (systolic speed, index of peripheral vascular resistance, index of pulsation). The zones of vascularization of ovary were also studied.

PCOS was diagnosed on the basis of characteristic clinical data and transvaginal ultrasonic scanning according to the resolution accepted in Rotterdam (Trampolskaya A.V., 2003). Moreover the ovarian reserve was assessed in operated women by ultrasound investigation (antral follicles were counted, measurements of ovarian volume were conducted), as well as the levels of MIS and follitropin (FSH) were also assessed.

Results and discussion: The conducted research has allowed to establish that in 6 months in 13 patients of the 1st group the average number of antral follicles amounted 8-10, which is a little low, in 9 patients - 11-14, which was estimated as moderately normal, in 7 patients — 15-26, which is normal. Eight patients showed insufficient number of follicles (4-7), and 8 patients had fewer than 4, which is extremely low.

The second group demonstrated a little better results - normal number of antral follicles was observed in 9 patients, slightly lower in 14 patients, moderately normal in 10 women and more than 26 antral follicles were seen in 8 patients, which was estimated as normal. The third group of patients showed better data: 11 women had normal numbers, 12 — moderately normal, 6 — suppressed number. The research conducted showed that ovaries in the third group could be more accurately visualized. 35 women of this group had active ovarian circulation of blood, 2 women had it to a moderate degree. In the second group out of 41 patients only 19 had active ovarian circulation, 7 had moderate degree and 15 — low-grade. The index was different in the first group: 15 women had active ovarian circulation of blood, 5 — moderately normal and 25 woman had suppressed number index.

The first group has shown dimension of ovarian tissue twice as less as the third group, and one and half as less as the second group. During a research of intraovarian blood circulation we have identified that patients of the first and the second groups had insufficient blood perfusion of dominant follicle, insufficiency blood circulation to ovaries with depression of systolic speed, and index of peripheral vascular resistance 1/2 the third group after one month of operative treatment. Our research has established that as a result of the operative treatment the level of AMH increased in all experimental groups but positive correlation with presence of antral follicles and negative one with level of FSH was inspected. Only in the third group and in the second group the index of AMH was low and almost didn't change it in the first group. The first and second groups of patients demonstrated slow decrease of FSH than the third group. In consequence of our research we have

established that the ovarian reserve was determined more high in the group of patients after Ho-Yag laser drilling of ovaries as compared with 1st and 2nd groups.

Conclusions

1. The research carried out showed that not always operative treatment improves the functional state of ovaries. That is why it is necessary to assess ovarian reserve after operative treatment to determine the need of additional therapeutic treatment, as well as estimating reproductive life of women.
2. The data received also give evidence of laser drilling application, and also indicate the advantage of laser drilling as the most efficient and attenuated method of surgical intervention on ovaries.

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