

Sex Steroid Receptors in the Myometrium in Cesarean Section

V. I. Krasnopol'skii, N. D. Gasparyan, E. N. Kareva,
E. V. Solov'eva, L. S. Logutova, I. P. Laricheva,
A. V. Tumanov, and T. S. Tsurikova

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The levels of estradiol and progesterone receptors in the myometrium of 19 patients subjected to planned cesarean section were studied. Nine of these patients had competent cicatrices on the uterus, which was confirmed by preoperative studies and during the operation. For comparison, the myometrium of patients at the same terms of gestation subjected to planned abdominal delivery without history of cesarean section was examined. No significant differences were revealed in estradiol and progesterone reception in the myometria of parturients with and without competent cicatrices on the uterus.

Key Words: cesarean section; estradiol and progesterone receptors; myometrium

A higher incidence of cesarean sections in recent years is explained by extension of indications for this operation, among which relative indications for fetal interests predominate [1,4].

Abdominal delivery must be absolutely safe for the mother, i. e., complications during and after the operation and in subsequent pregnancies and deliveries must be ruled out. Nevertheless, even an excellently performed cesarean section, like any other abdominal operation, involves the probability of numerous complications (wound infection, adhesions, etc.). The risk of abdominal delivery for the fetus consists in the probability of delayed neurological disorders. Therefore, any possibility for delivery *per vias naturalis* should be used.

At present, one of the main indications for cesarean section is a cicatrix on the uterus after a previous intervention [2]. However, if an incompetent cicatrix on the uterus is an absolute indication for repeated cesarean section, vaginal delivery is permissible in cases with full-value cicatrices. Hence, the development of new criteria for assessing the cicatrix competence in addition to those used at

present (a totality of anamnestic, clinical, and echo-graphic data) is an important task [5]. The mode of delivery is determined by the competence of the cicatrix on the uterus. Effect of previous cesarean section on the main parameters of the reproductive system remains not clear. Female sex hormones regulate the course of gestation and delivery. Progesterone (P_4) modulates the oxytocin receptor affinity in the myometrium [7,8,10], the role of estradiol (E_2) is confirmed by a drastic increase in the mRNA-RE concentration in the myometrium during spontaneous labor [9,12]. Comparative study of the hormone and receptor status of pregnant women with and without cicatrices on the uterus helped adequately assess the probability of spontaneous delivery in a patient with a history of cesarean section.

MATERIALS AND METHODS

Plasma levels of E_2 and P_4 and content of their receptors (RE₂ and RP₄, respectively) in the myometrium were studied in 19 patients with cicatrices on the uterus and without a history of cesarean section subjected to planned abdominal delivery at 38-40 weeks. The main group consisted of 9 partu-

Moscow Regional Institute of Obstetrics and Gynecology; Russian State Medical University, Moscow

Table 1. Plasma Levels of E_2 and P_4 in Women with and without Cicatrices on the Uterus Subjected to Planned Cesarean Section ($M \pm m$)

Hormone	Plasma content in women, % of control	
	without cicatrix	with cicatrix
E_2	104.0 \pm 5.1	105.0 \pm 2.4
P_4	114.0 \pm 17.3	84.0 \pm 18.2

Table 2. Levels of RE_2 and RP_4 in Myometrium of Women with and without Cicatrices on the Uterus Subjected to Planned Cesarean Section ($M \pm m$)

Receptor	Content of receptors in myometrium, fmol/mg protein	
	without cicatrix	with cicatrix
RE_2	4.8 \pm 0.1	4.5 \pm 0.4
RP_4	8.5 \pm 0.7	5.6 \pm 0.4
RE_2/RP_4	0.6 \pm 0.1	0.8 \pm 0.2

rients aged 20-33 years with cicatrices on the uterus after cesarean section. The cicatrix competence in this group was confirmed by clinical and ultrasonic examinations and later during the operation. The course of pregnancy was uneventful in 2 patients, in 1 pregnancy was complicated by threatened abortion in the third trimester, in 2 by anemia, and in 2 by late gestosis. Indications for repeated abdominal delivery were unprepared natural route in 5, a history of ante- and postnatal fetal death in 3, and high myopia with atrophic changes in the fundus oculi in 2 cases. A competent cicatrix on the uterus was not an indication for abdominal delivery.

Control group (without cicatrices on the uterus) consisted of 12 primiparous women aged 22-38 years, 8 of these were old for the first delivery. Pregnancy was uneventful only in 3 patients, the rest had threatened abortions (6 cases) and anemia during the second-third trimesters (3 cases). Cesarean section was resorted because of high myopia with atrophy of the fundus oculi (2 cases), congenital diseases of the bone system (1 case), tumors in the brain and spleen (2 cases) and congenital heart disease with pulmonary artery stenosis (1 case). Other 6 patients (old for first delivery) were operated on because of ineffective preparation to labor.

Blood plasma and myometrium specimens were obtained during planned operations in women with and without cicatrices on the uterus at similar terms of gestation.

E_2 and P_4 in the blood plasma obtained during surgery were radioimmunoassayed using standard kits. RE_2 and RP_4 in the uterine tissue cytosol were detected routinely [3] using $^3H-E_2$ (146 Ci/mmol) and $^3H-P_4$ (96 Ci/mmol, Amersham).

Results were processed by standard statistical methods. Significance of differences between the groups was assessed by Student's test at $p \leq 0.5$.

RESULTS

Plasma contents of sex steroids and the levels of their receptors in the myometrium of pregnant women with and without cicatrices on the uterus subjected to cesarean section are summarized in Tables 1 and 2. There are no significant differences in the plasma content of E_2 and P_4 in the two groups, which agrees with previous data [1,2]. Receptor profiles of female sex steroids in the myometrium of pregnant women with and without uteral cicatrices are virtually the same. The myometrial RE_2/RP_4 ratio in the two groups corresponds to that in women with planned full-term delivery [11].

The absence of significant differences in the levels of RE_2 and RP_4 in the myometrium of pregnant women with and without cicatrices can serve as an additional argument that the presence of a competent cicatrix on the uterus is not a contraindication for spontaneous delivery.

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